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Risk Management 2.0: Overcoming the Current Financial Crisis and Restoring Stability and Prosperity with a New Perspective on Risk

by Bob Tapscott and Don Tapscott

The "risk bubble" has broken. Restoring long-term confidence in the financial services industry of the US and other industrialized nations will require more than government intervention, fresh capital, and updated regulations. Building on the digitization of everything financial, participating organizations (issuers, investors, and intermediaries) need to become Next Generation Enterprises. This requires a new industry model built on the four principles of Wikinomics: transparency, peering, sharing intellectual property, and acting globally. Call it Risk Management 2.0.

Revitalized transparency would mean that accurate data, valuation, and risk assessment are readily verifiable independently of the seller. Instead of today's paralyzing opacity, investors could 'drill down' to the smallest level of detail and more accurately value new instruments such as Collateralized Debt Obligations, as well as apply their own assumptions on default rates and other variables. Peer collaboration between intermediaries, issuers, and investors on best practices would virtually eliminate the risk of systemic breakdowns.

Under this new model, participants would share knowledge and intellectual property, ensuring that the best essential resources are available to the entire market. It would mean sharing data, models and underlying algorithms, correlation analyses, and stresses.

Governments and corporations would act globally – recognizing that the marketplace is global, and that differing behavior, rules and regulations threaten stability. Such measures are needed now. Japan took 20 years to recapitalize its banks. The financial crisis of 2008 is much more profound.

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INTRODUCTION

Rather than just relying on Washington to take the lead in solving the credit crisis, bankers and business leaders should now collaborate around industry-driven solutions to the problems undermining the financial services marketplace. Restoring long-term confidence will require more than massive government intervention, fresh capital, and updated regulations. Building on the digitization of everything financial, participating organizations (issuers, investors and intermediaries) need to form a new industry model founded on unprecedented transparency.

The current credit crunch was predictable. Risk management practices had become so secretive that, in some banks, the back office had no idea what Value at Risk (potential losses) the front office was taking. Paul Volker, a highly respected former Federal Reserve chairman, describes today's banking sector as "a demonstrably fragile financial system that has produced unimaginable wealth for some, while repeatedly risking a cascading breakdown of the system as a whole." This is not how capital markets should operate. The worst banking crisis in history requires more than just a business as usual response; it requires a complete paradigm shift in the way banks behave.

Senior management, who authorized placing hundreds of billions of dollars at risk, often were completely unaware of how risky some bets were, let alone how these risks aggregated across their institutions, or against their counterparties. It was truly the blind leading the blind. Around the world, from the political left, center, and right, a chorus is growing for tighter regulations and greater capital adequacy requirements as the response to this crisis. However, more of the same won't work—Basel III or a Sarbanes-Oxley redux will not be enough.

"Markets are frozen because investors have no real idea of what they are buying/have bought. Huge amounts of aggregation and the absence of the low-level data make the true values of these assets and pending losses very difficult to determine," says Professor John C. Hull, a thought leader in derivatives at the University of Toronto's Rotman School of Management, and author of the industry bible, *Options, Futures and Other Derivatives*. "Collateralized Debt Obligation contracts—often the size of telephone books—need to be more mechanistic than legalistic. An open mathematical algorithm, or even published software, would far better describe the waterfalls, and associated payment structures. Unless something dramatic changes, investors will abandon this class of instrument for a long time."[1]

Current concepts of risk management in financial centers must now be revisited. To create the solid financial footing that will regenerate trust in the marketplace, financial organizations must become Next Generation Enterprises. They need to create a new model for investment banking built on the four principles of Wikinomics: transparency, peering, sharing intellectual property, and acting global. With the sophisticated tools available on the Internet—

and the digitization of everything financial—new levels of global transparency are now possible. (Appendix A sets out a series of challenges currently facing the financial industry, and shows how Risk Management 2.0 would differ from traditional industry practices.)

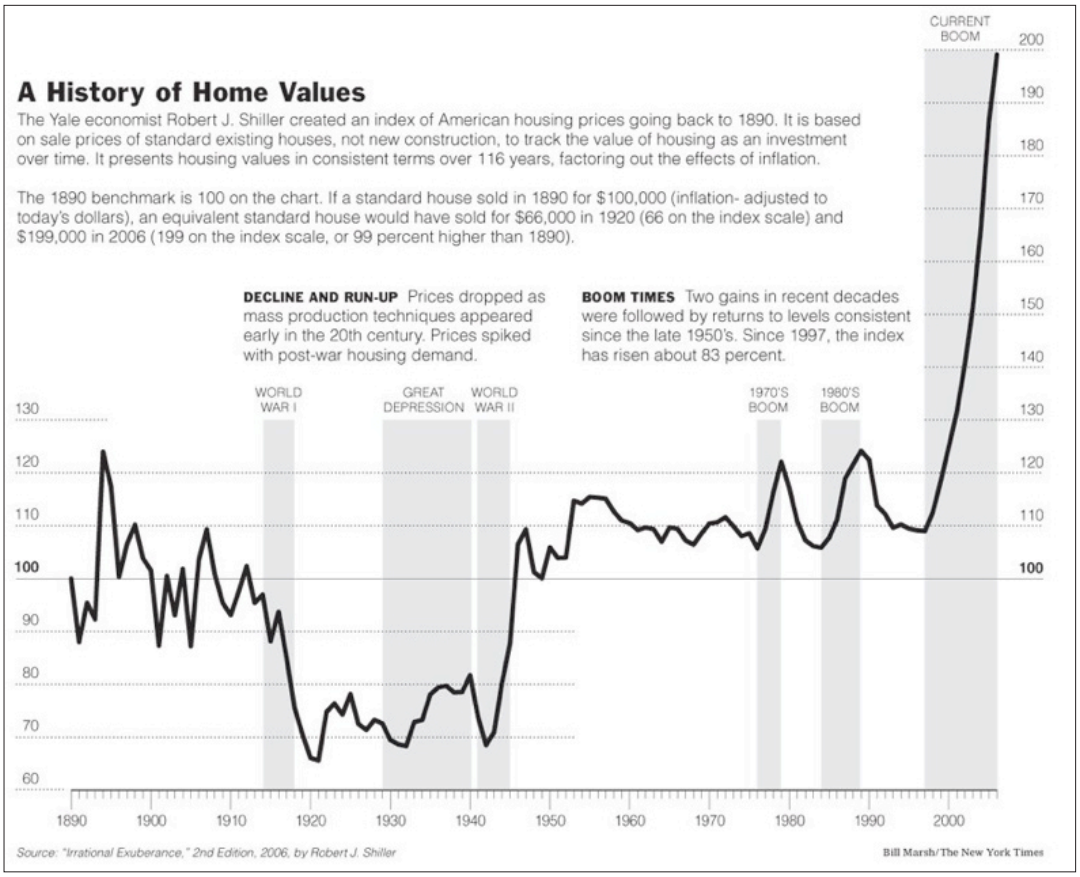
RUN-UP TO THE CRISIS

In 2002, Warren Buffett asserted that derivatives are "financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal." Unfortunately, his comments did not discourage their proliferation. Since 2002, the use of derivatives has exploded from $100 trillion in nominal value, to $516 trillion in 2007. That's roughly ten times the world's GDP—clearly far in excess of anything real. It would appear that such exponential growth in contracts is more for speculation than for hedging. But who really knows?

