

# Preying on Risk

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Optimize

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The motto of the financial services industry is that nothing good can happen between sale and settlement. But in today's environment, that's true for every business. Whether your company sells securities, airline tickets, or ball bearings, it is at risk from the time the product goes out the door until the payment reaches your bank account. The transaction may unravel; the customer may refuse to pay; the buyer may go out of business. Settling transactions in real time, or as close to it as possible, is a universal business goal.

Gaps in any process introduce errors, raise costs, inhibit flexibility, and cause risk. Automating only one portion, whether customer- or supplier-oriented, front office or back office; production or distribution, yields a system that is inadequate. Moving to straight-through processing of transactions should be on every IT executive's to-do list--but it's a challenge those in financial services companies are facing today. The STP and T+1 initiatives that are changing the way stock purchases are made and settled offer lessons to many other industries. They illustrate how industries can adapt to fundamental shifts through a combination of "big bang" and incremental change.

Real-time systems that accurately reflect availability and location have occupied a large slice of mind-space and IT budget over the years. A customer service nightmare would result from the failure of these systems, much as it would for companies from American Airlines to FedEx to LL Bean. The securities markets offer a bewildering milieu of product choices: equities, fixed income securities, and derivatives. Securities alone span the full alphabet in an endless list – BA, CMO, QQQ, and REPO. The systems that have been built to support these products reflect this complexity. The next vision is complete, end-to-end processing with a minimum of manual intervention.

## **T+1 & STP**

T+1 is the concept of settling a securities trade within one day. The financial services industry today operates at T+3, which means that the money is paid and the securities exchanged on the third day after the initial trade is executed. Just a few years ago, the standard was T+5; our goal now is T+0, or continuous trading. This is also known as Straight Through Processing, or STP.

The continuous reduction in the settlement cycle has been achieved partly by government mandate and partly by industry agreement. This industry, employing some 750,000 individuals and generating some \$200 billion in US revenue, is represented by the Securities Industry Association. This organization is an arbiter of standards in an industry dependent on the uniformity of key processes and communications. While the SIA wields considerable authority, and can facilitate change, it does not have the force of law. The Securities Exchange Commission (SEC) holds this. The board of directors of the SIA has just voted to defer its planned date for achieving T+1 in favor of a greater focus on achieving the benefits of STP. They have targeting a number of specific processes for

the next generation of improvement. The processes involved are complex, rooted in tradition. Change has been slow, in part because it cannot be made unilaterally. Either the entire industry changes, or no one does.

The lessons we've learned on how to come together as an industry hold lessons for every CIO. They begin with the clear identification of the need to change. This will involve both business process and technology. Everyone will be involved: primary firms, vendors, partners, and clients – change cannot be accomplished in a vacuum. Enabling the change requires standards, codes of practice, and consensus on an architecture.

### **Pressures to Change**

Brokerage firms have long seen the competitive advantages of automating the front office. They have moved to deliver client information to the brokers' offices, given them access to market prices and research, and built systems that take retail orders and deliver them to the exchanges. But the industry has been stuck with the paradigm it long ago established, where trades are affirmed and confirmed, and banks and depositories become involved only after the fact. There is tremendous outside pressure to make us change, caused in large part by the continually increasing volume of shares traded. Historically, there has been a 33% compound growth rate in the volume of trades. During the crash of 1929, volumes reached a million shares per day; today, three billion shares are likely to be traded. This increased volume worsens the impact of any errors in the process. And not only are there a lot of these, but the number keeps growing.

When shares are traded on the floor of an exchange, they are effectively traded in an open outcry auction. Orders from buyers and seller are routed to the floor, executed, and then transmitted through the different organizations involved. The low error rate is testament to the efforts of many—but it's still unacceptable. It is estimated that "exceptions" alone today exceed the total number of trades processed just 5 years ago. Each trade that is problematic has to be investigated, corrected, and backed out of manually, and at substantial cost. Correcting these is the most labor-intensive aspect of securities trading. Completing this process in five days was hard; in three days, it's very difficult. But to move to a single day requires not just incremental change, but fundamental change to the process itself. Things that were done sequentially must be done in parallel. Things that were done by batch computer processes must now be done in real, or near-real, time.

