HOW TO MAKE A BUCK ON THE INTERNET
By Kevin Werbach

The Internet is awash in money. Skyrocketing IPOs make billionaires overnight; companies such as Amazon.com reach billion-dollar revenue run rates in less than five years and every week some research house releases a new jaw-dropping statistic on the size of the digital economy. Yet so far money has transformed the Net far more than the Net has transformed money. It’s a supreme irony that technologies designed to supplant paper with digital bits have created so much “paper wealth.”

Recently, a new wave of online currency startups has emerged. Unlike the unsuccessful efforts of the past, these companies hope to back into a global digital private currency by focusing on more limited applications they believe will appeal to consumers. In so doing, however, they raise fascinating questions about what constitutes money, and how to create it from scratch.

In the paleolithic days of the commercial Internet, circa 1995, conventional wisdom was that for e-commerce to take off, new payments mechanisms would be required (see Release 1.0, 1-95). Consumers were unlikely to trust their credit cards to the mysterious public Internet, and even if they did, credit-card processing mechanisms weren’t designed for electronic commerce.

In particular, overheads of credit-card clearing mechanisms were too high to allow for the small-value transactions prevalent in the cash economy, or the even smaller micro-transactions many felt would come to dominate for digital goods. Companies such as Cybercash, Digicash and First Virtual Holdings launched frontal assaults on the entrenched credit-card industry...and were soundly rebuffed.

It turned out that credit cards paired with SSL encryption were good enough for large numbers of consumers to begin purchasing online, even without micropayments. Smart card trials, which allowed consumers to carry digital cash around...
with them on secure debit cards, similarly failed to generate much interest from merchants or consumers in the US (though smart cards have had greater success in Europe, and the US government has issued 150,000 smart cards through a pilot program at military bases).

In the intervening years, several companies including Cha! and QPass have created more lightweight online micropayments systems.¹ Cybercash has refocused on its Instabuy digital wallet,² where it has numerous competitors including EntryPoint, Brodia and Microsoft (using the Passport technology it acquired with Firefly, see Release 1.0, 2-98). These server-based wallet systems promise to ease consumer e-commerce transactions, by eliminating the need to re-type personal information each time, without supplanting the all-powerful Visa, Mastercard and American Express.

**Online currency, version 2.0**

At the same time as the second-generation Internet payments enablers have emerged, often with great fanfare, another set of companies has taken up the more fundamental challenge of creating digital currency.

Existing micropayments systems and digital wallets both sit on top of established payment vehicles such as credit cards, which in turn sit on top of currencies such as dollars, zloty and yen (see box on page 4). These tools make it easier to shift money expressed in those currencies between parties, much as back-end online payments processors such as GlobelD and Cybersource do on the merchants' side of the transaction. But at the end of the chain, value still resides in established paper currencies held in banks.

Existing currencies have their limitations, and those limitations create opportunities to build a better mousetrap online. Beenz.com, Flooz.com, Oakington, e-gold and Confinity all say they've learned from the failures of the past. Each, however, has a slightly different perspective on these failures, and on what it will now take to jumpstart the market. Some aren't even technically independent currencies, but if they succeed in gaining enough users they may wind up in a similar place.

**The value of e-money**

What's wrong with good old-fashioned cash and credit cards? One major limitation of any system built on existing currencies is that those currencies are generally national in scope. Currencies can be exchanged for one another, but the overheads of the process, and the risk of exchange rate fluctuations, greatly limits the value of these currencies as foundations for global transactions. On the Net, all commerce can reach a global audience, which suggests the need for a global currency. Credit cards, which have sufficed so far in the US, are less common in Europe and Asia, which also have more severe currency conversion headaches due to the proximity of borders.

¹ We featured one of them, Cha's 1ClickCharge, as a debutante at this year's PC Forum (see Release 1.0, 3-99). Last month CMGi acquired majority ownership of Cha.

² Competitor First Virtual transformed itself into MessageMedia and has successfully refocused on online marketing.
The previous generation of digital cash startups were motivated by the notion that the economics of credit-card clearing, and the implications for privacy and security, didn’t measure up on the Net. Credit-card processors typically charge percentage fees on each transaction, and new Internet-based systems promised to drastically cut those fees by reducing underlying costs. The fee structures of credit cards also effectively preclude use of credit cards for small purchases.

There are also classes of customers, principally teenagers, who spend large sums of money in the aggregate but generally don’t have credit cards or even checking accounts. In the physical world, cash fills in those holes where credit cards aren’t viable, so electronic cash seemed the obvious answer for online transactions. Those small-value-transaction markets haven’t emerged to a sufficient extent to support new forms of currency. Consumers may not be ready for the novel and complex phenomena of micropayments. Other elements for such systems to be effective, such as rights-management regimes to protect digital goods, aren’t yet widespread.

In the interim, a profusion of companies, including RocketCash, DoughNet, Cybermoola, Mon-e.com and Spendcash.com have sprung up in recent months to solve the teenager problem with prepaid physical cash cards that can be used to shop online. IPin bills e-commerce transactions to Internet access or other utility accounts, rather than a credit-card statement. American Express recently announced its Blue card, which has a built-in security chip verified through card-swipe peripherals customers attach to their PCs. UTM Systems offers a similar client-side hardware verification process analogous to an ATM. All of these, however, are mechanisms for spending traditional cash and rely on established banks and credit-card clearing networks on the back end.

Some digital cash solutions, such as Digicash’s eCash, had the added value (or danger, from the government perspective) of supporting anonymous transactions. When you spend paper money, there’s no way -- short of fingerprints or marking the bills -- to trace a particular sum of cash back to you. With credit cards and checks, by contrast, there’s a built-in electronic trail linking the transaction to your account, and your account to you.

