# YOUR NEW WORLD

## A VISUAL GUIDE TO GLOBAL COMMERCE

UNISYS

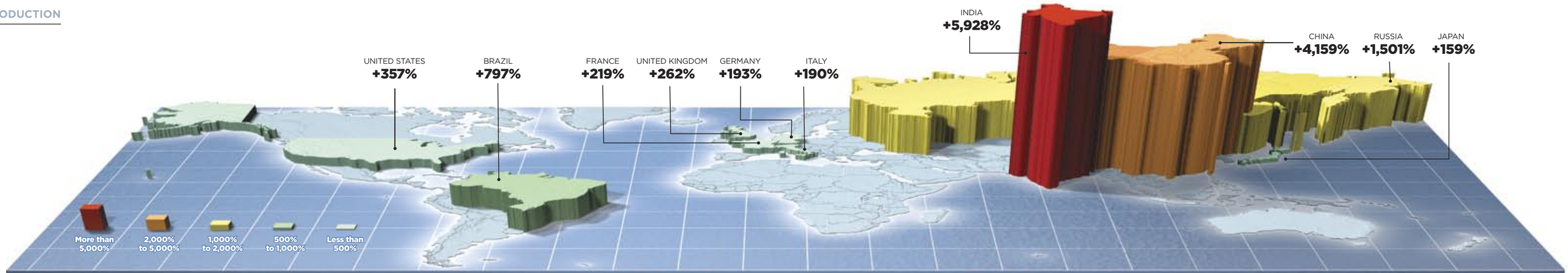
# YOUR NEW WORLD

## A VISUAL GUIDE TO GLOBAL COMMERCE

UNISYS

# It's big. It's bright. It's vulnerable.

This latest phase of globalization is so hyper-connected, so packed with gears and levers that the world is still scrambling to understand it. Powerful? It's a force that can lift your fortunes like a rocket, revealing a world of almost soaring opportunity. But then one day that global momentum flips, somehow. Your system gets




## A Look at the Future

The map above shows projected GDP growth between 2000 and 2050, according to a Goldman Sachs report. The projected figures at right show China overtaking the United States as the nation with the world's largest gross domestic product sometime around the year 2040.

| YEAR | UNITED STATES | BRAZIL | UNITED KINGDOM | FRANCE | GERMANY | ITALY | RUSSIA | INDIA | CHINA | JAPAN |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | $9.82 trillion | $762 billion | $1.44 trillion | $1.31 trillion | $1.87 trillion | $1.08 trillion | $391 billion | $469 billion | $1.07 trillion | $4.18 trillion |
| 2025 | $18.3 trillion | $1.69 trillion | $2.46 trillion | $2.09 trillion | $2.60 trillion | $1.62 trillion | $2.26 trillion | $3.17 trillion | $10.2 trillion | $5.57 trillion |
| 2050 | $35.1 trillion | $6.07 trillion | $3.78 trillion | $3.15 trillion | $3.60 trillion | $2.06 trillion | $5.87 trillion | $27.8 trillion | $44.5 trillion | $6.67 trillion |

*Source: The Goldman Sachs Group, Inc. (2003)*

hacked. A labor strike hits. A container ship goes down, or a bad bottle of pills is suddenly global news. Whatever happens, it happens fast, as what carried your business up drags it down with equal force. What you feel is literally the weight of the world, as suddenly everything that worked for you is working against you.

How do you protect and maximize the economics of your business in such a world? How do companies balance a world of such breathtaking opportunity with such daunting risk? Striking a better balance is what this visual book is about: It's about visualizing a world buffeted by so many forces — many all but invisible in the daily blur of events — that it is almost better seen than explained.

To prevail, companies need to better understand these global dynamics — the mega-force of a China or a Wal-Mart, for example. To win, companies need to better understand how such forces affect the world at large, and their worlds in particular. Finally, they need to understand the cascading effects of their most critical business decisions, effects that, in a hyper-connected world, with so many partners involved, can unfold in perplexing new ways.

So how can organizations re-establish control in such a world? It's a process that begins with readiness. It means creating a supply system that is agile and adaptable, a system that can drive down risk and better manage costs while driving up shareholder value. Ultimately, it demands new visibility into your supply chain — visibility into goods, processes, shipments and people. Such control means mastery of all the particulars of wealth creation, from landed costs and the availability of goods to the ability to curb theft and enhance security.

Technologically speaking, such acuity is a fairly new ability. And it's vital not only in day-to-day competition but in periods of global upheaval: a strike, a new regulatory hurdle, the next Mad Cow Disease or the global effects of a terrorist event. While others are still reeling or waiting it out, the company with enterprise visibility reviews the options, then maps out other plans — in real time.

Move into a new market. Reconfigure the supply chain. Change your whole business model. The company with visibility can see precisely how that next move might play out — without risking the wrong move. While others grope, the company with visibility can see the full cascading effects of possible decisions, as well as their associated economic impact. It fine-tunes the plan — then acts.

Visibility begins in the realization that our era of globalization truly *is* new — new in both complexity and the sheer speed of events. To better see it, consider two distinct stages in how this latest phase of globalization began.

The first stage came with the fall of the Berlin Wall. As those walls toppled, they opened up vast new markets and new hopes. They also opened labor pools of people hungry to work, hungry to expand, modernize and accumulate bundles of wealth. As globalization expert and *New York Times* columnist Thomas L. Friedman observes, "If the defining perspective of the Cold War was 'division,' the defining perspective of globalization is 'integration.' "

The second stage of globalization came in the mid-1990s,


with the explosion of the Internet. Whatever its early stumbles, the Internet really did change everything. Here it was, Global Main Street, with every shop open, 24/7. Beyond time or place, it was a world where goods and labor could be sourced at less expense to countries like China or Poland, better yet with a supply chain that could carry those goods with unprecedented efficiencies. Its other force was psychological, erasing the sense of distance as a limiting factor. As *The 9/11 Commission Report* observes, "To us, Afghanistan seemed very far away. To members of al Qaeda, America seemed very close. In a sense, they were more globalized than we were."

THE RESULT is arguably a new global risk equation, new in form and scope, and utterly new in its ability to unleash multi-country pileups of stunning speed and severity. Why? Because by connecting to a world of opportunity, your company binds itself to a world of unprecedented risk. For better and worse, you connect to the force effects of everybody and everything else in the global system: a connected risk with highly connected force effects.

Consider the force effects of China. Today, China's factories and new cars are driving up the prices of oil, coal and other key commodities. At the same time, China is driving down the price of finished goods to what is now known as the "China price" — the world price for any manufacturing that is transferable.

But what if there's a new strike, like the U.S. West Coast Port Strike of

## $36.3 trillion

Total **world Gross Domestic Product** for 2003.

## 17

The number of **handoffs** associated with the average international container, compared with eight for a domestic container.

## 100,000

Average number of **documents** tracked by a large container vessel.

## 80%

The amount of **world cargo** that moves each year by sea.

## 445

The number of **seaborne piracy attacks** in 2003 — a steep jump from the 285 attacks recorded in 1999.

## 9.5%

Percentage of U.S. GDP spent on **logistics** in 2001, or $970 billion. That's down from 20 percent in 1960, showing how much more efficient logistics have become.

## $850,000

Average cost per major **protection and indemnity claim** involving a container ship — up from $190,000 in 1991.

## 5%

Percentage of the 15 million containers hitting U.S. shores that are **physically inspected**.

## 3

Number of ports through which **80 percent** of U.S. trade passes.

## 25%

Percentage of today's **oil prices** attributable to a "terror premium."

## 20%

Percentage increase in the price of **steel** this year, driven by surging Chinese demand.

## Eighth

Wal-Mart's rank among China's trading partners. **Wal-Mart** now accounts for 2.5 percent of the U.S. GDP.

## 335%

Growth in **trade volume** handled by the Port of Shanghai — from 2001 to 2002.

## 30%

Percentage of **Asian trade** that passes through the narrow straits of Malacca — waters notorious for shipping piracy.

## Double

Increase in **air shipments** between 1993 and 2002, making air the fastest-growing mode of transporting goods around the world.