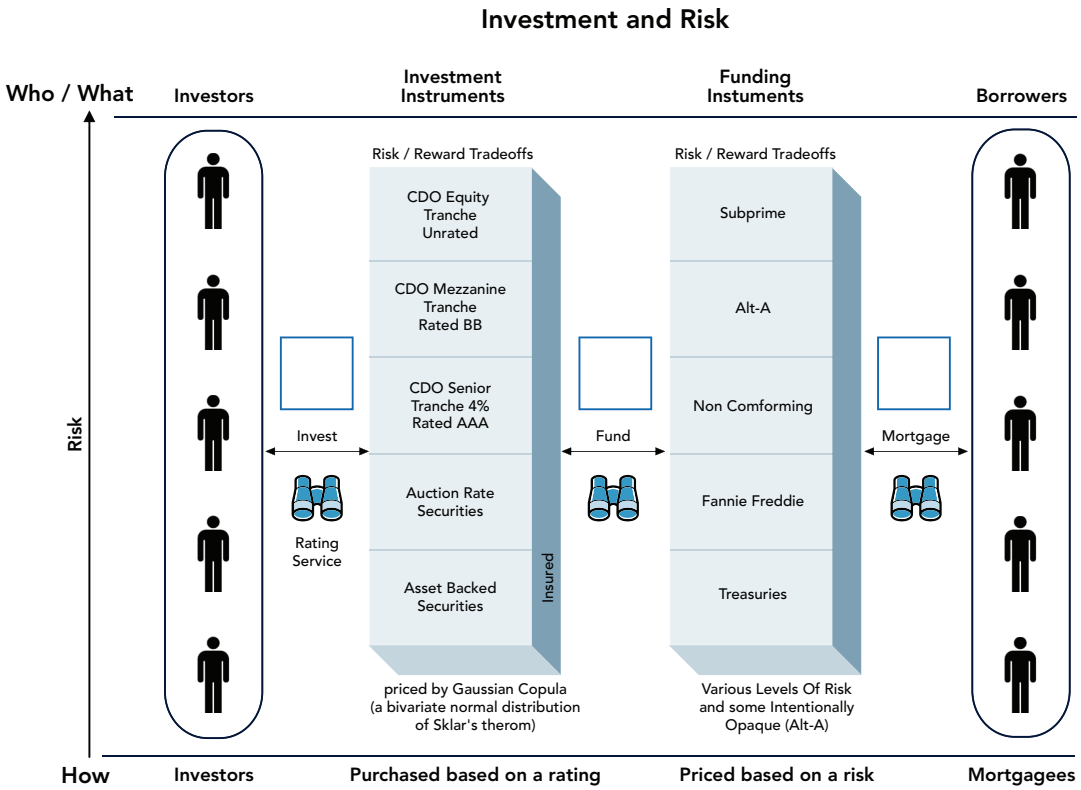
What's remarkable is that so few knowledgeable people, if you believe what they have said in the press, saw today's crisis coming. In 2005, Yale economist Robert J. Shiller published the now famous index tracking housing prices back to 1800 (Figure 1). Over a 200 (!) year period, housing values in the U.S. only went 20% above the inflation- adjusted 1800 price level three times, and each was the peak of a bubble that quickly collapsed. From 1997 to 2005, U.S. housing prices rose from 10% above the inflation-adjusted level to 100% higher. How any economist, regulator, or central banker could look at the chart below and not surmise that something was amiss is astounding. If they really didn't know, it's clearly a case of many very intelligent people allowing the results of opaque, complex mathematical models to overwhelm their common sense.

As real estate values climbed, the banks were transformed into intermediation titans. They typically originated financing transactions that were temporarily funded "on balance sheet" and then repackaged for resale as collateralized mortgage obligations (CMOs) or other asset-backed securities (ABSs). The banks would purchase tranches of several ABS transactions and package these into Collateralized Debt Obligations (CDOs). Even though 100% of the assets in the original ABS transactions and the resultant CDOs were subprime, by dividing them into tranches, the banks (supported by the rating agencies and the monoline insurers) could create AAA rated senior and super senior tranches which investors did not distinguish from other similarly rated investments (see Figure 2, as well as Appendix A, Item 2). In simpler terms, the underlying assumption was that if you put enough risky assets together, then much of the risk vanishes into thin air.

BELOW Figure 1: Historic Home Values; Source: Robert J. Shiller, via The New York Times



RIGHT Figure 2: Investment and Risk; Source: nGenera Insight with RISConsulting



Investors had little ability to peer into the underlying pools and question assumptions, much less an ability to compare assumptions across unrelated transactions. They bought on the basis of the AAA rating or monoline guarantee; assured by these ratings and the brokers' promises that such investments were without risk.