Using special cryptographic techniques patented by founder David Chaum, Digicash was able to create anonymous digital cash that became traceable only when a user fraudulently attempted to spend the same digital “coins” more than once. Digicash launched trials of its system in both the US and Europe, but never achieved critical mass. The company declared bankruptcy in November 1998.3

The hidden benefits of credit cards

Credit cards have turned out to be more resilient than expected, partly because they provide real benefits for merchants and consumers alike that digital currencies have so far failed to match. Ease-of-use and famil-

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3 eCash Technologies acquired Digicash’s technology in mid-August, and Chaum himself is planning a new digital cash effort. It’s likely, therefore, that Digicash will rise again in some form.
Show me the money

In formal terms, “money” an abstract concept describing any means of communicating value. (Esther explains the nature of money in more detail on page 10.) Value is ultimately in the eye of the beholder, but, communicating that value between individuals requires some level of consensus. If Al loves fruitcake but Ethel hates it, he won’t be able to give it to her as a form of payment...unless there enough other fruitcake lovers out there for Ethel to recirculate it to.

“Currency” is any concrete manifestation of money. If everyone agrees on the value of a fruitcake, it becomes a currency. That’s essentially how gold, which has the natural advantage of scarcity, became the predominant means for exchanging value in the ancient world.

Governments can use their authority and credibility to establish currencies of accepted value within their borders, and can force their citizens to accept certain forms of currency by designating them as “legal tender.” However, governments have little or no control over activities outside their borders, which necessitates and interface between different government currencies. For some time gold served as this interface. Since the demise of the gold standard, most currencies have floated against each other in foreign exchange markets.

Many different financial instruments fall within the definition of currency, or could if they were circulated more widely. Some, such as cashier’s checks or stock certificates, are linked to specific owners, while “bearer instruments” such as dollar bills belong to whoever possesses them. All bearer and some non-bearer instruments are “negotiable,” meaning they can be transferred from person to person.

“Electronic currency” is somewhat redundant, because physical currencies can be and often are transferred electronically. Almost 90 percent of the total volume of payments in the United States, though denominated in dollars, takes place by wire transfer. Wholesale transfers between banks and other institutions are almost always electronic, and with the growth of debit cards electronic transfers represent an increasing share of consumer transactions as well.

There are, however, important differences between traditional currencies and the new online currencies we describe in this issue. “Online currency,” as we use the term, means an instrument that is manifested only in electronic form, is privately created, transcends governmental borders and can be cleared outside the regulated banking system.

The “book entry” procedures of banks are responsible for much of the overhead on traditional currencies. Transactions are cleared through a byzantine series of offsetting obligations that Internet Bearer Underwriting Corporation founder Robert Hettinga calls the financial “ziggurat.” Credit cards are simply accounts for keeping track of and lending existing currency, so they are subject to high transaction costs. By denominating accounts in Flooz or eBits, then if needed converting back to traditional currencies after transactions clear, the companies in this issue circumvent these inefficiencies.
arity are part of the equation, but not all of it. One major benefit of credit cards to consumers is that they are a form of credit (as are so-called "charge cards" such as Amex). You can spend more than you have available in your account, and though you may be charged high interest rates, many consumers prefer that to no spending power at all. And those interest payments are themselves a benefit to the card issuers.

A second aspect of credit cards is the float. Since consumers settle their credit cards monthly, the issuing bank is effectively loaning them money until the end of the month, and that loan is interest-free for up to 30 days if the customers pay their balance in full. In contrast, with digital cash and stored-value platforms such as smart cards, customers must deposit money in their account beforehand to cover any purchases they make. The payments provider therefore gets the benefit of the float.

Finally, credit card transactions have a low degree of finality. In the US, thanks to government regulations, credit-card customers are subject to a maximum $50 exposure for theft or fraud by a third party. Customers can also generally refuse to pay a credit-card debt if they have a dispute with a merchant. New online currencies without such rules allow merchants to shift more of the transaction risk to customers, which is good for merchants but an inhibitor to consumer adoption.

Given these features, new electronic payment or currency mechanisms must either mimic the benefits of credit cards, or must provide some countervailing advantages to persuade consumers to shift.

FROM LOYALTY PROGRAMS TO STEALTH CURRENCIES?

While online currencies haven't yet taken off, other informal forms of payment have grown rapidly on the Net. These have generally been pitched as loyalty programs or rewards issued by online merchants, similar to airline frequent-flyer miles. Leading players include MyPoints, Netcentives, Webstakes and Cybergold, all of which are either newly public or in registration for IPOs.

These loyalty programs, while successful, are inherently limited. Because they reward customers with frequent-flyer miles or with points that are redeemable only against a limited number of products, they are effectively closed systems rather than true generally accepted currencies.4

From a business standpoint, this actually benefits the loyalty-program providers and participating merchants, because it limits the value of the rewards and therefore the percentage of users who will redeem them. Fewer redemptions means lower costs for the program; so long as users feel they are getting something valuable and behave accordingly, merchants are happy.

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4 Cybergold pays users in traditional cash, rather than even attempting to create a new currency form. See Release 1.0, 3-92 for Michael Goldhaber's views on the "attention society."
If a loyalty program gave users something they could redeem virtually anywhere, it would effectively become an online currency. That’s the approach that startup Beenz.com has taken.

Beenz.com was founded by CTO Charles Cohen, a British Web marketing and strategy consultant. “The problem that he initially designed beenz around solving was that consumers had too many loyalty schemes, airline mileage cards and hotel reward systems,” says CEO Philip Letts. “Consumers were becoming increasingly frustrated.” Cohen believed that as these loyalty programs became more fragmented, their value to customers decreased. The solution was to design a universal alternative, with credits redeemable with any merchant. And thanks to the Net, this new system could be global and updated in real time. Cohen labeled his creation beenz; by November 1998 he had a functional platform.

Letts joined in late 1998 from systems management vendor Corecharge, and set out to take Beenz.com to the next level. Rather than simply serving as an über-loyalty program, Letts believed, beenz could become a full-fledged liquid global private currency. That meant creating something highly liquid that consumers viewed as genuinely comparable to money, and could earn and spend easily to obtain a wide variety of products.