From 30,000 feet, however, the reasons to change look different. The Securities Industry Association's initiative business case identified T+1 as necessary to maintain a competitive edge over international markets. Just agreeing on what securities have been traded becomes problematic, as there are several different security identification schemes in use around the world.

The same document also identified the reduction of settlement risk as a primary factor. The financial world is always in turmoil; the past 25 years are unique only in detail. Before the bear came the oil crisis, the crash in '87, the junk-bond fiasco, the Internet bubble. The United States is trying to cope with the simultaneous impact of terrorism and recession, and now with accounting and analyst scandals. And since Sept. 11, "risk" has taken on a different level of meaning. On any one day, \$125 billion worth of stocks are traded; since those trades do not settle till the third day, there are almost half a trillion dollars of risk out there. And the proliferation of new communications technologies

makes the markets are more volatile than ever. Bad news—or even good news—from anywhere at any time can trigger a deluge.

## **Bridges**

We've all heard that a movement must have direction, or any road will take you there; that business direction is optimized when the gap between business and supporting technology is minimized. But these truisms mask the difficulties. It's hard to stay atop operational demands when everything is changing; worse to bridge organizational boundaries. When these spans are not effective, client needs go un-met, product introductions fall short and spectacular implementation failures proliferate. You find companies that run multi-billion portfolios on manufacturer-discontinued computers without a plan to move forward.

How then are we bridging the divergent needs of business and technology managers? One way is through multi-disciplinary task forces that create synergies from disparate skills, supported with both old and new tools. "White-rooms" staffed by facilitators begin with a blank slate to foster perspective and innovation. Old-style problem decomposition identifies the components of the problem – for the SIA, there were some 17 committees created to address the multiple dimensions of the T+1 initiative, including secondary ones like securities lending. Experts from buy- and sell-side firms, industry utilities, and vendors were brought together and worked the details. Alternatives were proposed, tried, discarded, or refined. Process enhancements were developed and agreed upon; totally new components, such as the new trade order matching utilities were invented – but only after extensive multi-organizational review.

New technologies exist today to assist these task forces. These include web-based knowledge management systems, score-carding systems, and work-group technologies. The KMS not only have the potential to make the information accessible to team members, but to suggest that information is of interest to an individual, by going through a prioritization process. These systems represent "Third Generation Portals" in that they incorporate the concept of a personal agent (a piece of software dedicated to representing a single user, through the rules the user establishes. Score-carding systems provide information on the entire business process. They not only grade component areas, they show individual areas contribution to success. This information is now being automatically developed by Business Activity Monitoring (BAM) systems. The better the understanding of actual business process flow performance, the better the modeling of changes. Work group technologies are the simplest of the trio: at a minimum, they allow the coordination of document creation processes.

Any individual firm needs to do what the SIA did at an industry level. You must acknowledge the problems, set goals, and identify solutions. Doing so requires discipline, expertise, and constant re-assessment. Problems to be addressed must be made clear, then attacked. The SIA committees each had specific targets. They avoided inter-galactic problems.

For optimal situation analysis to occur, you first define a context, then set priorities. Making the context too broad, by for example, choosing to look at all the diverse

businesses of a conglomerate, is a mistake. Narrowing the effort to a single business at a time is usually the right level. The analysis team can seek consensus by focusing on the critical elements of the process. You cannot solve every problem; indeed you don't want to try. Simplification garners support – initially at the goal level, then, later, on the implementation level. Good teams are trained to always return to the goal: whether T+1, adaptability, or throughput – and to build up the store of potential solutions for further analysis. The specifics of the analysis: whether at the cost / benefit level, or using any of the myriad of techniques extant, is less important than the recognition that the prioritized goal is agreed to by both business and technology staff looking to optimize the solution.