**"With the exception of airports, much of what is critical to our way of life remains unprotected."**

— *AMERICA THE VULNERABLE,* BY STEPHEN FLYNN

**"Private-sector preparedness is not a luxury; it is a cost of doing business in a post 9/11 world."**

— *THE 9/11 COMMISSION REPORT*

## $1 billion

**Daily losses** caused by the 11-day West Coast Port Strike of 2002.

## 90

Number of ships still **waiting to be unloaded** nearly a month after the West Coast Port Strike was settled.

## $3

Additional cost of producing each pair of **New Balance shoes** during the West Coast Port Strike. To keep its factories open, components had to be transported by air instead of by sea.

## $30 billion

Estimated cost of **pharmaceutical counterfeiting** and related activities worldwide.

## $350 billion

Cost of **global counterfeiting** — infecting an estimated 7 percent of all global trade.

## 5 cents

Expected price of **Radio Frequency Identification (RFID) tags** for clothing by 2006. The current price is about 16 cents on orders of 10 million tags. By 2010, companies in all industries are expected to spend $11 billion on RFID technology.

## 200,000

Bottles of **faked Lipitor** *(atorvastatin)* pulled from U.S. pharmacy shelves in 2002. The counterfeits were so convincing that they sat for months undetected.

## Top 5

The five busiest ports in the world are located in the **Asia-Pacific rim.**

## $800 billion

Cost to the world in reduced corporate spending as a result of political risk (strikes, terrorism, etc.), a phenomenon known as the **"Uncertainty Premium."** Prior to Sept. 11, it was $200 billion — one-quarter that amount.

## 2 billion

Tons of freight carried on **America's rails** every year. That's seven tons for every person in the United States.

## 3 football fields

Length of a **container ship**. These ships can carry as many as 5,500 containers per voyage.

2002? What if SARS returns? What if China's financial system — loaded with bad debt — produces a second, more potent dose of the Asia "flu" of 1997? That's a connected effect, connected to you and everything else tied to China's fortunes.

Then there's the continuing force of 9/11. As U.S. strategist Thomas M. Barnett observes of that era, "economics got out ahead of politics, and technology got ahead of security ... In some ways, we got lazy, counted too much on the market to sort it all out, then woke up shocked and amazed on 9/11."

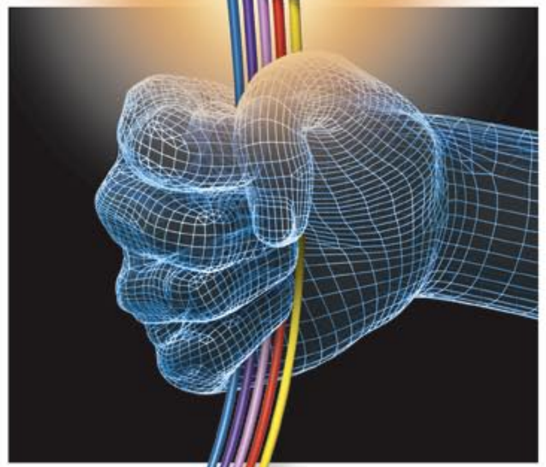
But security isn't the only issue at stake. The other major issue is the need to better balance the economics of the business to drive shareholder value. For instance, the true cost of theft — a $15 billion problem annually. Or the need for better disruption management. Or the need for business to better manage governmental regulations, many already here, and many more on the way.

Nor can we ignore the imperative to evolve in a world with Wal-Mart-sized expectations. Wal-Mart and other leader retailers are now demanding RFID of their largest suppliers, the goal being deeper visibility into supply, pricing, and customer buying habits. And overnight, it seems, RFID is an issue for everyone. That's the Big-Buyer Effect.

Then there are the big what-ifs, the wild cards. In 11 days, the recent West Coast Port Strike cost business a billion dollars a day, sending shock waves from Shanghai to Chicago. But what if your supply chain had the visibility to be redirected — on the fly, in real time? What if you had a visibility map, a highly detailed view of your world that could help you better see how to merge your operations with those of a new partner? Imagine it: Seeing all the hidden costs of new trade routes — before you make new sourcing decisions.

And what if a near event were to trigger a temporary shutdown of most U.S. ports? Imagine how fast the world would grind to a halt. Then imagine how long it would take to restart the system, especially when experts calculate that even an eight-day stoppage would leave a 92-day pileup of goods. But what if you had the ability to globally deploy rapid workarounds, improving your odds because your company could see a better path out?

CONSIDER THESE UNSETTLING STATISTICS: the 5.8 billion tons of cargo — 80 percent of the world's volume — that moves each year by sea. How do you track it, 46,000 vessels and 11 million shipping containers moving among 4,000 global ports? How do you assure the security of those 11 million containers, especially when only 5 percent are physically inspected in the United States? Today, global visibility means the visibility to watch goods in transit, to know if they've been tampered with. It means the visibility to act — in a financially beneficial way — when things go wrong. It means the visibility to know when goods will arrive, precisely what the shipment contains (numbers, size, colors, etc.) and what everything costs — to the penny. Visibility also means the ability to better comply with regulations and customer requirements.



Finally, with visibility, you have power to discern whether goods are real — as opposed to the estimated 10 percent of fake CDs, games, and toys that now flood the world's markets at a cost of billions. Visibility likewise means being able to see counterfeit pharmaceuticals. In China, where tens of thousands die annually from counterfeit drugs and phony medical devices, nearly one out of every two pills is fake. Meanwhile in the United States, there was a recall of 200,000 bottles of counterfeit Lipitor. But what if you could track pharmaceutical shipments, down to the item level? With better visibility, pallets and even items can be tracked and traced in real time.

The fact is, under our noses, the world has changed, leaving a supply system not so much broken as overtaken by events. At once over-built and under-built, our supply system was designed for another era, not the vastly expanded threat levels of our age. This was abundantly clear from the events of 9/11, and it is clearer everyday as businesses and governments the world over take steps to better secure — and harvest more value from — our skies and seas, roads and railways.

Globalization: Today, the world's greatest opportunity also presents some of its greatest challenges. This book offers a fresh view of the task ahead, telling the story through a series of information graphics — images designed to help business leaders and policymakers better grasp the big picture while seizing the world's ever more abundant possibilities.

# Every day, millions of containers circle the globe. A bad one could paralyze the world's economy.

A serious container event — even just one bad container lost in the global system — could trigger a massive port shutdown. Clogged harbors and jammed truck terminals. Idled factories and empty shelves. Then the work furloughs begin, not just locally, but worldwide. It could be a disaster film, only it's no movie. It's reality.

# From Pakistan to Peoria . . . Seventy-five days and 14 handoffs later, how one cotton shirt makes its way from Karachi's garment district to a Midwest department store.

THE TYPICAL SHIPPING container can pass through 17 handoffs, or nodes, each posing a new risk. This route — from Karachi, Pakistan, to a Midwest department store — involves four modes of conveyance, five countries, one canal and three seas. The bigger risk: many teams in many places.

Here, a reputable global clothing manufacturer stuffs and seals the container in Karachi, a city with a history of unrest. Eventually, the container is hoisted aboard a ship — without sufficient visibility, a needle in thousands of haystacks.

Consider, too, the risk picture of Pakistan. Surprisingly, for a poor country, theft (a huge problem in Latin America, for instance) is relatively minor. More likely: plentiful heroin from nearby Afghanistan. And arms: AK-47s, rocket-propelled grenades, even shoulder-fired missiles capable of bringing down an airliner. Then there's the risk of hitchhikers, like the presumed terrorist who was found hiding inside a container with airport maps and a phony mechanic's ID.

Current remedies: Measuring the container (has a double wall been created?) and weighing cartons (too heavy for shirts?). More ambitious: radiological and biological inspections, GPS, and even RFID knowledge down to size, color and numbers. For details, turn to page 26.

**1**
**DAY 1**
**KARACHI, PAKISTAN**
A purchase order is cut for 600 cartons of shirts — some 75,000 in all. The order is then filled by a contract manufacturer in Karachi's Textile District.