“Our whole business model is about Websites being able to adopt the beenz currency instantaneously, with virtually no IT costs,” explains Letts. There are currently over 175,000 consumers trading beenz worldwide, and Beenz.com has launched an aggressive branding effort to raise awareness.

Beenz.com (the company) sells beenz (the currency) to participating merchants at a rate of 100 per US dollar, meaning that although beenz are worth the same amount worldwide, the exchange rate against other currencies floats along with the dollar. Merchants (which Beenz.com calls traders) can then offer beenz from their account to their consumers, or can accept beenz in exchange for products. To preclude “anonymous transfers” of currency, which are restricted to government-minted legal tender, Beenz.com doesn’t allow consumers to trade beenz with each other. Even merchant “traders” may exchange beenz only with Beenz.com itself, not with each other.

On a technology level, Beenz.com maintains an Oracle database that tracks all beenz in circulation and manages merchant offers. Transactions on the client end are mostly handled through Java applets served on demand from Beenz.com’s data center. Merchants need only insert a line of code on their sites to request the Java applet, which opens a connection and manages the transaction according to the terms of the merchant offer stored on the central Beenz.com server. Beenz.com has partnered with Oracle, Sun and Exodus to create back-end systems capable of handling the potential demand.

Letts says that, after a nearly yearlong filing process, “we have the right to trade our currency globally,” to use the trademark “the Web’s currency” and to employ a unique currency symbol analogous to a dollar or pound sign. Striving to become a currency also means Beenz.com has to win users’ trust. In August, one of Beenz.com’s merchants mistakenly
offered consumers 100,000 beenz instead of 50, forcing Beenz.com to cancel the unauthorized currency. Letts says most users understood the snafu was similar to a bank mistakenly crediting a large sum of money to a checking account, then correcting its error. The new version of the beenz platform launched last month has safeguards to prevent a recurrence, including manual confirmation of all offers over 1000 beenz.

Beenz.com is betting that the path to a successful online currency is to combine payments with promotions. For consumers, Letts argues, beenz are as easy to spend as cash in the physical world. Merchants can use beenz to pass value back to customers in return for taking some action the merchant desires, such as coming to a Website, registering, or viewing a product offering. Beenz.com currently has 200 merchants in its network, including Excite’s UK portal; Letts says Excite intends to roll beenz out across the rest of its site in the future.

Beenz.com recently moved its headquarters from London to New York, though it maintains a presence in the UK, and it has also opened offices in Japan and Australia.

Flooz.com: an offer you can’t re-Flooz?

New York-based startup Flooz.com calls itself the Web’s first “gift currency.” Chief floozer Robert Levitan, a founder of women’s content site iVillage, started Flooz.com last year with president Spencer Waxman and cto Dermot McCormack. The company currently has about 45 employees and recently closed $16.5 million in venture funding from Oak, Brentwood, Maveron and Venture Strategy Partners.

Flooz is a specialized currency designed for gift-giving. Users register and place money in a Flooz account with a credit card, then e-mail as much Flooz as they wish to friends, relatives or anyone else they wish. The recipients can redeem their Flooz at any merchant in the Flooz.com network, unlike a traditional gift certificate which is usable only at a single site. Flooz.com currently has 36 merchant partners, including Fogdog Sports, Tower Records, MotherNature.com, Garden.com and Godiva.

“A networked society enables us to create new ways of giving, and in particular new ways of gift-giving,” says Levitan. Because it isn’t tied to a single store, Flooz frees gift-givers from uncertainty about whether they have selected something the recipient will want (especially appealing to the busy professionals Flooz.com targets). Several people can also deposit Flooz into a recipient’s account, or the recipients can add Flooz to spend themselves or to send to others. The system can support a variety of ancillary services around gift-giving, such as online greeting cards, thank you notes and reminders.

Levitan believes online currency efforts have failed because they haven’t given users a compelling benefit. “It’s about the applications,” he explains. “To me, gift-giving is a great application to drive a new currency.” Gift-giving involves the transfer of value from one person to another, where the circumstances of the transfer itself are as important as the ultimate redemption of the currency for goods. Credit cards are

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5 Disclosure: Kevin Werbach’s wife Johanna is an employee of Flooz.com.
designed for consumer interactions with businesses, rather than person-to-person transactions.

Levitan draws an analogy to ATMs, which originally worked only with a single bank. Over time, regional and then national and international electronic funds exchange networks made it possible for customers to withdraw cash from virtually any ATM in the world, regardless of the identity of their bank.

Levitan wants Flooz.com to become the network that brings together merchants into one universal gift-providing network. Merchants will still offer their own specialized gift certificates, but Flooz.com will provide them with a supplemental customer channel. Levitan says that, while the average e-commerce site spends $33 to acquire a customer, Flooz.com's charges to merchants work out to only $3 to $4 per customer it generates. Whereas roughly one percent of all visitors to e-commerce sites make a purchase, visitors with Flooz buy at a rate of about 10 percent.

For now Flooz.com is a partner to credit-card companies; after all, its customers must use a credit card to load Flooz into their accounts. Ultimately, though, Levitan sees Flooz as another standard button on online merchants' check-out pages, next to Visa, Mastercard and American Express. Similar to credit cards, Flooz.com pays merchants on a periodic basis for Flooz redeemed on their sites, minus a commission.

Flooz.com currently has 80,000 users, though Levitan expects up to 500,000 by the end of the year, following an aggressive online/offline promotional campaign featuring Whoopi Goldberg. It faces competition from several online gift-certificate startups including Giftspot.com and Giftcertificates.com, though none share the currency aspects of Flooz.

Confinity: beaming for dollars

One limitation of credit cards is that they aren't very efficient for person-to-person exchanges. Every credit-card transaction must go through the expensive clearing process, generally requiring a merchant bank on one end. Checks and cash, as negotiable instruments, can be traded directly between individuals, but neither is digital.

With more and more people carrying PDAs, smart cell phones and other personal Internet appliances around with them (see Release 1.0, 4-99), it's not a large jump to imagine these devices as digital wallets.