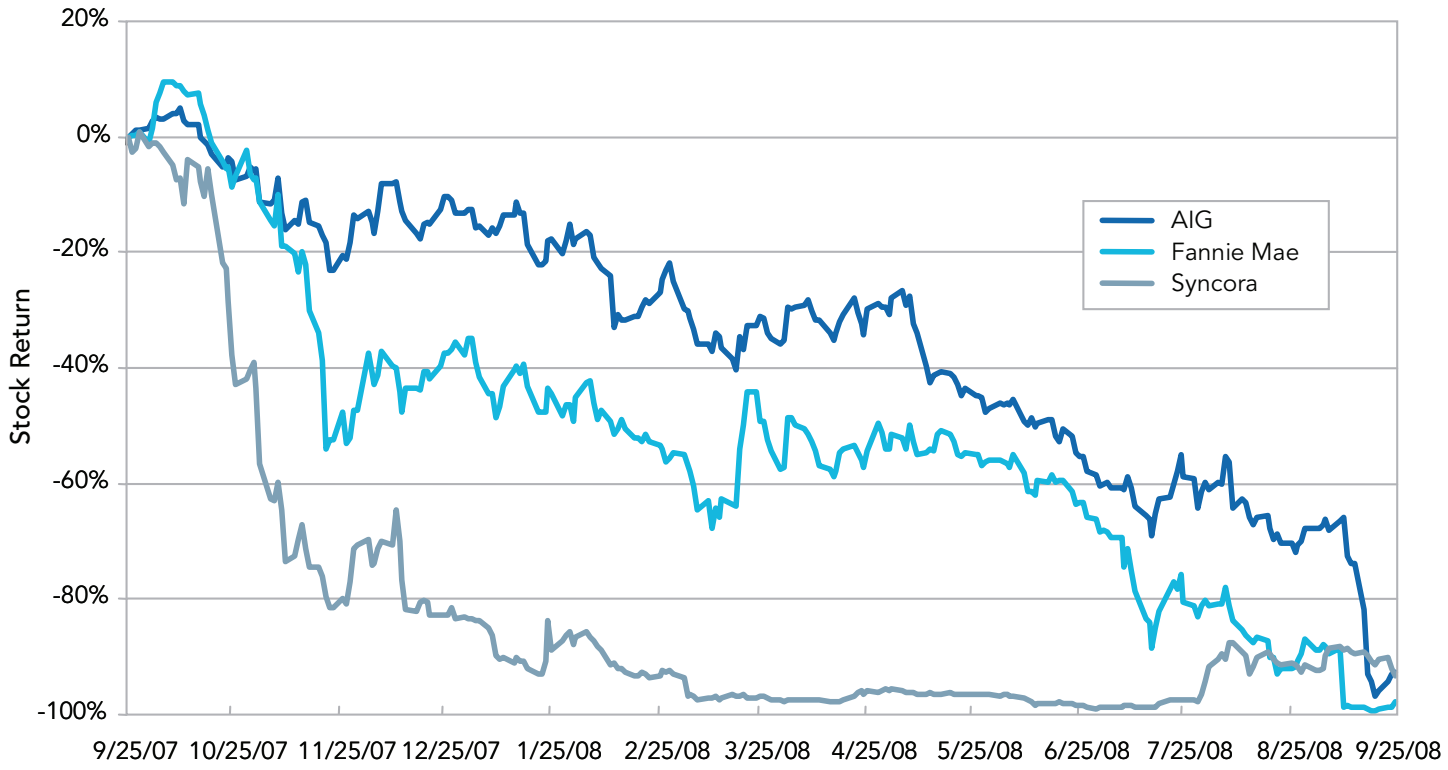
The incentives to sell these loans were huge. The upshot was that people without documented income were moving into homes with nothing down, and making no mortgage payments, in order to keep commissions flowing in. During 2005 and 2006, almost any mortgage application was accepted. The market funded Alt-A (alternate documentation) and subprime mortgages. No proof of income and nothing down? No problem; welcome to your new home. Even for consumers that clearly could not afford the monthly payments, the banks and brokers structured (and advertised) mortgages at 1% interest for the first year, (during which the real interest accrues to increases of up to 15% more than the home's market value.) In effect, banks and brokers were lending against a greater estimated "future market value" that never materialized. For reasons unknown, the regulators sat back and allowed banks to treat these as conforming loans. As long as the properties' market values escalated, everyone seemed to win.

The question must be asked: who was foolish enough to capitalize such investments? Funds came from many sources, including pensioners, pension funds, banks, and the brokers themselves. After all, on paper, these instruments were high yield and high grade. The only indicators prospective investors could view were the rating, the return, and the market price. Wall Street packed, structured, and sold these loans opaquely. With the help of Moody's, S&P, and other rating agencies, the investment banks structured and sold many of these funds as AAA. Moreover, many of the funds' names connoted safety. The two (now bankrupt) Bear Stearns funds that some say catalyzed the crisis were the "Bear Stearns High-Grade Structured Credit Fund" and the "Bear Stearns High-Grade Structured Credit Enhanced Leveraged Fund." Their managers have been indicted.

Many banks got the loans off their balance sheets, and for a while, appeared highly profitable before the reversals, at which point these institutions took massive losses on their guarantees. More clever bankers had someone else guarantee the instruments, took the profits up front, and left the insurers and the investors on the hook for the risk. "More clever," that is, unless these money handlers end up in prison, which may well happen. So far, more than 400 have been charged.

Today, billions of dollars of these losses are washing back onto the banks' balance sheets, decimating their capital base, reversing previous paper profits, and resulting in massive losses, quarter after quarter, as well as tumbling market capitalizations (see Figure 3). But for each $1 the banks have lost, investors, so far, have lost $42. To date, the banks have admitted close to $600 billion in losses. Five banks alone have, so far, admitted over a quarter trillion dollars in losses. About $25 trillion in value has been erased from stocks worldwide in the past year.[2] To put these massive numbers in perspective, the world's GDP is about $65 trillion (although it would appear to be dropping).

BELOW Figure 3: Is it Over Yet? Bank and Insurance Stocks; Source: Yahoo Finance (October 7, 2007 to October 8, 2008)[3]



WHAT ARE THE STANDARD RESPONSES?

The Fed has never had such power. It has taken over the operations of Fannie Mae and Freddie Mac, "saved" AIG, and after spending over $600 billion in rescues, either through the discount window or through other means, it has requested a further $700 billion taxpayer-funded war chest to buy up toxic securities. Pessimists argue that the new funds, without new transparency or regulation—in a flight to safety (to Europe, oil and commodities)—may have the unintended effect of further weakening the dollar, and exacerbating the crisis (see Appendix A, Item 7). Although the Fed's funds may temporarily prop-up the system, decapitalized banks cannot lend, and without lending (including mortgages) what will happen? Although it is helpful and potentially life-sustaining to the system that the central bank supply liquidity, this is not capital that can be leveraged.

Indeed, the remedial effect to date has been minimal, with banks shrinking credit even further.[4] The Fed's injections of liquidity are timely and appropriate; nevertheless, the banks' current loss of appetite for new debt is dampening the economy. For example, investor demand for leveraged buyout (LBO) debt has plummeted since July, as losses on US subprime securities spread to other asset classes. The average price of a leveraged loan fell from par to a record low of about 86%, according to Standard & Poor's data. Access to cash by financial institutions is only part of the issue. The reduction in capital, and capital adequacy requirements has severely limited financial institutions' ability to lend. The Fortune 500 are prudently drawing on their lines of credit to weather a potential storm.