**2**
**DAYS 2-24**
**KARACHI, PAKISTAN**
Cartons of finished goods are delivered by truck to the consolidation warehouse.

**3**
**DAYS 24-26**
**KARACHI, PAKISTAN**
The consolidation warehouse loads cartons into a 20-foot container, then seals the container using a barrier seal and indicative tape.

**4**
**DAYS 28-29**
**KARACHI, PAKISTAN**
A container truck picks up the loaded container and transports it to Qasim International Container Terminal.

**5**
**DAY 30**
**KARACHI, PAKISTAN**
The container is checked into Port Qasim. There, after being released by customs and terminal authorities, it is loaded onto the feeder vessel.

**6**
**DAYS 31-35**
**ARABIAN SEA**
The feeder vessel sails from Karachi to Sri Lanka by way of Mumbai, India. This first part of the journey takes five days.

**7**
**DAY 36**
**MUMBAI, INDIA**
The vessel arrives at Mumbai Port. After discharging some containers, the vessel then departs for Sri Lanka.

**8**
**DAY 39**
**COLOMBO, SRI LANKA**
Vessel arrives at Colombo Port. There, the shipping container is trans-loaded from the feeder vessel to the mother vessel, bound for the United States.

**9**
**DAYS 40-59**
**AT SEA**
The mother vessel sails 18-19 days to Halifax, Nova Scotia, traveling through the Suez Canal, across the Mediterranean, then across the Atlantic.

**10**
**DAY 59**
**HALIFAX, NOVA SCOTIA**
The mother vessel arrives in Nova Scotia. More containers are discharged. The vessel then departs for the final leg of its journey to the United States.

**11**
**DAY 62**
**NEWARK, NJ**
The mother vessel arrives at the Port of New York/New Jersey, where the container is offloaded. After customs and terminal release — a painstaking process for any container from South Asia — it is then hoisted onto a container truck.

**12**
**DAY 65**
**CLEVELAND, OH**
The container arrives by truck at the distribution center. Here, officially taking control, the shipper breaks the lock, unloads the container, then enters relevant tracking and location data into the warehouse receiving system.

**13**
**DAY 69**
**CHICAGO, IL**
Three hundred cartons of shirts arrive by truck at the warehouse of a major department store. There, the cartons are received and put away. Then, after the store sends a demand signal, the selected cartons are packed and shipped.

**14**
**DAY 75**
**PEORIA, IL**
Final store delivery. Shirts are removed from the carton and placed on sale for $24.99. You'll take the blue — and wear it that night at the barbecue, a little more than 10 weeks after it was ordered.


## Busiest Ports, Ranked By Container Traffic

Measured in Twenty-Foot Equivalent Units (TEUs)

| PORT | CONTAINERS PER YEAR | PORT | CONTAINERS PER YEAR |
|---|---|---|---|
| 1. Hong Kong, China | 19,144,000 | 6. Shenzhen, China | 7,614,000 |
| 2. Singapore | 16,941,000 | 7. Rotterdam, Netherlands | 6,515,000 |
| 3. Busan, South Korea | 9,436,000 | 8. Los Angeles, California | 6,106,000 |
| 4. Shanghai, China | 8,620,000 | 9. Hamburg, Germany | 5,347,000 |
| 5. Kaohsiung, Taiwan | 8,493,000 | 10. Antwerp, Belgium | 4,777,000 |

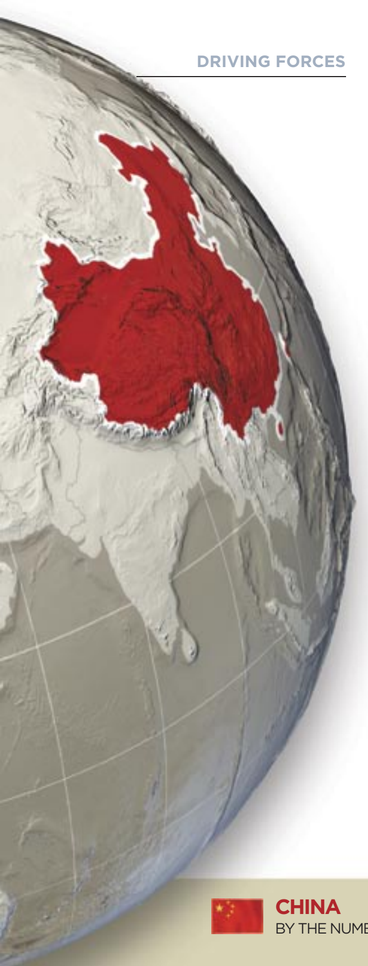
*Source: American Association of Port Authorities (2002)*

## Busiest Ports, Ranked By Cargo Volume

Measured in metric tons

| PORT | METRIC TONS | PORT | METRIC TONS |
|---|---|---|---|
| 1. Singapore | 335,156,000 | 6. Houston, Texas | 161,190,000 |
| 2. Rotterdam, Netherlands | 321,851,000 | 7. Chiba, Japan | 158,929,000 (FT) |
| 3. Shanghai, China | 238,606,000 | 8. Nagoya, Japan | 158,020,000 (FT) |
| 4. South Louisiana, USA | 196,445,000 | 9. Kwangyang, S. Korea | 153,447,000 (RT) |
| 5. Hong Kong, China | 192,510,000 | 10. Ningbo, China | 150,000,000 |

FT = Freight Tons, RT = Revenue Tons



# THE CHINA EFFECT | TRADE TYPHOON

IT'S DRIVING DOWN the prices of manufactured goods. It's driving up the price of raw materials. It's even bidding up — doubling, in a single year — the cost of bulk freight ships. If you want to see the China Effect, look to the ships that feed China's factories, a network of ocean-borne conveyor belts stretching from sea to sea.

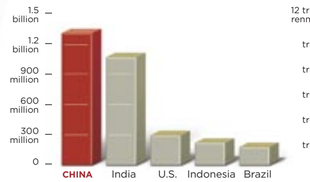
First, there's China's demand effect on the availability and price of raw goods. With oil consumption rising 30 percent in the last year, China surpassed Japan as the world's No. 2 oil consumer. Once a major coal exporter, China is now one of the world's largest coal importers. Add to that a country that now consumes one-third of the world's steel production and nearly a quarter of its copper. No wonder the world is now chasing supplies at sharply inflated prices.

On the production end, there's what is known in trade as the "China price," the price to meet if you want to stay in business. Take portable DVD players. With Chinese workers earning 1/36th that of American workers, Wal-Mart last year slashed the price of mini-DVD players. The same relentless dynamic allows China to successfully compete against auto-making robotics with skilled human labor paid $160 a month.

So will China be content to stay the world's industrial sourcing center, pounding out manufactured and electronic goods conceived elsewhere? Think again. Remember Japan in the 1980s, when the Japanese stormed the world with innovation and quality. Against a sluggish U.S. stock market, China is now a magnet for global capital: more than $300 billion in the 1990s, and some $50 billion last year alone. R&D? Last year China spent $60 billion, an investment exceeded only by the United States and Japan. However, China used almost twice the researchers that the United States did, again leveraging that powerful wage differential, not to mention its aggressive production of world-class PhDs.

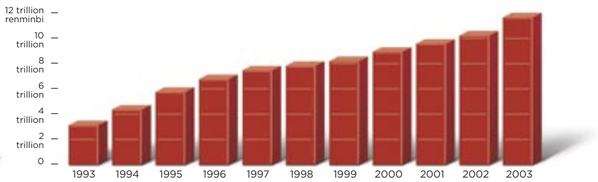
But what of Asia's many wild cards, Taiwan and North Korea, not to mention China's rickety banking system holding $500 billion in bad debt? With China, there's plenty that could rock your world, from supply to demand to shipping.