That's the vision of Confinity, a startup headquartered in Palo Alto, CA, that plans to launch a technology this fall for beaming currency between smart devices. Users of Confinity's PayPal service will add money to an account using a credit card, and will then be able to download that stored value to a PDA or data-capable wireless phone, in effect creating smart devices instead of smart cards. Confinity will also allow users without such devices to send money through e-mail.

Confinity raised $5 million in first-round funding this summer from Nokia, Deutsche Bank and angels including cryptography expert Martin Hellman and Bill Melton, founder of Verifone and Cybercash.

Release 1.0 18 October 1999
NEW TWISTS ON NEW MONEY

While Beenz.com and Flooz.com hope to build support for online currencies indirectly, several other companies are developing new systems that compete more directly with cash and credit cards. Many are in the early stages, including digital bearer settlements expert Robert Hettinga's Internet Bearer Underwriting Corporation as well as First eCache, which plans to reverse-engineer Digicash's techniques as the basis for untraceable offshore financial transfers outside the control of governments. Others are more fully realized.

Oakington: If you can't beat them....

Any online currency effort must decide how to walk the line between appeasing governments (and potentially limiting the effectiveness of its currency) and offering anonymous, untraceable transactions (likely to bring government scrutiny). Peter Dawe founded Pipex, one of the largest British ISPs, and sold it to UUNet in 1995. Dawe also helped establish Internet Watch, a voluntary ISP industry effort in Britain to identify illegal or "harmful" online content (see Release 1.0, 5-98). So he's no stranger to the challenges the Internet poses for policy-makers.

Dawe's latest effort, Oakington Corporation plc, plans to launch an ambitious global online currency. From the beginning, Oakington has been designed to be government-friendly, in contrast to Digicash and other efforts that strive to create anonymous online currencies outside the control of governments. Oakington's backers hope to convince forward-thinking governments that the issue is not whether digital currencies will exist, but what those digital currencies look like.

Director James Milner identifies four primary benefits of Oakington's product, compared to credit cards: lower transaction costs, global availability, immediate clearing of transactions and better security. Oakington's coin-based system will use a novel security mechanism that doesn't depend on conventional encryption techniques; company executives are tight-lipped about the details as they seek patent protection.

Oakington's eBits may not themselves be legal tender, but they will be convertible into virtually any physical currency or any other liquid asset. Users can even hold multiple currencies, such as beenz and pounds sterling, in the same digital purse. Miller sees this flexibility as an advantage over other systems. He also points out that Oakington's platform can use other kinds of items -- specific tickets or stock certificates, for example -- as the basis of value.

For security purposes, and to prevent double-spending, Oakington's system tracks each coin, but in the normal course of operation those coins aren't linked to identifiable users. To appease governments and to allow for security audits, however, users can be identified if needed through special processing of transaction records stored on backup tapes. This allows governments to track illegal activities such as laundering of drug money, and also allows users to recover lost or stolen purses.

The system has several other features that make it more palatable to governments, including technology that allows automatic payment of taxes.

Release 1.0 18 October 1999
MONEY MONEY MONEY!
By Esther Dyson

Money, invented so long ago, was simply the first significant manifestation of the “information society” we are all so excited about. It was a way of managing information through physical counters/assets before we had effective computer systems. Goats were also a good store of value, and pretty freely tradable, but not everyone wanted to keep or trade goats -- or worse, half a goat.

Like goats, money originally performed two functions, but more conveniently: First, it is a medium of exchange and a tool for measurement of value. As a medium of exchange, it let you value everything in terms of the same currency, rather than trying to figure out how many goats a house is worth if someone else wants to trade it for a daughter and three years’ harvest.

We could do these apples and oranges transformations/calculations fairly easily nowadays with a computer, but money is easier given that the goats and the house -- to say nothing of the daughter -- need to be seen to be valued! Money provides a common measure of value across a fairly broad spectrum -- but not yet across all countries, even in our world.

Second, use of money is simply an easier way of storing claims on nonspecific assets, for people who have accumulated so much wealth that they have claims on more than they want to possess physically. (The converse is true for debtors....) Money, then, is a way to represent ownership of claims -- and especially of nonspecific claims.

The third interesting feature of money is a result of these nonspecific claims -- credit and inflation. Credit often implies a call on specific assets -- secured credit -- but it can also be given for a general promise to repay. Originally money always “referred” to real assets, but with the advent of credit -- and productivity levels in which real assets generally created net increases in value if well employed -- we developed our whole infrastructure of financial instruments, many of them totally divorced from reality.

Separately, we now have the (mostly) worldwide regulated banking system. Companies usually can’t get credit against more than about 50 percent of their assets; at least in principle, there is no value creation because the company’s assets are pledged against the loan.

The stock market is different -- and worth a whole discussion by itself. And the banking system is different in yet another way. In modern times, at least, it is based on the principle that governments are wise and reliable; they are good credit risks and regulators.

Currencies are now backed by governments; they also control the money supply in any particular currency through credit requirements for commercial banks. (That power has been eroding because of phenomena such as Eurodollars, dollar-denominated credits issued by banks or other entities outside US jurisdiction.) Commercial banks, because they are...
regulated by putatively reliable governments, are allowed actually to create value, by lending money usually up to about 20 times their actual assets. (In Russia, where the purpose of banking rules was not widely understood, many manufacturing companies created banks essentially to lend to themselves or to relatives, with predictable consequences. No real value was created, as eventually became apparent, but a lot of assets were shifted.)

Governments' concern about new payment systems is that these systems could grow into more than that, and start to create credit without real-world backing. (If you want to do that right now, you're better off sponsoring IPOs.) What's the difference between a corporate security, a government emission of currency, or a payment system from a company backed by a few hundred million of venture capital? The answer varies from country to country and from company to company, but it's a question people are now starting to ask. The potential scale and global reach of the Internet, and of Net-based payment/value-transfer systems means that the friction of the past no longer keeps these questions merely hypothetical.

eBits also operates with "time escrow" so that delivery of goods or other specified events can take place before transactions clear. If so desired, transaction processing can be delayed to prevent the rapid movement of currency through dozens or hundreds of accounts (a common element of money laundering).