"The Fed has been playing the equivalent of 'Whac-A-Mole' as financial turmoil keeps cropping up in new and unexpected places," says former Fed Vice Chairman Alan Blinder.[5] Rather than lending money, it appears that banks today are most interested in cleaning up their balance sheets and digging defensive positions against a possible run on their very existence. In a Darwinistic version of "Survival," runs on the bank—mostly by other banks—have proved a list of who's who on Wall Street (including Bear Stearns, Merrill Lynch, Wachovia, and WaMu) to not be among the fittest. If, as anticipated, $300 billion in margin calls on banks do materialize, even the largest ones may be in peril, flush with liquidity or not. Banks have watched AAA debt plummet to BBB. They are now more interested in shedding questionable loans, manageable losses, and recommitting to BIS capital adequacy requirements rather absorbing new risk (see Appendix A, Item 6). As the banks have attempted to bring their asset base more in line with their weakened capital base, mortgage credit has gone from readily available to very hard to find. This suggests the housing market will continue to deflate, resulting in greater mortgage write-downs and the cycle will continue with no apparent end in sight—though the Case Shiller index would indicate a 50% drop in real housing prices from

the peak is necessary to return to normalcy (see Appendix A, Item 8). Some argue that there is little the US Federal Reserve Chairman Ben Bernanke or Treasury Secretary Henry Paulson can do.[6] If this is correct, then it is hard to imagine what to expect next.

Following the Great Depression and the failure of many financial institutions, the Glass-Steagall Act of 1933 created the Federal Deposit Insurance Corporation (FDIC), a financial services regulatory institution which includes consumer safeguards, such as deposit insurance. Just as importantly, the Act separated commercial banks from the more speculative investment banks. In 1999, the Gramm-Leach-Bliley Act (GLBA) ended that separation and set aside many other protections in the belief that banks had become "too big to fail." This gave investment banks access to vastly larger amounts of deposits to creatively invest in higher risk endeavors. Potential profits would be that much greater, it was argued; but few acknowledged such would also be true of losses.

In hindsight, Congress's faith was misplaced. Today, from the presidential campaign trail, both GOP candidate Senator John McCain and his opponent, Democratic Senator Barack Obama, cry for greater regulation. Ironically, over the last 20 years, both Republican and Democratic administrations have favored deregulation—while in the European Union, the trend toward tighter control has been accelerating. Regulators are demanding greater transparency and consistency across the member nations.

As noted earlier, Warren Buffett warned in 2002 that derivatives were "financial weapons of mass destruction." But this was not the first indication of their potential risk. Derivatives contributed to the bankruptcy of Orange County in 1994, the collapse of Drexel Burnham in 1989, and the fall of Barings Bank in 1995. Many credit Alan Greenspan's publicly organized bail-out with staunching what might otherwise have become a financial bloodbath when the hedge fund LTCM imploded in 1998 after losing a staggering $4.6 billion dollars in derivatives trading. Since then, the former Fed Chairman worries about the "moral hazard" of saving the foolish from their own folly, in what he believes ideally should be free markets.

The possibility of a financial "avalanche," with both the guilty and innocent "cascading" downward together, suddenly seems very real. The vast sums today's defaults represent have the potential to drag down virtually any organization—no matter how secure it may appear. Understandably, some banks are sufficiently panicked to argue for new accounting rules that would eliminate margin calls and the FASB's requirement for assigning assets with marking-to-market values (fair values using prices observed from a secondary market—usually, the last traded price). They rightly ask, "How can one revalue assets that are suddenly illiquid?"

Equally nervous, regulators are pushing in the opposite direction for even greater accountability—wanting assets that were off-the-balance-sheet back on—in effect, demanding a greater capital cushion for potential losses. This is an unlikely prospect given the banks' losses and plummeting stock prices. Where would all that capital come from?

What is clear is that the ABS marketplace is dead. Under the current circumstances, banks will not be able to sell these securities, including mortgages. With such depleted capital bases, banks cannot put mortgage lending onto their balance sheets. Citi alone has over a trillion dollars off-the-balance-sheet (see Appendix A, Item 7).

As Bernanke and Paulson realized, the banking sector needs a massive influx of capital and with nothing but red ink as far as the investor can see, this is not going to happen. To avoid a deepening recession and to save the banking industry will require more than capital; it will require a fundamental change in how banks operate. Only as Next Generation Enterprises can they survive and begin the journey to recovery.

PART II:
A MORE EFFECTIVE APPROACH

WIKINOMICS: ENABLING RISK MANAGEMENT 2.0

There is a better approach. Bankers and business leaders should be looking to collaborate around a private sector solution to the chronic problems undermining the financial services marketplace. They need to rethink many assumptions of their basic modus operandi. A new philosophy and a set of processes for investing, which we call Risk Management 2.0, would be the answer to the current credit crisis and it is arguably the fastest way to bring about the transparency and trust needed to return liquidity to the markets. Under this framework, the data and algorithms behind the types of complex financial instruments described in this paper would be placed in the public domain.

The evidence is clear that a rising tide of cooperation could raise all markets, leaving financial institutions and others in the risk management business to compete on a different level. Yes, players would still take (and hedge) their positions, but in a more customer-driven, transparent, and risk-averse way. This is not to say that banks could no longer accept and intermediate risk, but it does imply that the data underlying these (often basket based) instruments, and the mathematics used to value them, should be shared (and vetted) in the public domain.[7]

"If investors have unfettered and timely access to the data affecting their investments, as well as models to assess the impact of changes in the data—for example, house prices and mortgage defaults—they will undoubtedly exhibit more refined behavior than the wholesale abandonment of certain market segments that we have observed in the past year," says Karson Management's Derrell Hendrix.[8] But if kept in the dark, markets will trend towards the simplest, unleveraged investment instruments.

At nGenera, we believe that a fundamental change in economic relationships is not only desirable but essential, and that the fast track to success can be found in the four principles of Wikinomics: transparency; peering, information sharing, and acting global. The markets need more than an infusion of capital; they need an infusion of trust. Banking is based on trust. Its rapid return to the capital markets depends on absolute transparency of Value at Risk (VaR), pricing, and liquidity — all of which must be based on information sharing among stakeholders. We call this type of arrangement Risk Management 2.0: "The Economics of Collaboration."

Transparency

Inevitably, as the deep issues underlying this credit crisis are examined, there will be calls for more stringent regulation—just as in the 1930s the SEC was created, and 'unit trusts' (now mutual funds) were forced to disclose their holdings. But we don't need another round of onerous Sarbanes-Oxley style provisions. Rather, new avenues for

Wikinomics

Wikinomics: How Mass Collaboration Changes Everything (Portfolio, 2006. www.wikinomics.com), by Don Tapscott and Anthony D. Williams, explores the explosive growth of online communities and their social and economic impact. An insightful guide to one of the most profound changes of our time, Wikinomics challenges most deeply-rooted assumptions about business and competitiveness in the twenty-first century. Fundamental changes are occurring in the way companies orchestrate capability to innovate and create value. Increasingly, these hierarchical enterprises are turning to collaborative business models where masses of consumers, employees, suppliers, business partners, and even competitors co-create value in the absence of direct managerial control.

The Principles of Wikinomics

TRANSPARENCY: The start of the current financial meltdown was found in the banks' inability to properly model the price, volatility and risk of various asset based securities (ABS). Banks, until recently, packaged and sold these assets to third parties in an opaque and complex way. The inscrutability of these instruments made many of the ABS securities impossible to price, meaning they have paralyzed many markets and arguably, the entire financial sector.