**POPULATION** *China has more than four times as many people as the United States.*




*Source: World Bank (2003)*

**GDP** *China's economy has boomed over the past decade. Last year, the country's GDP reached 11.7 trillion renminbi ($1.4 trillion), up 9.1 percent over the previous year.*




*Source: National Bureau of Statistics (2004)*

**CHINA** BY THE NUMBERS

| POPULATION (2003) | IMPORTS (2002) | EXPORTS (2002) | MAJOR TRADING PARTNERS |
|---|---|---|---|
| **1,288,400,000** | **$295.3 billion** | **$325.6 billion** | **Hong Kong, U.S., Japan, Germany** |

CORBIS


By 2040, China is expected to overtake the United States as the world's largest economy.

Instant news can have instant effects on global business.

CORBIS

## THE MEDIA EFFECT
### GLUED 24/7

THE CNN EFFECT is the BBC and the MSNBC Effect. It's the herd effect of news 24/7, all driving the kind of mass speculation and worry that can spark global stampedes.

It's the stock that takes a beating, often on little more than rumors. It's the gravity-defying story that won't go away — an eternity if it's your story. Above all, it's how stories can accelerate and mutate in a world with no off switch. All with huge impacts on global business.

It wasn't always so. Until 1980, when CNN opened its doors, people got their TV news in modest, meal-like doses. However, with the revolution in telecommunications — especially in instant live coverage — stories like the fall of the Berlin Wall and 9/11 (half the TV-owning public watched) became global events.

Omnipresence has its costs, however. Recent war coverage is often seen as a contributing factor in sputtering economies. Mad Cow? Within a month of the first U.S. case and the resulting media frenzy, the price per finished beef plummeted. Health scares? A British watchdog organization counted more than 200 in 2001 — scares involving such household terrors as wine, musical instruments and antiperspirants.

As *The New York Times* put it recently, "When the Terrorist Era meets the Information Age, a Time of Confusion results." The issue is managing the confusion, rather than succumbing to it. The task is to better monitor the storms, then to quickly find a safer harbor or at least a better workaround.

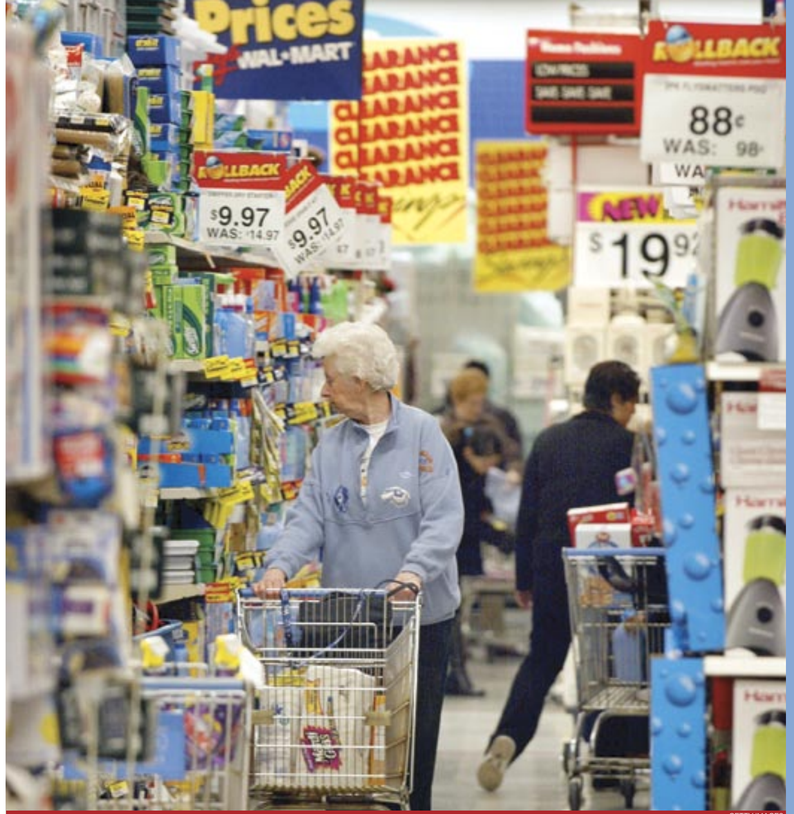
## THE BIG-BUYER EFFECT
### BECAUSE I CAN

QUICK. Who is China's 8th largest trading partner? It's $230 billion Wal-Mart. An economic nation unto itself, Wal-Mart dwarfs many economies, and no wonder, commanding tens of millions of global buyers all exercising their sovereign right to save.

Such consumer allegiance means more than political, zoning or wage-setting clout. It also translates into vendor compliance, as when Wal-Mart decreed that its top 100 suppliers will adopt RFID by 2005.

Size and nationality aside, however, what's remarkable about the world's Big Buyers — from the Netherlands' Ahold ($64.9 billion) to Germany's Metro ($48.2 billion) to the U.K.'s Tesco ($37.3 billion) — is the relentless uniformity of their tactics, from purchasing to merchandising. With 2,300 retail stores in 28 countries, Metro has been particularly aggressive with its Future Store — a Big-Buyer laboratory where, working with partners like Gillette and Proctor & Gamble, Metro tests tracking technologies like RFID on real customers in actual store conditions. Like the U.K.'s Tesco, however, Metro has inflamed big privacy concerns, putting RFID bugs in customer loyalty cards, tracking shopping carts and failing to deactivate potentially tattletale RFID tags.

The Big-Buyer Effect. Listen closely and you can hear the ocean-like roar of the future. Is your company up for the swim?




With 20 million shoppers visiting its stores each day, Wal-Mart has greater influence than any retailer in history.

GETTY IMAGES

**VIEWERSHIP** BY THE NUMBERS

| | | |
|---|---|---|
| CNN | CABLE NEWS NETWORK | **88 million U.S. homes** |
| BBC | BRITISH BROADCASTING COMPANY | **220 million homes** |
| NHK | JAPAN BROADCASTING CORPORATION (NHK) | **74 million homes** |

| | | EMPLOYEES | STORES | SALES (2003) |
|---|---|---|---|---|
| WAL★MART | **WAL-MART** BENTONVILLE, ARK. | **1,500,000** | **4,800** | **$230 billion** |
| | **CARREFOUR** PARIS, FRANCE | **420,000** | **10,378** | **$107 billion** |

# A hyper-connected world is an increasingly vulnerable world — a world on a hair trigger.

Never before has the world offered such vast opportunities. And such exaggerated risks — risks that can compound in force, like a blackout, when global systems abruptly fail. It seems so sudden. One or two problems provoke wider failures, with decision makers who may overreact because they lack visibility into the system.

## POTENTIAL TRAPS

SNAP. China stumbles. The next SARS or AIDS boils up. Or a container scare triggers a rolling port shutdown. A hyper-connected world is loaded with traps, and anything can trip them.

In a connected world, the effects are vastly magnified in force and speed, especially if your organization lacks the visibility needed to negotiate the best path. It's a world of big winners and big losers where seeing first — and acting first — is critical. This also explains how small players can quickly become huge, while the big players can fall faster and harder than ever. Why? Because organizations fail to see how seemingly unrelated events are in fact connected. And how the rules are being rewritten in real-time, often contradicting longstanding assumptions.

Success in this new world demands at least two critical qualities. First is visibility, to see both the traps and the opportunities. Second, *The 9/11 Commission Report* notes, is a need for "imagination" — in this case, imagination not just for what might go wrong, but imagination for what — with visibility — can go so very right.

### TERRORISM

2003 saw 208 acts of international terrorism, a slight increase from the 198 attacks in 2002, and a 42% drop from 2001's high of 355. The estimated economic cost of September 11: $83 billion in New York City alone. Then there's the cost of uncertainty and political risk. In 2003, it meant $800 billion in reduced corporate spending, investment and growth. What's next? What will you do?

### FAKES

Counterfeit goods account for 5 to 7 percent of global trade volume. In the U.S. alone, the total cost of counterfeit goods was $94 million — never mind what slipped through. The list is endless: drugs, electrical appliances, tobacco, toys, even parts for jet engines — 2 percent, according to the FAA. Or how about counterfeit automobile parts, like brake pads: $12 billion in lost revenues. Stop the hemorrhaging. With better visibility, might you take off the blinders?