Milner believes Oakington will attract consumers through efforts targeted at niches that either don't or can't use credit cards extensively today, and at market segments for which the greater efficiencies of the system (and correspondingly lower transaction fees and clearing times) will be most highly valued. He also promises other incentives, such as currencies linked to the performance of bonds, t-bills or other instruments, which would allow the cash in consumer's purse to appreciate over time.

All that e-glitters is e-gold

There's already a form of currency that has globally recognized value, and that long predates the Internet. It's gold (and other precious metals), which formed the basis of the world financial system until the end of the gold standard in the early 1970s. It seems a contradiction to discuss gold, the ultimate physical resource, in connection with digital currency. In reality, though, all currencies are representations of value that need not be physically tied to the source of that value.

Since 1996 e-gold, a service of Gold & Silver Reserve, Inc. (G&SR), of Wilmington, DE, has offered an intriguing form of online currency backed by real, physical gold, silver, platinum and palladium. E-gold was dreamed up by Douglas Jackson, a Florida oncologist, after reading libertarian economist Friedrich Hayek's writings on the gold standard. He joined with attorney Barry Downey to found the company, which currently has eight in-house employees along with several informal evangelists. Jim Ray, who handles sales for e-gold, is quick to point out, "even though the company was founded by libertarians, e-gold is apolitical."
E-gold customers can either deposit actual gold into their accounts, or can convert various paper currencies to gold. In return they get an account denominated in ounces of gold or other metals, which they can use to transact with any other party that has an e-gold account.

Users simply enter a recipient account number and password to transfer value. If the recipient doesn't support e-gold, the payment can be converted automatically to traditional currencies, though this process is more cumbersome and expensive than straight e-gold transactions.

E-gold charges customers for conversion of paper currencies into and out of gold. It also makes money from a one-percent annual storage fee for maintaining the gold itself. The company is now in the process of splitting its operations to separate the gold handling and accounting (which will be housed in a Caribbean-based company) from the exchange of currencies into and out of the system (which will remain with G&SR).

E-gold isn't negotiable, meaning that it can't be exchanged directly between parties. An e-gold transaction is essentially a request to G&SR to credit and debit accounts on file, much like a credit-card transaction only denominated in gold or other precious metals. However, the company plans an offshoot called Digigold that will function as anonymous digital cash. Digigold will be a bearer instrument, similar to Digicash's eCash, except that it will be backed by a mix of 75 percent short-term notes and 25 percent e-gold.

E-gold isn't a regulated bank, to avoid overheads and government interference. It also differs from banks in its mode of operation. E-gold commits to back every account fully with actual gold. Banks (both under the gold standard and today) lend more money than they actually have, using that leverage to expand the power of currency in circulation. If every customer withdrew his or her account, however, banks wouldn't have enough money to cover the withdrawals, which is what happens when customers make "runs" on shaky financial institutions. E-gold uses a Web-based inventory management system, called the Examiner, that shows the status of its precious metal reserves in real time.

**Currency and Value**

What exactly is a currency anyway?

The formal definition of currency as any concrete representation of money (see page 4) begs almost as many questions as it answers. What makes people agree on the value of a certain form of currency? If a dollar is a dollar, how can the same item vary in price from city to city and country to country? If electronic commerce is simply a way of moving numbers between accounts, and none of those accounts necessarily correspond to any physical entities, what difference does it make whether we attribute a transaction to one currency or another?

Prior to the 1970s, paper money was at least backed in theory by gold, which had some intrinsic value because of its scarcity, but today's national currencies represent nothing more than government IOUs backed by...
more IOUs. Government-issued money still gives consumers accepted yardsticks for exchange, and its status as legal tender means sellers must accept it. Both of these characteristics reduce the friction in transactions (see Release 1.0, 9-99 on different pricing mechanisms). If you want to buy a candy bar, you could negotiate an exchange rate with every convenience store clerk, or you could drive around looking for a shop that accepted your preferred form of stored value, but why bother?

Yet the age of national, government-issued currencies may be coming to a close. Robert Mundell won the 1999 Nobel Price in Economics last week for work questioning the need for fixed exchange rates and national currencies, which helped form the theoretical basis for the European Monetary Union and the euro. In an age of instantaneous global communications, currencies that span natural trading blocks may be more sensible than those tied to individual nations.

There are also cases in which government-backed currency isn't sufficient. In many countries, citizens and bankers don't trust governments enough to make the system work. It's generally possible for individuals in these countries to move their assets to more stable foreign hard currency, but that only exacerbates the problem for the local economy. In such environments, online private currencies may be a viable alternative. We're aware of individuals in Russia going down exactly this road.

The global nature of the Net will also put pressure on local government-issued currencies. Fluctuations in foreign exchange rates can accentuate geographical pricing differences, or at least add uncertainty to transactions. Prior to the introduction of the euro, for example, prices for identical goods varied by 24 percent across Europe, according to a 1998 Lehman Brothers study. This variance was double the spread across the United States, with similar geographic scale but a single currency. Such differences continue today, though they are eroding.

When boundaries between markets break down, arbitrage eventually mitigates artificial price differences. The Net creates a global market for virtually all goods, but without global currencies those markets experience a significant degree of needless friction. If governments don't find ways to put their currencies online, therefore, private actors will eventually do it for them. Oakington, discussed above on page 9, hopes to exploit this opportunity by convincing governments that its eBits system is a more responsible alternative to untraceable offshore currencies that will spring up absent any government-endorsed alternative.

The value of restrictions

The benefit of currency is that it's fungible. Any dollar is worth the same as any other, which frees participants from accounting for individual physical representations of value. Also, because the same currency can be used to purchase anything, individuals need not keep track of several different stored-value mechanisms for specific purposes.