Assembling a task force whose members have a variety of skills, are motivated, and focused is necessary for success. The problem is, however, that your best people have full time jobs. One way around this dilemma is to build a small core team. This team, consisting of management, operations, and technology can be used to describe the “what is” state. Under the guidance of the sponsors (CTO / CFO / COO) the team can describe what is not working, and can outline what might be needed. The team, once exhausted, will then share their accumulated knowledge with a substantial body of the organization. This includes department heads as well as other key staff. This process uses a wide variety of techniques for: information gathering and sharing, analysis and alternatives identification. At all times the goal, the priorities, and the alternatives are sought. This focus gives perspective. It is surprising how such a focused effort can segregate the important from the mundane and support effective decision making. The goal of the process is developing the best solution. This is only possible if the level of complexity is reduced. This is needed because business processes and technologies are not magic. Magic precludes rational decision-making.

A multinational bank deliberated whether to replace its main trading room. A taskforce successfully created a business-centric view. It characterized the 500 seat trading room as several product-specific ones, each with independent infrastructures. The bank was thus able to look beyond the specifics of trading complex products over multiple 100mb LANs using hundreds of UNIX servers to see their key problems were their inability to span organizations. They needed to manage customer relationships; to handle risk; and to respond to changing market conditions. Building a new room had a different focus as a result: from technology to business.

### **Big and Small**

The T+1 and STP initiatives provide a mission, which both the business and technology manager can espouse. They set a business goal that individual firms could not achieve alone. The work to define how to achieve that goal took the coordinated efforts of many. The effort spanned business and technology; regulator and competitor; firm and client.

The securities industry recognized that achieving its goals required many improvements. Some of these were completely new implementations Others were smaller, more incremental. The “Big Bang” implementation is exemplified by the creation of two, competing, radically new, trade match utilities – OMGEO and GSTPA. These utilities will not only substitute parallel processes for sequential ones, they allow for the simultaneous enrichment of data (e.g. trade orders need settlement instructions added to

make the process complete). Incremental improvements are typified by the creation of new Codes of Practice and of new standards.

In technology, as in business, there are cycles. Early on, the mantra was that “the business drives technology.” But technology can both create and destroy entire industries. We must always be alert to the possibility of major change. New companies are constantly being built around new capabilities (think E-Bay). The art is to balance rapid development and excessive study; to act in the face of uncertainty. We must also recognize that sometimes, the organization is not the business, it is only how business is conducted.

Best of breed solutions are needed by the business to capitalize on rapidly developing opportunities. These solutions are often point-specific, resulting in a chaotic mixture of legacy systems based on different technologies, all needing to be integrated and worse, maintained. The architectural approach increases flexibility, but large systems lose the ability to change direction. The Queen Elizabeth is harder to reverse than a small, nimble, speedboat.

The SIA’s T+1 initiative has been postponed. The effort, a very ambitious one, was initiated for good reason. Yet, the economy and recent events have transpired to necessitate a reduction of the industry-wide effort. Instead of achieving T+1 by 2005, the security industry will refocus efforts onto straight through processing. Four initiatives have been identified, building on the work done in the past three years. These four: improving institutional trade processing, the processing of corporate actions and securities lending, as well as the settling of trades using book entry instead of physical securities, will help streamline the settlement process, making it more flexible. The industry is now taking a more gradual path forward.

In the boom market of the 80’s, one major stock exchange found that the capacity of its market data system was scarcely above current trading levels, and upgraded it significantly. Then came the stock market Crash of ’87, during which thousands of new products were created. The new system had cut over just days prior to the event, proof that being lucky is better than being smart. But you can’t always count on luck.