### OUTBREAK

Globalization is the ultimate petri dish, spawning 35 new infectious diseases in the past 30 years: SARS, West Nile, Hantavirus, Ebola, Nipah, Hendra, and the AIDS bomb. As hinterlands open and economies and people blend, other nasties will follow. Who will pay, when in Asia alone, economic losses from SARS were $15 billion? Outbreak — how will it break for your business?

### TRADE WARS

The EU and United States war on everything from bananas to Roquefort to fine wines. The favored weapon: Tariffs, a whopping 70% of trade barrier losses. The global pricetag of agricultural tariffs: $100 billion annually, most falling on American and European consumers. Another risk: The constant finger-pointing on dumping issues between China and the United States — might the fickle finger point at you?

### SHAREHOLDER PRESSURE

The revolt began with Enron and WorldCom, with investors sacking CEOs, disrupting meetings and shaking up boards — anything to make the numbers. Today, the same shareholder pressures are driving up risk, pushing companies into volatile markets and business models that they can't control or don't entirely understand. Can you see where your company is going? Do you have the necessary global visibility?

### ANTI-GLOBAL FORCES

What if activists and failing states make doing business prohibitive in parts of the world? What if China flexes its muscles, as Europe does the same? Will 9/11 come to be seen as globalization's rollback? What if U.S. unilateralism continues to polarize? Apparently, globalization has its antimatter — can you counter it?

### STRIKES

Feeling spontaneous? How about the *troqueros* that move containerized freight between ports and intermodal terminals. No union contract here. These Mexican-Americans get a flat fee, $8 to $9 per hour after expenses — less with diesel fuel pushing $2 a gallon. So one day, CB radios and Spanish-language stations start buzzing — time for a fuel-driven, 30-percent freight hike! A wildcat strike, wreaking havoc with the $1 billion-a-day West Coast Port System. If prices spike, do you have an alternate channel?

### THE WILD CARD

Bad things, good things, big things — those ski-jump discontinuities of change. North Korea, Iran, the next Osama, intifada, or SARS. Next LOVEBUG, next Asia Flu or Y2K buried in the world's systems. China sputters — or further explodes. Globalization — or not. The Next Big Thing. Wham! Creative destruction. So what's your construction plan for the future?

*Sources: Aon Corporation's Trade Credit and Political Risk Practice Group. U.S. Meat Export Administration. Anderson Economic Group.*

# DOMINO EFFECTS


STRIKES. When it comes to shipping, they're like hurricanes: inevitable, unpredictable, destructive — and worthy of study in their connected effects.

But what if the destructive force of strikes could be blunted? In a tight and unforgiving business where risk goes with the territory, even fractional improvements in dealing with strikes and similar disruptions could save billions. There's also what strikes tell us about the danger of still larger events, say, in the case of a terrorist event, or even a serious scare that forces broader port closings. The scare scenario in particular is very real. Especially if officials, with little or no visibility into the system, heavily react, as they did after 9/11, when they stopped all flights and closed the U.S. borders. Overreaction — the toughest of all calls — remains a distinct danger in the present system.

The 2002 West Coast Port Strike gives us a good window into what even a limited shutdown can mean. Handling about $6 billion a week, the three West Coast ports process nearly half of all U.S. imports, much of it destined for states east of the Mississippi. As with any shutdown, the West Coast Port Strike also shows two distinct phases of destruction: The damage of the stoppage itself, then the long sputter, like a flooded engine, as the system tries to clear packed harbors, restart factories and empty crammed loading docks.

To be sure, no one wins, and everyone is hurt. Certainly, this was true in the West Coast Port Strike, which particularly hurt farms (perishables), automakers dealing with depleted inventories and retailers who were hit at the worst possible time, just weeks before Christmas.

Still, in any disaster, some will come through better than others, some trusting to luck, and others looking to something less quirky — like a system and a plan. In a volatile world, a timely Plan B driven by visibility and real-time execution will separate the winners from the losers. If disaster strikes, what's your plan? Can you execute it quickly enough?

## SUPPLY LINES CLOGGED WORLDWIDE

### WEEK 1
**SUDDEN STOP**

- About half the total trade volume from Asia — some $200 billion in 200 ships — idles off the U.S. West Coast.
- Supply chains report inventory shortages and plant closures. Farms losing "a thousand jobs a day."
- Just-in-time deliveries are not on time. Air cargo shipping sees an increase, especially on lighter, higher-value goods, such as parts and electronics.

### WEEK 2
**SPOILAGE AND WASTE**

- Meat-processing facilities across the United States paralyzed: 29,000 metric tons of Tyson Foods beef and pork — $90 million — sits on docks.
- 142,000 cartons of Asia-bound Valencia oranges repackaged or juiced — at a loss. Ruined: Another 20,000 cartons of juice valued at $2.3 million.

## SLOW AND COSTLY RETURN TO NORMAL

### DAY 11
**TRADE RESUMES**


The Daily News
STRIKE SETTLED!
Billions of Dollars Lost During 11-Day Strike
Challenges Remain As Supply Lines Reopen

### ONE MONTH LATER

- 90 ships still waiting to be unloaded.

### FOUR MONTHS LATER

- 50,000 fewer Toyotas on U.S. dealer lots.
- Parts shortages halt production of some 18,000 other U.S.-built vehicles.

### THE BOTTOM LINE

- Exporting industries: **$1 billion plus in losses**
- Workers: **$84 million in lost wages**
- Consumers: **$58 million in higher prices**

# Risk surrounds us, but by making the invisible more visible, tomorrow's risk can be reduced.

In our world, risk is a given. But with visible technologies connected in new ways, risk becomes a lot more transparent, more of a known than an unknown. Visibility also reduces the other risk — overreaction. Instead of skidding out of control, organizations steer into the future. But this time with a visibly better plan.

# TRADE VISIBILITY

TELEGRAPH INVENTOR Samuel F.B. Morse spoke of his great aim to "annihilate distance." Today, the challenge is to annihilate invisibility: The millions of products and shipments that can be lost, pilfered or counterfeited as they traverse the world.

Ocean-going shipments hold a special danger: Just try to find out who really owns a ship. As William Langewiesche observes in *The Outlaw Sea,* "forty thousand merchant ships . . . wander the world with little or no regulation." This includes as many as 20 freighters estimated to be owned or controlled by al Qaeda.

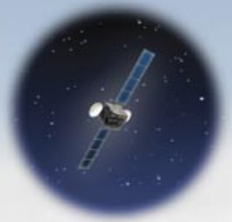
The high ground for business and government is visibility in all modes: sea, air and land. For high-value or high-danger goods — pharmaceuticals, for instance — electronic pedigrees offer a detailed log of every stop, from plant to loading dock to checkout scanner.

*What is it? Who wants it? Where is it?* The difference is, real-time knowledge of what's in the box, down to granular details of sizes and colors. It's a stronger demand signal, along with the real-time ability to satisfy customers with accurate and timely shipments. And it's the wealth creation of precision pricing.

Today, visibility is a driving force in both security and shareholder value. As business follows the sun, success demands a bigger picture and sharper lens.

## Maintaining Security On Every Level

On air, land and sea: at every step — even when switching teams and modes — goods are locked and located. And, people are accounted for.



## Visibility From Space

GPS and other tracking technologies follow the container through every conveyance, ship, truck, rail or air. Meaning, the ability to commit-to-order, with a sure delivery date.

## Visibility In the Air

Since 9/11, U.S. regulations require greater visibility into shipments. Shippers, meanwhile, require greater visibility and control in bringing together — end-to-end — all the necessary connections.

The solution: Neutral, Web-based portal brings together shippers. Add to that the precision of bar codes and RFID. Meaning, visibility into the real-time details: who, what, where and when.

## Visibility in the Container

Everything — in detail. *Where* through GPS. *What* through RFID. *Who* had it, when. The result is a rolling inventory — color, style, numbers, with an electronic "captain's log" of the trip.

### KEEPING CONTAINERS SAFE

■ Each container is measured to ensure against false walls that might conceal illegal drugs, weapons or immigrants.

■ Metal, radiological and biological tests are performed.