In some situations, though, the fungibility of cash can be a disadvantage. For one thing, merchants would prefer a mechanism that ties customers more closely to their own products. Airlines give travelers mileage credit good for more airline travel because that creates a stick-
ier customer relationship that encourages people to fly more, and also
because it’s cheaper to give out a “free” seat that might have been
empty anyway than to hand out cold hard cash.

As Flooz demonstrates, individuals sometimes want to limit the uses of
currency as well. Sending a check as a gift may not seem as thoughtful
as sending a cross-merchant gift certificate for the same amount, even
though from the recipient’s perspective the check is actually more flexi-
ble. Other potential cases include charitable donations (where donors
want money spent for particular purposes, and often use legal contracts
to ensure that), or money that parents send to children in college.

And then there are situations in which what users really want is a semi-
standardized form of barter, with value residing in concrete goods rather
than ephemeral money. In person-to-person markets such as eBay, the
introduction of cash is often a form of additional friction in transac-
tions. Many items, ranging from Pokemon cards to theatre tickets, are
recognized as having inherent value, and that value is often quantifi-
able, but there is usually no automated way to exchange those items.

Non-pecuniary value

Cash isn’t the only way to express value. When the goal is to motivate
certain forms of behavior rather than to effect an exchange of goods,
money may not even be the best mechanism to use.

The open source software movement (see Release 1.0, 11-98) is a perfect
eexample. Active contributors to open-source projects such as Linux and
Apache are motivated by factors other than money. Open source software
isn’t inconsistent with financial gain, as the Red Hat IPO demonstrated.

However, the success of open source projects depends to a large extent on
the willingness of talented developers to contribute code and bug fixes
for which they receive no monetary rewards. Open-source developers
receive value in many forms, including the satisfaction of contributing
to the success of the project, the pleasure of giving something back to
the community, the recognition of their peers for an elegant hack or
solving a pressing need that no off-the-shelf package addresses.

The successful open-source effort, which holds together through love,
pride and passion but generates something useful in commercial situations
as well, is a model for many Web businesses. Companies such as Geo-
cities and Deja.com have derived value from user-created content, as has
Amazon.com with its reader reviews. The users who create the content
receive some value that doesn’t take the form of cash payments, which
helps these sites incorporate more and broader content than they could
otherwise afford. Desktop.com, which has created a Web-based environment
for software applications, similarly hopes to motivate developers to con-
tribute their creations back to the common pool.

The same time, other companies are using hybrids of money and other
forms of value. Epinions, a high-profile startup offering user-created
product reviews, pays contributors in cash based on the number of times
others read their reviews. Similarly, About.com (formerly the Mining
Co., see Release 1.0, 7/8-98) employs “guides” who organize materials on
particular topics, and whose compensation is tied to the usage levels of their areas. These mechanisms involve cash, but many participants won't make enough to justify their contributions on financial grounds alone.

New online currencies could be efficient tools for such relationships, but only in those situations where quantified exchanges make sense. For the reasons described above, currencies such as Flooz and beenz are cheaper for merchants to give out than cash, especially if some percentage of the recipients fail to redeem their currency (or purchase additional goods for cash when they do). The global nature of online currencies, and their lower transaction costs compared to sending checks, also make them ideal for compensating a dispersed network of user-contributors. On the other hand, “gift economies” such as those around open-source projects may expressly reject the quantification of value (see Release 1.0, 10-93).

Cashing in on online currency

Despite the difficulties companies attempting to create new forms of digital currency have faced, the potential benefits of such mechanisms remain compelling. E-commerce continues to grow rapidly throughout the world. Moreover, electronic payments in general are becoming more prevalent. Last year, for example, 84 percent of US business taxes, representing $1.2 trillion, were collected electronically.

As the global financial system becomes increasingly digital, the advantages of instruments designed for the digital world will grow. Whether or not the companies we describe succeed, it's only a matter of time before some form of private digital currency is widely accepted.

ALWAYS MAKE NEW MISTAKES

Wood.com, a business-to-business marketplace for wood products that we referred to in the September 1999 issue of Release 1.0, is actually E-Wood.com. Market Design Inc. president Peter Cramton's last name was also misspelled in the issue. We regret these errors.

Release 1.0 18 October 1999
PEOPLE MARKETS
By Kevin Werbach

Ask the CEO of any technology startup about his or her greatest challenge (as we do on a regular basis), and you’re likely to get the same response: finding good people. And these are the desirable places to work in the boom years of the Internet economy!

Fortunately, the Net also promises to smooth the process of recruiting and hiring workers on either a project or a full-time basis. Web-based job boards have been growing for several years, and as the e-recruiting sector reaches critical mass the tools are becoming more sophisticated. At the leading edge are several companies creating a new form of online marketplace to help match job-seekers and positions.

Last month we described the growth of business-to-business (B2B) marketplaces on the Net. These sites allow companies to exchange physical and electronic goods with one another more efficiently than was possible with traditional mechanisms. Businesses, however, deal in more than goods. They also transact in services, and in the special bundles of services known as workers. It should be no surprise, therefore, that people markets (known as talent auctions or human capital markets to the more politically correct) are popping up online.

This space is still taking shape, and there are far too many players to describe in any detail, so what follows is an initial, broad-brush assessment of this emerging category.

Jobs on the Web

Few functions lend themselves to e-commerce as well as hiring does. There is a strong network effect -- the more qualified candidates a company attracts, the more likely it will find the best hire, and similarly, prospective employees want to identify as many good job prospects as they can...even though they only pick one. The recruiting process is highly information-driven, with candidates and companies seeking details on each other. It’s incredibly fragmented and inefficient in the physical world, with thousands of in-house recruiters, staffing agencies, headhunters, job-listing services and other intermediaries. (Not to mention being time-consuming and frustrating, especially when things don’t work out.)