PEERING: With Web 2.0 technologies, transparency can go far beyond simple data sharing. Risk Management 2.0 participants can build on the example of Linux and other open-source systems to share models, methodologies and other IP. With access to the data, multiple organizations can collaborate on creating models for calculating value, volatility and VaR within the public domain.

SHARING INTELLECTUAL PROPERTY: Hoarding intellectual property profited a select few until miscalculations on Wall Street caused the system to implode —negatively affecting everyone. If taxpayers need to bail out the financial system, then shouldn't they require this IP to be exposed to and vetted by others? Former Intel chairman Andy Grove has called upon open-source rules for finding advanced technology to solve the energy crisis. Maybe they should also be used to curtail the spreading financial crisis.

ACTING GLOBALLY: The credit problem is clearly a global one and localized actions in one country will do little to prevent the next implosion elsewhere. Risk mismanagement is having a deleterious effect daily on the world's wallet and as such, it is becoming everyone's concern. It's time to align responsibility with accountability. A rising tide of cooperation is the only option left, leaving secretive, opaque financial institutions naked to the wisdom of the crowd.

transparent interaction between market participants would be far more robust than hiring more oversight bureaucrats. For over a century, we've understood the value of transparency in pricing for market goods. As securities become more complex, we can use new digital tools to bring that same market approach (transparency and collaborative evaluation) to underlying information as well. This is completely feasible and affordable in a digitized world. Sunlight is the best disinfectant, and we need a lot more of the sunlight that smart digital tools could offer.

Fear is causing the rampant illiquidity that is sending shocks through the market. We can no longer continue to have faith in a system where both sides of a transaction use different algorithms on pricing and risk, and that conclude that one company's asset is radically different than the counterparty's liability.

Open access to the source of current financial models and their underlying data would mean improved transparency; giving credibility to the valuations of many complex structured asset-backed securities and ensuring their liquidity. This is what is needed to restart the marketplace. Regulators have already begun to force greater transparency in investment banking transactions through the Markets in Financial Instruments Directive (MiFID) in Europe, but the problems precipitating today's crisis started on Wall Street. The instigators could be proactive by applying the principles of Wikinomics to risk management rather than waiting for new regulations, and in so doing, ensure a continued level of self-determination.

Investors should be able to 'fly over' and 'drill down' into a CDO's underlying assets. With full data, they could readily graph the payment history, and correlate information such as employment histories, recent appreciation (or depreciation), location, neighborhood pricings, delinquency patterns, and recent neighborhood offers and sales activities. The trading of credit derivatives should be moved to open public exchanges.[9] Clients deserve full access to the information, including the data and the analysis which the investment bank used to construct the product it is selling.

Greater transparency will help verify risk models, leading to peer production, model enhancement, and the sharing of intellectual property. According to nGenera CEO Steve Papermaster, such transparency will act as a yellow flag to future market implosions. "Counterparty Credit Risk Management (CCRM) is on the front burner as the best defense against potential pending systemic risk" he explains.[10]

Charles L. Morris writes in The Trillion Dollar Meltdown that "subprime is just the first boulder in an avalanche of asset write downs. Expect the landslide to cascade through high-yield bonds, commercial mortgages, leveraged loans, credit cards, and—the big unknown—credit default swaps." The implosion of the credit system, he predicts, will make the subprime crisis "look like a walk in the park." With the downgrading of Ambac and MBIA, much municipal debt is also now at risk because of rising borrowing costs and a diminished access to financing markets. Rising costs, combined with a reduction in revenue due to the subprime crisis and its aftermath, may lead to increased default rates.

In May, Citigroup Inc. CEO Vikram Pundit said that reducing the bank's $2.2 trillion balance sheet was a priority.[11] Given its losses, this is not a surprise. But what will happen to the $1.1 billion in thinly reported assets it keeps off its balance sheet? The accounting industry wants to force these assets back onto the balance sheet where they will be more adequately reported and capitalized. "A farce" is what Ladenburg Thalmann's Bove calls these off-balance-sheet exposures. With this much opacity, it is not surprising that analysts are advising investors to avoid the banking system. There seems to be no shortage of capital, only a shortage of capital available to the banks.

Professor Hull argues that "if there were a standard model, like Black-Scholes in the public domain, investors could make their own assumptions on correlation and default rates, and potentially be willing to re-enter and thus reboot the market."

Peering

To bring about Risk Management 2.0, financial institutions, governments, and investors that live with or manage risk will have to cooperate as peers to forge an industry solution to the crisis – and negotiate common grounds for risk assessment models and the open sharing of their underlying data. This will require significant will and courage on the part of the various players. Those that refuse to participate and insist on sticking to the old paradigm of opacity should rightly be perceived as having greater risk. As the takeover of Fannie Mae and Freddie Mac demonstrates, the Street's perception of risk—real or imagined—can be fatal to a financial institution. Rumors of a bank's insolvency can quickly become a self-fulfilling prophecy.

In response to today's turmoil, banks are now "battening the hatches," adopting a bunker mentality, tightening their credit criteria, and thereby exacerbating the credit crunch. The wait for more conservative returns from less risky assets may take a decade. One major area of concern is counterparty risk. As an objective measure, the London Interbank Offered Rate (LIBOR) is significantly higher than US treasuries. Trust is gone between customers and the banks, and among the banks themselves. Clearly, the best way to calm the markets from fear of the unknown is to make the unknowns known by creating comprehensive collaboration on a global scale.

The result could be a radical transformation in trust. Yesterday, we trusted the rating agencies to examine the credit worthiness of, among other things, the underlying

assets in CDOs. For example, we trusted S&P, Moody's and others to evaluate the mountains of paper underlying these large baskets of, say, 100,000 mortgages, and rate the risk of the various tranches (the layers of the CDO) appropriately. There are dozens of lawsuits and pending changes in regulation that reflect the commonly held belief that investor trust was unwarranted and that these assessments that purported to be independent weren't independent at all.

The old paradigm was to trust the agencies. For today and the foreseeable future, this trust has evaporated. As a reflection of this new absence of trust, Moody's has recently downgraded its own rating. Investors should no longer be asked to have faith in a warehouse of mortgage application packages that only a few could physically access. Instead, this information should be in computer databases that could, for example, include attributes of the property, the neighborhood, the employer, and the mortgagee. With Web 2.0, this data (with appropriate privacy safeguards) could and should be made available in, say, XML format for all to analyze, annotate, and value accordingly. Data transparency is essential to rebooting the now paralyzed CDO market space; again, Web 2.0 can provide this kind of transparency.