■ High-tech deterrents are deployed inside and out. Can include radiation sensors, GPS devices, smart container sensors, barrier seals, indicative seal tape, RFID seals and fiber-optic seals.

■ Filled weight is checked against empty weight. Does it conform to the size of the cargo? Does everything else add up?



## Visibility At the Port

What's in the box? The ship's captain, Customs, port security all have complete real-time visibility — from arrival to departure.

**HANDHELD COMPUTER:** Ties right in with the central database, showing everything inside, registering everything that leaves.

**GAMMA-RAY SCANNER:** Sees what's inside. Especially with "red" or "yellow" shipments, where it could expose a false wall, contraband, or even a radiological device.

**SCANNERS** Handheld scanners track and verify contents. Gamma-ray scanners insure against false walls, contraband and radiological devices.

**FINGERPRINT READERS** mean workforce velocity. With a touch, authorized longshoremen gain instant, point-specific access.

# PHARMACEUTICAL VISIBILITY

**$30 BILLION**
Value of the world's counterfeit drugs, according to the International Federation of Pharmaceutical Manufacturers Associations. Biggest culprits: China, Russia, the Ukraine.

**192,000**
Number of deaths in China in 2001 due to counterfeit drugs, according to *The Washington Post*. As much as 40 percent of the drugs in China are counterfeit.

**$300 MILLION**
New York State Attorney General's Office estimates that in 2002, 10 percent of the state's $3 billion Medicaid drug tab went to fraudulent pharmaceuticals. At the top of the list: Serostim and other growth hormones.

THE UNITED STATES pays more for prescription drugs than any country on earth, and the world's criminals have taken notice. So have frustrated consumers and the FDA, all pointing to headlines about high prices and a life sciences system flooded with fake Viagra, expert-defying look-alikes, pull-date drugs and rejects — even knock-off aortic pumps. Restoring confidence is more than critical. It's ethical, and it's just good business.

Today, the World Health Organization estimates that between five and 10 percent of the world's drugs are counterfeit. Another problem: quality-compromising physical events such as heat and vibration that can damage legitimate shipments. The FDA response: RFID tags by 2005 on the pallets, cases and packages of all high-risk products. And by 2007, RFID on virtually everything.

Armed with RFID and EPC codes (the 32-bit successor to bar codes), the new system will be leaner and faster — much harder to hack. The key: speed. As RFID-tagged goods shoot along, they'll pull ever-larger strings of data — an "electronic pedigree" stretching from raw chemicals to end consumer, documenting every moment of their lives. That problem shipment left in the sun? Pulled, via electronic alert. In an industry that can spend 12 years and $1.7 billion on a new drug, tomorrow's profits hinge on the ultimate pricing argument — quality.


## Protecting Every Pallet

**TECHNOLOGIES:** Pallets are shrink-wrapped, RFID-tagged, then smart sealed with currency-like tape that exposes tampering. Also, monitoring devices send alerts about excessive heat or vibration.

**BENEFITS:** Impermeable to moisture, and tough to crack. Plus, the pallet reports on any diversion. Or, say, a heat event. Total visibility, with a thump.

**TAMPER-EVIDENT SEALS** make use of holograms to indicate intrusion and prevent counterfeiting. Unique bar codes thwart copying, and seals bleed ink when cut.

**PASSIVE RFID** collects data as items flow through a supply chain. Data includes date and time, location and temperature. Benefits: secure chain of custody, real-time inventory tracking, and theft protection.

## Every Case

**TECHNOLOGIES:** Shrink-wrapped and RFID-tagged with an even tighter, slicker tamper-evident seal — a hologram verified with a special light.

**BENEFITS:** Harder to crack, hardened with even more information. Especially at the local level where most diversion occurs.

## Every Item

**TECHNOLOGIES:** All of the same protections as the pallet and case level. Item even reorders itself.

**BENEFITS:** A faster supply chain and better marketing, driven by real-time numbers.

## And Someday Every Pill?

Smart pills? Smart packaging? Forgery-fighting films? As technology improves, even greater benefits are possible.

**5-10% of all pills are thought to be counterfeit**

### MORE TYPES OF FAKES . . .

**IDENTICAL COPIES** If you can make it, they can fake it, using the same ingredients, formulas and packaging.

**LOOK-ALIKES** Totally convincing duplicates of the real thing, minus the active ingredients. Or worse, made with dangerous ingredients.

**REJECTS AND RE-LABELS** A big part of the stream — includes drugs past their pull-dates and placebos from late-phase clinical trials.

**FAKE SURGICAL DEVICES** Aortic pumps, hernia mesh implants — truly scary stuff. And scarily convincing.

### . . . DRIVEN BY MORE FACTORS

**BETTER COMPUTER TECHNOLOGY** $100 flatbed scanners are perfect for thieves forging labels and documentation.

**MORE SMALL DISTRIBUTORS** Fierce competitive pressures and bad actors fuel a growing "gray market," creating a weak link.

**HIGHER DRUG PRICES** Higher prices for drugs mean fatter profits for the criminal supply chain.

**THE INTERNET FACTOR** Cheap and hard to regulate, the Internet is the ideal bad-guy distribution channel. Can criminal CRM be next?

# PEOPLE VISIBILITY

ONCE, TRUST WAS a known face — no more. As more people travel, faces grow hazy, with terrible consequences when we trust the wrong person — often because our eyes deceive us.

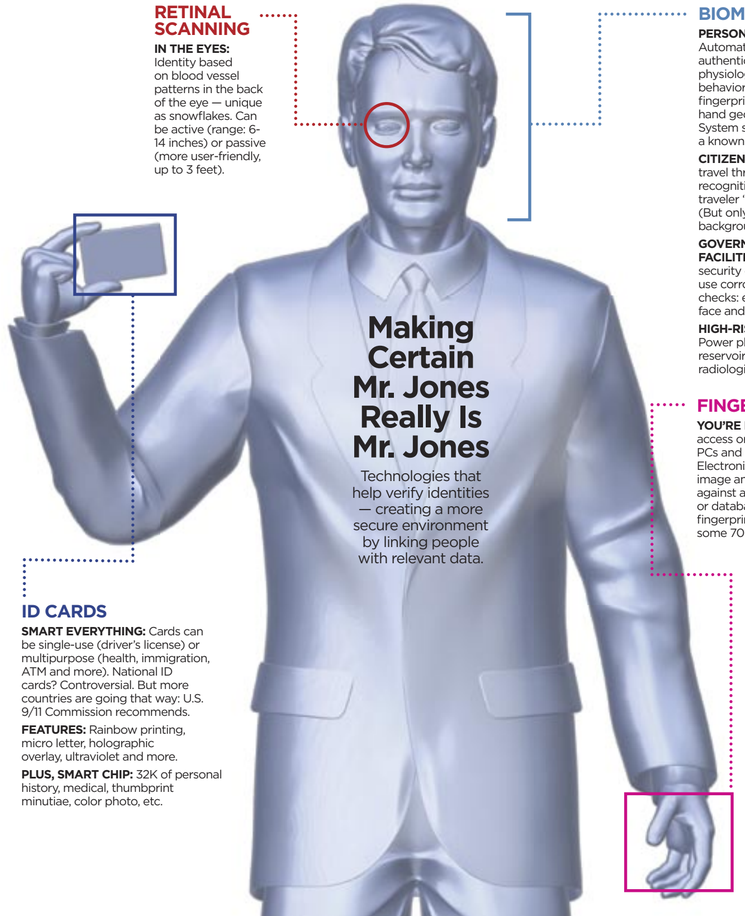
As *The 9/11 Commission Report* observes, "Today, a terrorist can defeat the link to electronic records by tossing away an old passport and altering slightly the name in the new one." Fortunately, with biometrics, this blurry picture is fast coming into focus. Another big advantage: Speed. Better identification means people and goods — and economies — move more efficiently. Today, around the world, retinal scanning, fingerprint identification and advanced facial recognition are protecting key infrastructure. With smart passports containing digital photos, fingerprints, and even a chip, Customs and law-enforcement personnel have the full picture. With powerful databases, they can see connections around the world.