## **Lessons**

There are a number of lessons that are apparent from the efforts in the securities industry:

- A comprehensive solution cannot be bought.  
Business processes, their supporting information and technology are all equal components of the solution. Any single vendor or consortia cannot provide this complex combination of components. This is true in every industry.
- No one solution is appropriate for all firms.  
Every firm has its own customer and product niches, unique processing environments and distinctive combinations of technology—and its own appetite for change. Components might be common, but solutions are not.
- Technology is not the limiting factor in disruptive change.
- Bridges between the business and the supporting systems are key.  
A broad consensus is needed to provide direction, and priorities must be clear.

Perspective must be acquired and maintained. Scope must be set and boundaries defined. Old-style “white-rooms” as well as web-based knowledge-management systems must be exploited.

- Migration will take place using both continuous and “Big-Bang” techniques. The continuous process enhancement and the “throw it all away and do it differently” camps are both right, depending on the situation, and both philosophies can be used simultaneously.

## **Conclusion**

The SIA T+1 initiative was industry-wide, and illustrates both the benefit of cooperation, and the difficulty of achieving industry-wide success. There are many examples of such initiatives’ disappointments, the failure to achieve meaningful EDI, the postponement in moving to T+1. At the industry level, painful progress is the rule, but interactions with vendors, suppliers, partners, and customers continues to advance. This progress is being achieved through standards as simple as e-mail and as complex as supply chain management systems.

On a corporate level, the experience at developing an industry-wide initiative parallels the difficulty in achieving broad, corporate systems spanning multiple business lines. The early failures of EDI did not negate the need for broad, secure communication standards. Saved by the Internet, companies have moved their operations out into the world at large. The need for technology to integrate itself not only into the business but also into the world at large is apparent and can be facilitated by industry wide cooperation, broadly accepted standards and solution-oriented methodologies

At the individual business line level, T+1 initiative illustrates the need to establish goals, and bringing together the full spectrum of stakeholders. Where such coordination was missing, the diversity of work and of its complexities retards progress. This difficulty is exacerbated by other factors: limited budgets, conflicting priorities and scarce resources. Intensive efforts are needed to resolve these conflicts and to permit focus. There is also the dirty word, “politics.” The net impact is that technology management becomes ever harder.

There are two factors that we have not mentioned and upon which we will end. First, common sense seems often to be in short supply. Second and far worse, it seems that there is often the lack of a will to act. Ask your children, “What do you do when you see a weed?” Hope that the answer is, “Pull it up,” and that they then do so. Then ask your people. Organizational inertia is often the hardest force to overcome.

The concept of Straight Through Processing is universal. Technology needs to facilitate the process by getting out of its way. The elapsed time between a sale and fulfillment should be zero. Manual processes must be eliminated. This is true of every industry; this is true of every process. The principals that guide the financial industry to achieve T+1 and eventually T+0 through STP can be applied to any process in any industry.

That is the challenge.

## **90 Day Process**

===== Days 1-30

### ***Set the scope***

For one business, or group of related businesses, get executive sponsorship. Gather a small team (6-8) that span the business and its technology. Bring in outsiders to ask the awkward questions. Write “The goal of this team is to achieve ...” (each team needs to set its own purpose statement). Have them outline your goals, issues, problems, opportunities, products, clients, competitors, processes and systems. Prioritize them. Bring in 40-50 select managers, technologists, and executives. What is garnered is reality.

===== Days 31-60

### ***Draw the vision***

Develop an architectural vision of the desired state: identify the critical flows, information, components, inputs and outputs. Show how it all fits together. Outline a short-term, tactical, and long-term solution. Equally important as the “we need to do this” are the “we will defer this” statements. Constantly review the vision with the executive sponsors as it develops.

===== Days 61-90

### ***Outline the solution***

Parallel a high-level project plan with solution components. Show alternatives. Identify risks and forecast costs. Display the work to date and get feedback. Bring in people who have experience with alternatives. Do research. Remember that the objective of the 90 day effort is to get the organization broadly behind the direction, the timing, and the approach taken.

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