Sharing intellectual property

The financial services industry needs to embrace the idea of sharing intellectual property (IP) so that everyone derives a benefit. Many pharmaceutical companies, for example, contributed to the public human genome project because their business model depends not on patenting genes but on discovering new drugs. In the software industry, open-source Linux has enabled IBM and RedHat to migrate the locus of competition from the operating system to applications, integration, and services.

Why should the technology, data, and risk assessment models that are used to value investment products today be kept secret? When financial numbers are based on opaque models that are derived from mathematics so complex that even the company's executive management does not understand them, how can we ever believe the stated profits or losses of any financial institution, or have confidence in its asserted capital base and financial soundness?[12] Today, many banks have proprietary algorithms for pricing and calculating VaR. But the results can, in some instances, be influenced and even manipulated by the correlations and other seed values used in these algorithms.

The customer who purchases the product without knowing the algorithm or its underlying assumptions is, in essence, assuming at best an opaque liability and runs the risk of a rude surprise. Much of the underlying algorithms in the IP for derivative systems was published by Fisher Black, Myron Scholes, and Robert Merton decades ago. These formulas have been updated and extended in the public domain in John Hull's *Options, Futures, and Other Derivatives*. Variants should no longer be considered differentiators by current derivative system software suppliers. Further developments, used as secret sauce, can be erroneous and destabilizing. They should be put in the commons and peer reviewed by the crowd.

Most large financial institutions are more a federation than a single enterprise. When institutions such as Bear Stearns or Enron collapse, other financial institutions discover that their VaR systems had marked that same global enterprise as many different "independent" counterparties in different systems. For example, the CIO of one multinational recently shared with us that they had over 200 partially reconciled databases of customer information. (He actually said that he had "over 200 customer information files," but we think having more than one is an oxymoron.)

We know from Enron that subsidiaries or quasi off-balance-sheet sister companies can be mistaken for independents. But even if you are smart enough to recognize that one of your counterparties is at risk, today, it is impossible to discern that your most trusted customer may have a huge exposure to that same counterparty. Further bank failures seem almost inevitable since so many financial institutions, unaware of their true counterparty risk, are hoarding cash to reduce their chances of being the next victim. Many agree that the daunting task of trying to maintain the interrelationships between counterparties should be centrally managed. Papermaster emphasizes that, "everyone managing their siloed views of counterparty risk" is one of the biggest risks out there.

To take the model even further, the Fed or other regulatory agencies could mandate the creation of global VaR models. Each financial institution would report its own detailed holdings, with counterparties identified through a common system. No institution could see any other institution's current holdings, but the Fed could see the details, and aggregated, anonymized information could be made publicly available. Armed with this information, the regulators, for the first time in history, might be able to see and ameliorate risks and avert future global meltdowns.

To reboot the system in a reasonable time period, the banks need to recapitalize, and trust their IP to the wisdom of the crowds. It is true that the banks are now acting more conservatively, with a much lower cost of funds (due to Fed rate cuts), and will eventually recapitalize, but at what cost to the housing, commodity, and other markets? From a competitive standpoint, can the US or any country, sit back and wait as its economy stagnates, while other less-affected nations move forward?

Acting globally

National approaches to this problem, while necessary, are clearly insufficient. Risk is global in character. Bloomberg reports that Japan's real estate market has now "stalled as financing evaporates."[13] The sub-prime slime—or more precisely, the lack of trust it has created—has dried up credit everywhere. The same is true in New Zealand.[14] Even the casinos of Las Vegas are feeling the squeeze. The financial world is an interconnected one. Doubtless ripples from what is now Europe's emerging credit crunch will ripple back from across the Atlantic to adversely affect the American economy as well.

Local actions in one country will do little to prevent the next implosion. Wild oscillations in currency and commodity prices threaten existing business models making everything more expensive and unpredictable. It is a global market, and differing and sometime conflicting rules and regulations by country only confuse the issue. To level the playing field, a rising tide of cooperation is the only option left, forcing secretive opaque financial institutions to be exposed to the wisdom of the crowd. It's time to align responsibility with accountability.

When thinking about how to best assess and proscribe capital adequacy one might look to best practices on a global basis and then adopt them. For example, the state of New York regulatory insurance regime may now be providing a viable solution to the indemnity end of the credit derivatives market. This regime calls for the appropriate reserving against potential claims and the providing of collateral against such reserves by entities falling outside the control of US insurance regulators. Having an insurance company take excessive risks without providing adequate collateral, by simply avoiding regulations through an unregulated holding company, can no longer be accepted.

There is no advantage in having a separate set of books for Basel II vs. the Financial Accounting Standards Board (FASB). This crisis to some degree is the result of deregulation in the US at a time when the EU and others were doing the opposite; increasing regulation and capital adequacy requirements. While we don't think that regulation will ever keep pace with the creativity of the markets, global problems require global responses, and harmonization of best practices and regulation has a long way to go to catch up with the globalization of today's markets.

THE CHALLENGE OF LEADERSHIP

Achieving a new model of risk management is a major undertaking. New paradigms cause uncertainty and are often received with detachment or worse. Vested interests often fight change and yesterday's leaders are often the last to embrace anything new.

Would a move to a bold new framework described here as Risk Management 2.0 disenfranchise investment banks? We don't believe so. Consumers would still want access to investment expertise, aggregation, clearing, accounting, and other services. But on pricing and risk, trusting the independent wisdom of the crowd is what every investor needs. Wikinomics means that competition would remain robust on Wall Street, but in a more open, transparent, and collaborative way.

A RISK MANAGEMENT 2.0 MANIFESTO: PROPOSED PHYSICAL IMPLEMENTATION

We believe that a fresh perspective on risk management and an attitude of collaboration—empowered by Web 2.0 tools and technologies—will go a long way towards preventing future crises. The risk management industry could learn much from the software, educational, entertainment, mining, and other industries that have harnessed the collaborative powers enabled by the Internet. We believe that the timely restoration of trust in global markets lies in the principles of Wikinomics. Manifested as both ideas and software, Wikinomics will go a long way toward rebuilding confidence, freeing up capital, and restoring liquidity to the marketplace.

To that end, we propose the following recommendations:

1. All structured finance securities and related derivatives can and should be defined as mathematical equations characterized by software code—not a phone book of legalese. This code should be published in the public domain for all to review; clearly communicating the cash flow waterfalls and risk assessment logic.
2. The massive amount of counterparty data underlying CDOs and other instruments needs to be published in the public domain—preferably in an XML format.
3. The Service-Oriented Architecture messaging to connect the algorithms and data needs to be readily available. (It should be possible to run scenarios based on customized assumptions and correlations using multiple pricing models that are readily available.)
4. Banks should publish their VaR models in the public domain to enable investors to view the instruments and their underlying data through these models.
5. Counterparty management and its errors should not be left up to individual institutions. This is best managed centrally, as software and service.