Biometrics means ensuring those who drive dangerous cargo through our communities are in fact the people authorized. It means that elections are fair and democratic, and that people are connected to vital services. Take Malaysia's multipurpose card: driver's license, national ID, access to services, the card will be digital everything for 11.5 million citizens.

Granted, privacy issues remain, but with foresight and clear parameters, the trusted citizen is truly the global citizen: the center of a secure and fully functioning world.

## RETINAL SCANNING

**IN THE EYES:** Identity based on blood vessel patterns in the back of the eye — unique as snowflakes. Can be active (range: 6-14 inches) or passive (more user-friendly, up to 3 feet).



## Making Certain Mr. Jones Really Is Mr. Jones

Technologies that help verify identities — creating a more secure environment by linking people with relevant data.

## BIOMETRICS

**PERSON POSITIVE:** Automated authentication through physiological or behavioral characteristics: fingerprint, retina, voice, hand geometry, etc. System scans against a known database.

**CITIZEN TRAVEL:** Faster travel through better recognition, or even traveler "speed-passes." (But only with voluntary background checks.)

**GOVERNMENT FACILITIES:** High-security environments use corroborating checks: e.g., fingerprint, face and more.

**HIGH-RISK FACILITIES:** Power plants, reservoirs, drivers of radiological waste.

## FINGERPRINTS

**YOU'RE IN!** Facility access or access to PCs and other systems. Electronic keypad collects image and scans zones against a known image or database. The FBI fingerprint database: some 70 million records.

## ID CARDS

**SMART EVERYTHING:** Cards can be single-use (driver's license) or multipurpose (health, immigration, ATM and more). National ID cards? Controversial. But more countries are going that way: U.S. 9/11 Commission recommends.

**FEATURES:** Rainbow printing, micro letter, holographic overlay, ultraviolet and more.

**PLUS, SMART CHIP:** 32K of personal history, medical, thumbprint minutiae, color photo, etc.



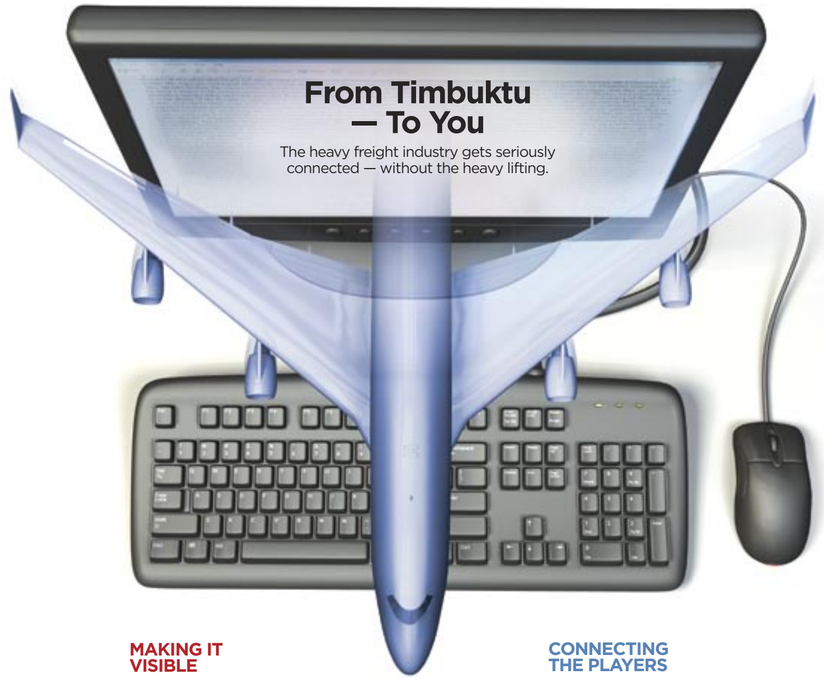
# AIR CARGO VISIBILITY

NO MODE OF TRANSPORT is rising faster than heavy air cargo. But to continue its ascent, the industry — freight airlines, forwarders and carriers with belly space — must collaborate as never before. Especially to compete with carriers offering guaranteed service and real-time shipment tracking. Yet look at the challenges.

First, the industry needs to embrace the latest in digital technology — especially the Web. It must contend with aging airports and spaghetti-like legacy networks. It must better manage today's disruptive givens: terrorism, overseas military action, economic turbulence, health outbreaks, and more. Finally, the system must drive dynamic decision-making in managing assets, capital and information: It takes all three to successfully complete a transaction.

Solution: Create a new virtual network, with seamless reach, total visibility and on-time accountability — with a key twist. When asked, the major shippers will offer real-time package tracking. But what if the shipper wants customized proactive alerts — at any milestone? It's a beep on your PDA or cell phone. *4:01: Shipment confirmed.*

With an online portal, customers find easy access, competitive efficiencies — and alerts. That's edge-to-edge, over-the-horizon visibility, all seamlessly connecting customers and shipments. On time. Their way.




## MAKING IT VISIBLE

RFID and GPS technologies — first used for critical shipments like blood and munitions — are now gaining commercial acceptance. The payoff: real-time information improves decision-making. Also reduces the errors and delays of intermediaries.

## PROACTIVE TRACKING

Tracking is best done by "exception" — focusing on problem shipments rather than routine shipments. Better control, less wasted time.

## CONNECTING THE PLAYERS

Shippers, forwarders, airlines, Customs — all require the same information. So why go to multiple sites? The future: Neutral portals for booking and tracking — a one-stop shop for multiple carriers.

# ENTERPRISE VISIBILITY

THE HYPER-CONNECTED globalization of our era began with ubiquitous communications. Today, the quest continues with the second ubiquity: global visibility, bringing with it new control, new safety, and new levels of service.

Better landed cost planning. Brand and customer protection. Reduced out-of-stocks, improved service and faster inventory turns. Add to that protection against cargo crime, counterfeiting and shrinkage. Name the need: Visibility yields a significant competitive edge.

Imagine tracking and securing all your goods and assets in real-time, down to the smallest details. Sizes. Numbers. Location, temperature, theft or tampering. Exposure to sunlight or heat, degree of ripeness, and more. Imagine the ability to out-execute, out-think and out-act your competition — because you see more. The key is not merely the technologies like RFID, EPC, sensors and "actuators" — little bots that can pull in critical data, then act upon it. The killer app is the power to connect all the pieces through a global dashboard.

Edge-to-edge visibility. Mastery of the details. Fine-tuning of the demand signal. Plus, an edge on adversity, from a food scare to a hurricane to a terrorist event. With visibility, you can sense, strategize and act — before the competition.

## The 21st Century Corporation

By creating a digital model of a process, companies can see how one layer of the business affects another. The payoff: quick, well-informed responses to unfolding events.

### STRATEGY

The layer where the business vision and operations model is established. Also, where elements of economic value, security, partner interaction and standards adherence are determined.

### PROCESS

The layer where the vision is carried into core operations. Deals with virtually every segment of the supply chain — planning, procurement, manufacturing and warehouse distribution, retail, and customer-channel market analysis.