There are other reasons to be interested in this space. The vast majority of able-bodied adults work, and most change jobs many times during their lifetimes. Because there’s nothing more critical to most companies’ bottom lines than their employees, and because companies will willingly spend thousands of dollars (or more) to land workers drawing salaries in the tens or hundreds of thousands of dollars per year, the hiring process involves vast sums of money. Morgan Stanley, for example, sizes the market at $20 billion per year. Consequently, several Web-based recruiting and job-listing sites are among the few e-commerce companies to report real revenues and even real profits.

Larger social and demographic trends also magnify the value of online recruiting. Falling birthrates throughout the developed world, accentuated in the US by a booming economy, have created a growing shortage of
skilled workers. As Icarian CEO Doug Merritt puts it, "we are short on the skills necessary to operate an entrepreneurial intellectual capital economy," forcing companies to become more efficient in their hiring. Internet Business Network founder and CEO John Sumser, who follows the online recruiting market, sees this demographic shift fundamentally changing the notion of a corporation. "Potential employees now constitute an additional class in the definition of a company," in addition to current employees and shareholders, he explains, making recruiting a core element of any business.

Beyond the labor shortage, hiring is also becoming more complex with the rise of the contingent workforce. More and more professionals are becoming "free agents," taking on individual projects for many employers rather than accepting full-time employment. This model is especially prevalent in information technology (IT), where work tends to be highly project-driven. Today an array of project managers seek flexibility to expand and contract their workforce in response to client needs, and a parallel array of outsourcing firms look to enable that flexibility.

The online recruiting landscape

The hiring process is a huge marketplace that matches workers with companies. In practice, however, it is heavily fragmented among different vertical markets, functional roles, and internal corporate clients (HR, departmental managers, and so forth). As the recruiting world has moved to the Web, companies providing services to employers have staked out different roles in the network of processes.

On one end of the spectrum are job boards, including Monster.com, Career Mosaic, Headhunter.net and thousands of others. These sites let potential applicants post their information (generally for free) and allow companies or recruiters to post job openings (usually for a fee), and also generate revenue from brand or banner advertising as well as premium services. One step removed from these companies are more service-oriented sites that facilitate the candidate’s job search, connect employers (for a fee) to private databases of candidates and offer tools to help manage the process. CareerBuilder and HotJobs, though their services and business models differ greatly, both tend to fall into this category.

At the other end of the process, once someone has been hired into a company, are human resources (HR) management systems such as PeopleSoft. There are also a number of vendors, such as Resumix and Webhire, that provide workflow and planning software that companies use to optimize the applicant-tracking process.

And then there’s a vast, chaotic middle. Most of the work in matching up candidate information and employer needs has traditionally been done by staffing and recruiting agencies, or by in-house corporate recruiters. These intermediaries can play a valuable role, but as in other business sectors they must adapt to avoid being swept aside by the Internet.

Staffing agencies play a particularly important role for contingent workers due to current tax laws. In the US, employers must file W-2 forms for their employees, and are responsible for paying taxes and social-security contributions as well as benefits such as health plans, vacation
time and stock options. Independent contractors, who receive 1099 forms, must handle all these obligations themselves. The cost advantages from not paying benefits and the fluid nature of IT projects have led technology companies to use an increasing number of independent contractors on a project basis.

However, the IRS has begun to crack down on companies that classify as contractors workers who actually function as employees. A recent decision along these lines against Microsoft struck fear into the heart of the industry. In response, companies increasingly look to staffing agencies to take on the legal role of employer for contractors they refer.

People are people

Following the standard progression from catalogs to transaction platforms (see Release 1.0, 9-99), most of the leading players in the online recruiting world are moving to create marketplaces to match candidates and potential employers directly.

In some ways, labor marketplaces aren't all that different from other B2B transaction platforms. They bring together large numbers of buyers and sellers to encourage efficient transactions in high-value items. The result of a transaction may be a full-time position or a one-time project assignment, but the role of the marketplace is the same: matching the needs of buyers and sellers, and determining the appropriate price.

In reality, though, people markets are distinct from other forms of B2B e-commerce. First and foremost, people are people and are not fungible commodities, which means the final decision on both the company and candidate side of the equation is up to the participants themselves. Matching engines and optimization algorithms can weed out inappropriate pairings, but the "fit" between employer and employee will always involve some measure of subjectivity and require face-to-face interaction.

IT has been at the forefront of online recruiting and especially online contingent hiring, in large part because the shortages of qualified candidates are particularly acute for IT projects. In addition, many relevant skill sets are concrete -- you're either a Microsoft Certified Systems Engineer or not. Even here, though, many skills are subjective -- what does it mean to know HTML? -- and even with certification programs there isn't yet an automated way to verify candidate claims. And despite regulators' notions of "bona fide occupational qualifications," personality and attitude still matter.

There are a variety of behavioral analysis techniques that can provide contractors and employers with a better sense of prospective personal fit, some of which can be implemented through automated Web-based interfaces. So far no one has succeeded in automating this important enabling function, but several companies recognize the need.

People markets will require many of the same sophisticated functions being developed for B2B marketplaces in goods, only these features will be essential starting points rather than long-term add-ons. For example, logistics issues cannot be ignored in the recruiting process. Hiring has a strong degree of regionality, because most people are looking for jobs...
in their local area or some specific other location, in contrast to goods which can usually be shipped anywhere.

Effective matches in the employment context also depend heavily on multi-parametric algorithms (see Release 1.0, 9-99). It's not enough to match contractors and employers solely on price; details of skill sets, time availability and project requirements matter, too. These days, experience is generally seen as a proxy for skills, which is what companies are ultimately looking for. However, the fact that a contractor has worked for the same company before (and may therefore have knowledge of the environment and a good or bad reputation) may generate more valuable information than a line on a resume claiming a particular competence.

In general, people markets will be highly complex and heterogeneous. The market for a Java developer in San Jose with three years of e-commerce experience will be very different from the market for an entry-level Java developer in Philadelphia. The balance of power between buyers and sellers will depend heavily on these factors, in contrast to other markets where the structural relationships among players are more consistent.