Moving forward, these deals need to be modeled in a professional and transparent way which is subject to the wisdom of the crowd so that all can benefit. Models need to be publicly vetted. Risk management needs to be elevated beyond the profit center and the institution so that counterparty and systemic risk can truly be understood and managed.

To avoid "adverse selection," all parties involved in the mortgage-backed security business should share in the inherent risk of opening up. If they don't, John Hull asserts "they should remain unrated." Creating a questionable and obtuse instrument, claiming it has value, and selling 100% of it should be deemed unacceptable. Investment houses should share in the risk they package and sell by retaining a vertical slice (a proportional share of all tranches). Risk management expert Derrell Hendrix notes that "selling 100% of a pool [and] taking no vertical retention is a potential license for litigation when things go wrong." There need to be meaningful negative incentives to selling bad risks. It was five years ago that regulators and ten security firms reached a $1.4 billion conflict of interest settlement regarding tainted research. But in a nuance that has damaged the free market system, those regulations apply to equity securities, not to ABS. Regulation is not the answer. Wikinomics is.

APPENDIX A

FINANCIAL MARKET IMPLOSIONS: WHAT MIGHT WE FEAR? RESPONSES: WHAT MIGHT WE DO?

Today's Problem	Today's Response	Risk Management 2.0 Response (Based on Wikinomics principles and Web 2.0 technologies)
A1 After 21 years of aggressive deregulation, the repeal of the post-depression Glass-Steagall Act and growing concentration in the financial services sector, the banks created highly-leveraged instruments and an artificially liquid secondary market for trading mortgage derivatives. For the banks, these opaque subprime mortgage instruments were highly-profitable. Through brilliant structuring, these instruments created paper profits before the first mortgage payment was ever received. Obfuscated through derivative structuring, these questionable assets were sold as supposed AAA investments on secondary markets to naïve investors.	Calls for greater regulation, (from, for example Basel II), will adjust capital adequacy provisions, and establish risk-adjusted performance measures for capital allocation. The problem is that the major shift from simplistic capital adequacy ratios in Basel I, to more complex algorithms in Basel II, puts the banks in charge of calculating their own VaR. The recent credit implosion is the result of massive bank VaR miscalculations. Clearly, Basel II will, in the short term, create even more stress on the already de-capitalized banking system. In the short term, the greater the capital requirement, the greater the credit contraction, and the risk of a bank's default.	Investors demand complete transparency of all financial instruments. Financial Institutions comply to reboot the current system.
A2 The subprime crisis. Mortgage based derivatives' underlying hidden assets quickly transformed from liquid AAA insured investments to illiquid, intangible, uninsured (read: defaults or litigation) paper. Mortgage losses have left the markets in a prolonged slump. "Wall Street's money-making machine is broken… No one is sure the model works anymore"[15] Banks are sitting on hundreds of billions of dollars in CDOs and other real estate derived assets that are opaque. Because trust in the CDO marketplace is gone, these assets are of unknown value. Apparent insider and hedge fund manager John Paulson is collecting his $3.7 billion bonus for his part, arguably, in exacerbating the crisis.	With no way of knowing the real depth of the crisis, it is hoped that optimistic statements from various CEOs will restore trust, and reboot the system. Dimon of JPMorgan and Chase asserts that the credit crunch is "75% to 80% over." Fuld of Lehman Brothers announced "the worst is behind us," only to implode on Sept. 15. Goldman Sachs' Blankfein opines, ``We're closer to the end than the beginning." But few believe them; consumer confidence is in the basement.	The public calls for direct access to the data underlying today's financial instruments. Assurances from bankers and rating agencies regarding the "grade" of investment will not suffice. In the age of Service-Oriented Architecture (SOA) and the Internet, it is now possible, and optimal to create a platform that allows the investor to drill down on a security and see the underlying assets, their approximate location, payment history, neighboring geographics, other investors' blogs and other trends that affect value.

Today's Problem	Today's Response	Risk Management 2.0 Response (Based on Wikinomics principles and Web 2.0 technologies)
A3 Casualties. Bear Stearns, Northern Rock, Fannie Mae, Freddie Mac, and Lehman Brothers, were all caught in the collapse. Bond insurer ACA Financial Guaranty's assurances are now worthless. Over the last year, insurers Ambac and MBIA have been highly volatile with stock down as much as 85-95%; Citi was relatively unscathed, down 60%. Banks, to date, have written off $500 billion but many say real losses more likely approach $1 trillion. Volatility is high. Market confidence is low. Fear is everywhere.	Lawsuits/counter suits (class action, employee etc.) obfuscate the blame. MBIA employees are now suing their own company. It will take a decade to work out these cases. But do we have a decade to restore faith in US markets, in the face of global competition?	Fewer lawsuits: Complete transparency increases trust, better manages expectations, halts false rumors that can destabilize a bank, and in the worst case—the system. Those few in the know today (Wall Street) will lose their inside track. Wikinomics creates true competition on a level playing field, and reduces risk for all.
A4 Losses threaten banks' very existence and that of many other financial corporations as well. When a large institution fails, a cascading effect may take down the entire system.	Governments rescue those "too big to fail" at taxpayers' expense; alleviating the original "systemic risk" by funding Bear Stearns, Northern Rock, Fannie and Freddie and others' bad debt. Cries to help Main Street as well as Wall Street increase in volume, and will likely be a US and British election issue. Central banks demand increased capital, transparency, reporting frequency, and better risk management—without indicating how to achieve it.	If through SOA, peering the technology, data and models for pricing and VAR were in the public domain, the errors in risk management that resulted in this market implosion would, thanks to the wisdom of the crowd, be eliminated.
A5 Bank losses force credit contractions.	Central banks lower interest rates and open the discount window, preventing runs on financial institutions, but doing nothing (in the short term) to address their sector's solvency issues. Japanese finance minister Fukushiro Nukaga, (among others) has called on the G7 to act and demand greater openness and transparency from banks.	We can't repeat Japan's mistakes. Hiding bank losses from the Japanese meltdown in 1990 resulted in what has been referred to as "the lost decade." The sooner banks are transparent, losses recognized, IP shared, and risks understood, the sooner the system will be re-capitalized and markets can recover.
A6 Credit contractions force others to fail.	Contraction in corporate credit causes "collateral damage," taking down innocent victims, and creating a cascading effect of losses.	Banks hiding their losses, increasing spreads, and hoping to be slowly recapitalized, only delay the inevitable. It's time for the true losses to be reported, the banks sold or recapitalized, and the system rebooted.