### APPLICATIONS

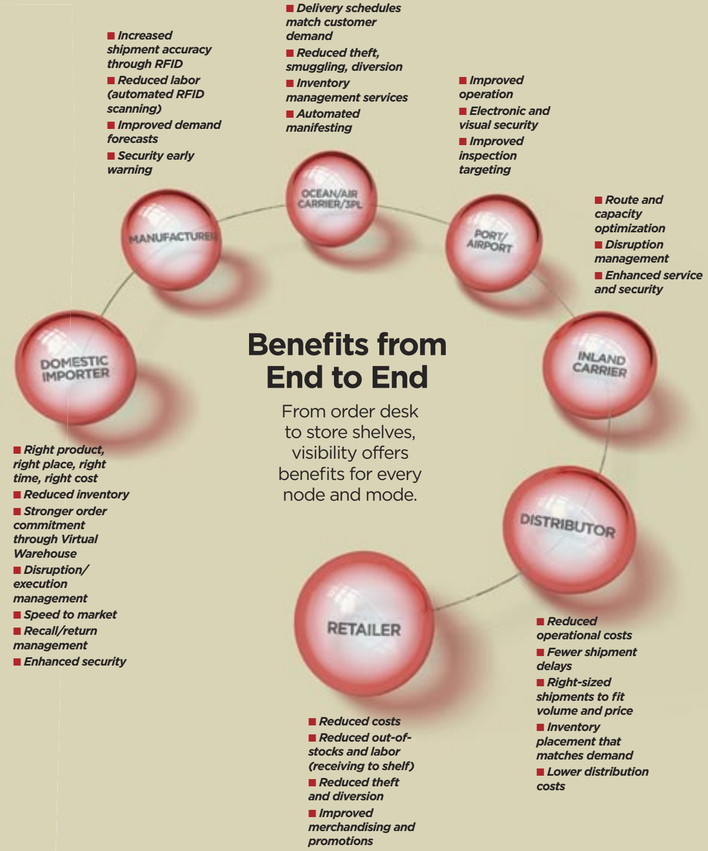
The layer where data is analyzed to assess opportunities and threats. Also where modeling is done based on data captured from RFID tags, readers, sensors, bar codes and other technologies — chips that track people, products and equipment.

### INFRASTRUCTURE

The layer that provides a road map to eliminate redundancy, leverage functionality and identify how to best implement your technology investment in readers, tags, networks and servers.

## Benefits from End to End

From order desk to store shelves, visibility offers benefits for every node and mode.

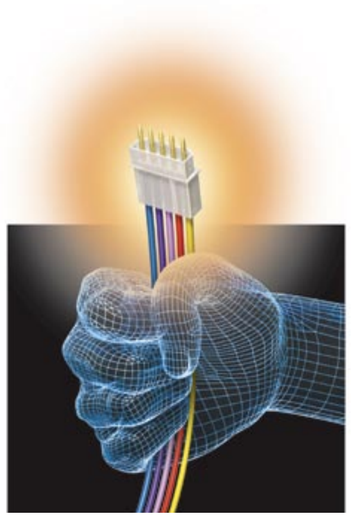


# Today, no business can miss the fantastic upside of global commerce.

The challenge is maximizing value and managing your downside risk – those times when the system crashes, due to strikes, weather, embargoes or terrorist attacks. Success also means prevailing against more common risks like theft, counterfeiting and currency

fluctuations. Winning today begins by acknowledging the unique characteristics of our hyper-connected world. In a connected world, when things go wrong, they will go wrong faster than ever before. Moreover, those connected effects — much like a major power failure — will be all the more powerful and far-reaching. In an "always-on" world driven by competition and fueled by information — often imperfect or dated information — such omnipresence demands the next-generation electronic ability to see, know and respond in real-time on a global scale. In turn, this visibility without must drive visibility within, from strategy through implementation — meaning, greater predictability through all the layers of your business.

Audacious? Obviously so, but then so was the personal computer and the World Wide Web. To be sure, mistakes will persist and glitches will crop up, but tomorrow there will be far more ability to sense and correct problems in real time, then move on. At the same time, two other drivers will propel this change. First, in response to the obvious need for such global visibility, business will soon be facing a new era of regulation — one in which we predict the early adopters will enjoy a powerful advantage. Second, the technology is here, including the organizational ability to globally scale and connect these new technologies in active visible constellations.



**Visibility means systems that can quickly alert decision makers, enabling a sharper response to sudden competitive or security issues.**

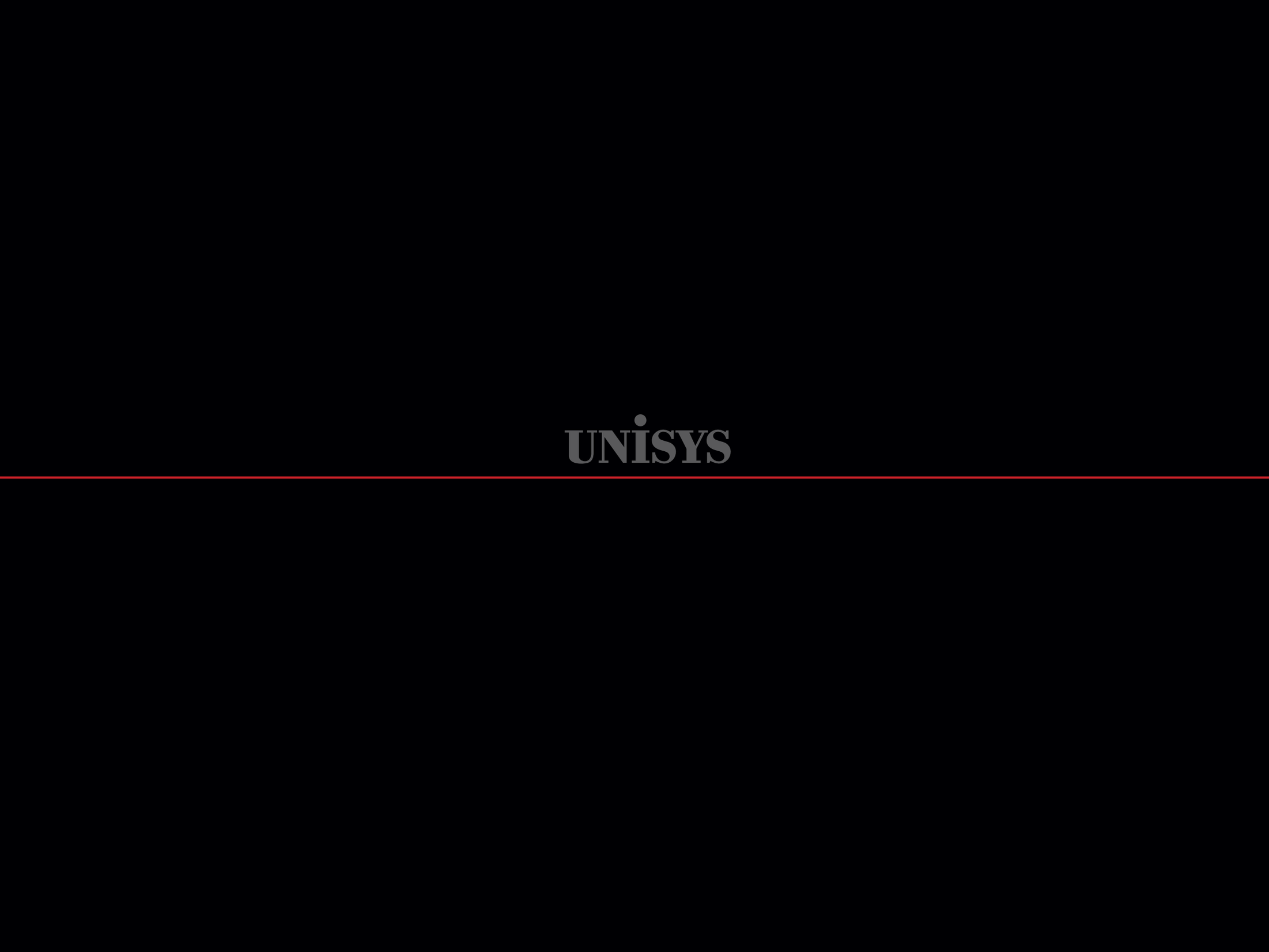
Here visibility means more than just passively "seeing." Visibility means systems that can quickly model what they see, then change in the face of new competitive or security realities. Visibility also means a system that can protect against theft and counterfeiting, just as it can send instant alerts, say, when a pallet of sensitive medicines senses excessive heat or vibration. After all, if we can sift and test the soil on Mars, surely companies here on Earth can detect events critical to our products, fortunes and reputations.

Organizational omniscience through improved visibility: In a connected world, in a post-9/11 world, the alternative — haziness or invisibility in the supply system — is as fiscally shortsighted as it is socially, economically and politically untenable. Your new world is a visible world, and tomorrow — if you'll have a look — the view is nearly limitless.





This book was illustrated and designed by Joe Zeff Design, Inc.


UNISYS