CONTINGENT HIRING MARKETPLACES

Online marketplaces that match contingent workers with company needs will establish themselves in the recruiting value chain. Recruiting is the meeting point of two lifecycle processes: workers managing their careers and companies managing their workforces. For full-time employees, these two processes intersect at a point -- hiring -- but for the contingent workforce the relationship of the spheres is more episodic.

Because people markets touch on virtually every element of the current e-recruiting landscape, companies are moving from many different directions to create them. Sumser of Internet Business Network counts more than 60 today, with more on the way. Most prominent are the job-board extensions (led by Monster.com's Talent Market), professional services automation sites (including iNiku and FreeAgent.com) and the employer workflow facilitators (including SkillsVillage, Icari and Vivant!).

Monster.com and other job boards

Monster.com, the largest of the job boards, launched its Talent Market in July. Recruiting agency TMP Worldwide formed Monster.com in January by merging its two online efforts, Monster Board and Online Career Center; the site now has over 4 million registered job seekers and 2 million online resumes. Contractors who wish to participate in Monster's Talent Market fill out profiles describing their skills and background, and then they can solicit bids from employers interested in their services.

So far there are far more contractors than bidders in Monster's Talent Market, though this most likely reflects a early lack of understanding of the concept on the part of staffing agencies and corporations. Monster's strength is its size, but that may also hinder its ability to create marketplaces with the complexity and specificity required for optimal matching. And though Monster was the first, every other large job board will probably add marketplace functionality to its site before long.
Professional services automation

Professional services automation is an entirely new category that already has a number of competitors including Niku, Opus360, Portera and Novient. All four help organizations such as management consulting firms, systems integrators and accountants handle their workflow, project management, collaboration, billing and other functions using Web-based tools.

FreeAgent.com (a service of Opus360) and iNiku (a service of Niku) concentrate on smaller organizations and independent contractors looking for a platform on which to run their businesses. In addition to automating administrative functions, these sites help independent contractors find work, currently through searchable databases of project listings. Before long these sites are bound to become (or partner with) full-fledged people markets, because contractors will consider talent auction functionality a natural element of managing their businesses on the Web.

Marketplaces from the employer side

For independent contractors, finding work on a project basis is pretty much everything they do. But corporate hiring and project managers have a larger perspective. They must manage their relationships with contractors and staffing agencies, ensure the smooth flow of information through the recruiting process and into their HR systems when an employee or contractor comes on board and optimize their company’s overall workforce utilization. With salaries being the largest line item in many corporate budgets, all this has a tremendous impact on the bottom line.

Managing data about existing employees and the constellation of services around them -- payroll, time and attendance, benefits and so forth -- has long been a key function of enterprise resource planning (ERP) systems from companies such as SAP and Oracle. Earlier this year, Icari an, a startup in Sunnyvale, CA, founded in 1997 and backed by Kleiner Perkins and Patricof & Co., launched its eWorkforce suite to optimize the process of planning for, hiring, deploying and retaining employees.

To complement this hosted package, Icari an is developing an employment marketplace. Ceo Doug Merritt emphasizes that Icari an plans to stay on the “B2B” side of the process (helping companies interface with staffing agencies and other suppliers of workers), rather than aggregate contractors itself. He sees marketplaces as valuable extensions to employer-side process-automation tools, where Icari an is focused.

Vivant!, which recently launched, also sees markets growing out of employer-side tools. The company helps companies find and manage contractors through needs definition and work histories, automated access to “suppliers” such as staffing agencies, profiling tools and candidate ranking. “Today, there really is not a good market for this kind of information,” says ceo Cindy Padnos. “The buyers are disadvantaged.” Vivant! doesn’t yet offer talent auctions, but plans to do so.

Startup SkillsVillage.com aims at this space from the opposite direction, starting with the marketplace and building out Web-based management, workflow and planning functions for employers. SkillsVillage both partners with staffing agencies and functions as one itself to help jumpstart
the market, though CEO Chris Wong says the company's focus is on improving the match between contractors and companies. To that end, SkillsVillage is deploying TradingDynamics' sophisticated auction platform (see Release 1.0, 9-99) as the basis of its marketplace.

These companies will all have to decide whether to plug into or disrupt the established relationships between contractors, staffing agencies and employers. SkillsVillage CEO Wong, for example, says "we'll be successful if we can just enhance the ecosystem that's in place," and argues that his company can provide value for both staffing agencies and employers. Opus360, in contrast, has aggressively inserted itself into the traditional staffing agency role of managing work and providing health and other benefits for contractors.

The staffing agencies themselves also must decide how to transition their businesses to the Net. People markets could be a huge boon for them, reducing the costs of aggregating contractors so the staffing agencies can focus on face-to-face contact and other value-added service. On the other hand, the Net reduces the value of private databases and allows new players to compete in areas staffing agencies once had to themselves.

Just the beginning

This is far from an exhaustive list of companies developing online marketplaces for contingent workers. With new startups in this space launching monthly, and everyone building up their systems, partnerships and customers, it's not yet clear which companies will come out ahead (or even how many significant players there will be!). We expect consolidation to occur fairly quickly once the leaders begin to emerge, given the economies of scale in the recruiting business and the desire of both workers and employers for "one-stop shopping."

People markets will also allow new forms of contingent relationships to flourish. In some cases, all a company needs is the answer to a particular question, or a specific piece of code developed. Contractors and consultants can fill these needs, but the relationship could also be structured around the project itself rather than the person. Web-based information markets such as Exp.com (formerly Advoco), Adeste.com (Disclosure: Esther Dyson is an investor in Adeste.com) and Inforocket match experts with questioners on a flexible basis. Collab.net, formed by O'Reilly & Associates and Brian Behlendorf in July, hopes to do the same for open-source software code with its SourceXchange service.

Speed and flexibility will only become more important to companies as the economy because increasingly fluid and global. And the coming generation of college graduates who grew up with computers and the Internet won't necessarily expect the same employment structures their parents took for granted. Though it's early in their development, people markets bear watching because as time goes on they will play an increasingly important role in greasing the wheels of commerce.
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