Today's Problem	Today's Response	Risk Management 2.0 Response (Based on Wikinomics principles and Web 2.0 technologies)
A7 Corporate credit and resulting investments plummet.	A capital flight from the US private sector to the Euro and commodities. Volatility in most commodities is now a ridiculous 80%. Hedge funds have realized that the laws of supply and demand don't (immediately) apply to oil and food. Speculators now own much of the futures market and are buying and selling at their desired price.	Highly leveraged hedge funds have notional values in derivatives far in excess of the US GDP. Their positions need to be reported and regulated to ensure free markets are not manipulated, and also to ensure access to food by the world's poor. A global crisis requires a global solution.
A8 Bank losses force further credit contractions.	Credit contractions are reported everywhere from student loans in the US to farm loans in New Zealand. Banks create less transparency, hoping to buy more time by marking-to-models (as opposed to marking-to-market) thereby delaying the reporting of their actual losses, thereby decreasing investor and consumer confidence even further. Banks are dribbling their off-balance-sheet positions back onto the balance sheet slowly attempting to hide their lack of capital (and ability to lend) from the public.	It is time for governments to act and guarantee all deposits in regulated institutions. In exchange, banks and hedge funds need to become completely transparent, report their actual losses, recapitalize through the private (ideally) or public sector (as Sweden did in 1995), and reboot the system. Calls for greater transparency of the data and algorithms that underpin calculations for pricing, and VAR, need to be published for peer review through a competitive/ collaborative platform.

GLOSSARY

Risk

One needs capital to open a bank. This capital bears the first risk. Banks may raise (roughly) 12 times their capital in deposits or other forms of borrowing. To receive deposits or borrow in any form, banks must first be trusted. To make a profit, banks must deploy their capital and deposits—which places that money at risk. The returns from these credit exposures are first paid to depositors as interest, and the remainder is used to repay capital as profit. If capital is depleted, banks must reduce credit, or raise more capital to get back into compliance with regulated ratios. (Neither is currently happening at a credible pace.)

The Basel Committee on Bank Supervision (BCBS), the FASB, and others, regulate these ratios, which are simply referred to as the bank's "capital adequacy requirements." Generally speaking, if a loan is on-the-balance-sheet, it affects a bank's capital adequacy; if a loan is off-the-balance sheet, the reverse holds. For example, if a bank lends someone money directly, the loan appears on-the-balance-sheet (as an asset.) If for a fee, the bank guarantees someone else's loan, it may not appear there.

To a banker, the more you can get assets off the balance sheet and earn a spread or fee, the more capital can be leveraged and the greater the potential for reward. Bankers focus on creating off-balance-sheet instruments. Regulations often focus on just the opposite, getting adequate capital behind banks' loans and guarantees to ensure banks remain solvent and depositors are not at risk.

Service-Oriented Architecture (SOA)

A Service-Oriented Architecture (SOA) is one in which software is defined and written in building blocks of decoupled services that conform to a set of standards and principles that allow for their discovery, execution and re-use. These typically stateless and autonomous tasks can be aggregated and composed into more complex services that perform business tasks within or between firms. For today's implementation, these services are Web-enabled Services that conform to an evolving set of agreed upon standards. These include WSDL (the Web Services Description Language) for their definition, UDDI (the Universal Description, Discovery, and Integration Protocol) for their visibility and on SOAP (the Simple Object Access Protocol) for their execution.

To reduce complexity, shorten response times, and increase intersystem integrity, SOA implementations tend to be based on the guaranteed delivery of autonomous messages and the resulting asynchronous execution of the requested service rather than the traditional highly interdependent (and at times problematic) remote procedure call.

An SOA implementation hides from the requestor complex, and at times, proprietary logic, the platform it operates on, the location it operates in, and the computer language it is written in, from those that use it. It positions a company's system for seamless interoperability internally and with others.

The rules of the message exchange and the underlying business logic can be defined, overseen and orchestrated by one party, or dynamically negotiated through collaborative processes within a b-web. BPEL, the Business Process Execution Language, provides the process description and needed vocabulary used by middleware to manage and oversee b-web integration, moving systems beyond the enterprise towards more federated systems.

For business webs, the promise of this technology is for systems to find, negotiate, and establish trusted relationships whose transactions can create value directly from computer to computer. Ideally, humans can move beyond the day-to-day execution of tasks that create value, to defining the processes, rules and relationships that create it.

ENDNOTES

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ABOUT THE AUTHORS

Robert (Bob) Tapscott is provisional CEO of RIS-Consulting, specializing in cutting-edge financial risk and capital management solutions for large institutions worldwide. As a former CIO he has a diversified background in organizational creation and transformation, having delivered bottom-line results from the successful design, construction, and implementation of new strategies, systems and processes.

Don Tapscott is Chair of the Innovation Network arm of nGenera Corporation, an Austin, TX-based technology company serving a marquee list of Global 2000 customers. He is the author or co-author of 12 books, including *The Naked Corporation* and most recently, *Wikinomics*. His upcoming book (November 2008) is *Grown Up Digital: How the Net Generation is Changing Your World.*

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UNLEASHING THE ENTERPRISE

Strategy Domain	Closed Corporation	Enterprise 2.0
1. World View	National Engine – US, Japan, Europe Protectionist	Global Engine – China, India, Emergent Free Trade
2. Corporate Boundaries	Vertically-integrated Non-porous Content M&A	Focused on Core Channel/Customer Ecosystems Context, Agency + Fast Track Business Models
3. Value Innovation	Closed Innovation Do It Yourself	+ Open Innovation + Co-Creation
4. Intellectual Property	Proprietary Protected	+ Open + Shared
5. Modus Operandi	Plan and Push Hierarchical Power over ... Lumbering	Engage and Collaborate Self-organizing Power through ... Agile
6. Business Processes	Internal (Enterprise Integration) Complex Hardwired	External (Inter-enterprise Integration) Modular Reconfigurable
7. Knowledge and Human Capital	Traditional Demographics Containerized Knowledge Internal	+ Global Net Generation Collaboration + Across the Collaborative Ecosystem
8. Information Liquidity	Opaque Asynchronous Processing Traditional BI	+ Transparent Real Time Networked Intelligence
9. Relationships	Transactions Product/Services	+ Relationship Capital + Experiences
10. Technology	Proprietary Monolithic Silos Enterprise Dumb Networks	+ Standards-based Service-oriented Interoperable + Inter-enterprise Intelligent Networks

This report is an analysis of a Big Idea, presented as part of nGenera Insight's Enterprise 2.0: Unleashing the Enterprise Program. The program, sponsored by leading companies such as yours, is investigating new business designs and strategies for competing in the networked business world. Specifically, the program examines how a new business model of global, technology-driven collaboration is emerging as the foundation of competitiveness, growth, and sustained success.

Research Leadership

Don Tapscott: Chairman, nGenera Innovation Network

Nick Vitalari: Vice President, Enterprise 2.0

Nauman Haque: Program Manager, Enterprise 2.0

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