



A ROADMAP TO COMPETITIVENESS VIA STP AND OPERATIONAL EFFICIENCY

Investment managers are facing increasingly challenging barriers to success. Stagnating asset levels, mounting fee pressures, intensified regulatory and compliance requirements all lead to eroding profit margins.

And clients are demanding more than better performance and lower fees by adding governance measures, operational efficiency and STP to their manager selection criteria.

Executives of large and small firms are pondering: **“What can I do to reduce costs, increase profits, and become more competitive?”**

September 2003

INVESTMENT MANAGER COMPETITIVENESS

eClientscope has prepared a comprehensive two part report based on in-depth interviews of twenty-three investment managers complemented by eClientscope insights arising from its role as project manager for the Canadian Capital Markets (CCMA) Straight through Processing (STP) initiatives.

By Robert Smythe

Part I **Achieving Operational Efficiency: Experience and Plans of Investment Managers**

A report by eClientscope that focuses on the business, STP and operational efficiency issues of particular interest to investment managers.

Part II **STP Realities in Canada's Investment Management Firms**

A joint report prepared by eClientscope and IDC Canada to address STP and operational efficiency initiatives from a business and technology perspective that are of interest to investment managers and organizations providing supporting products and services to them such as custodians, brokers, technology vendors, system integrators and outsourcing providers.

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ABOUT ECLIENTSCOPE

eClientscope Inc. is a specialized financial industry consultancy. Our people combine senior financial and investment industry experience with extensive operational and technology expertise. A key area of focus is Straight Through Processing and the innovative possibilities end-to-end automation can bring to securities processes for capital markets stakeholders.

INVESTMENT MANAGERS REVEAL OPERATIONAL EFFICIENCY IS KEY TO COMPETITIVENESS AND PROFITABILITY

Twenty three Canadian investment management firms contributed their insights and experience to a comprehensive study by eClientscope Inc. In-depth interviews identified the initiatives and the benefits that arise from STP and operational efficiency.

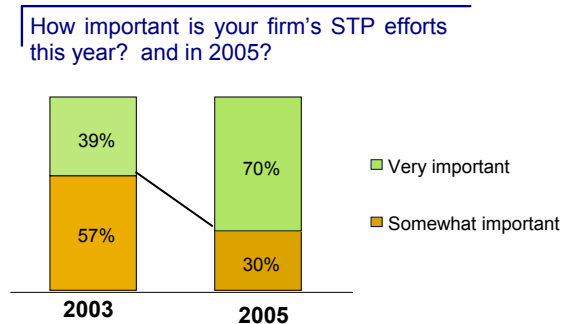
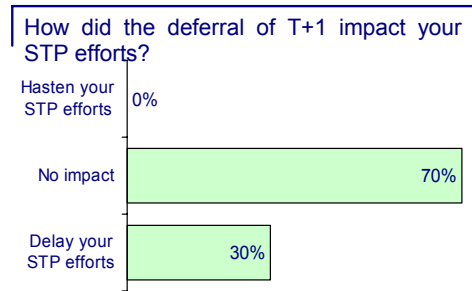
- Cost savings
- Error reduction
- Risk mitigation
- Investment performance improvement
- Business growth

“Operational challenges from disjointed legacy systems, manual processes and spreadsheets were addressed by a data warehouse initiative and organizational changes that saved 51 of 150 FTE and improved investment results by 5 bp.”

“We are re-architecting the front and middle office systems using an ASP solution that will support 30% revenue growth and provide 20% cost savings.”

STP IS A CRITICAL COMPONENT

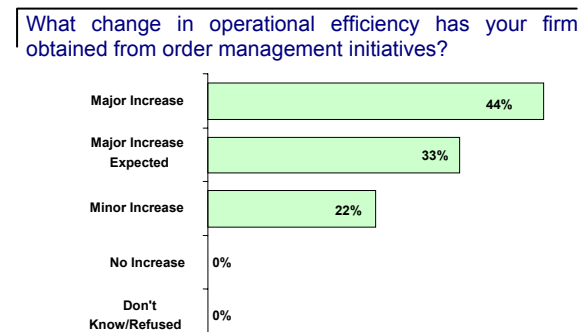
Interviewees saw STP as a critical component in their experience and plans.



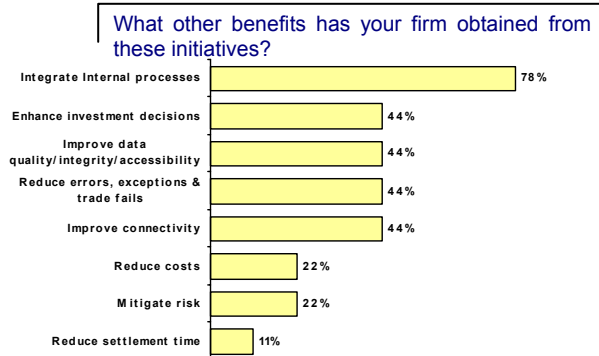
Source: eClientscope Inc and IDC Canada, 2003

STP AND OPERATIONAL EFFICIENCY PRODUCE RESULTS

104 initiatives were taken by investment managers to address operational efficiency and STP impediments. On the whole, projects undertaken to address data management, system integration, process design and order management generate the best results.



Source: eClientscope Inc



REPORT STRUCTURE

This two-part report is offered in conjunction with tailored workshops for investment managers, custodians, brokers, regulators technology vendors and outsourcers.

REPORT CONTENTS

Part I - Achieving Operational Efficiency: Investment Managers' Experiences

Executive Summary	1
Background	
This section identifies the type of firms involved in the study and interviewee positions	
Investment managers operate in a changed landscape	2
Analysis of interviews with twenty-three firms identify operational "best practices"	2
Interview Findings	
This section analyzes 104 STP/operational efficiency initiatives by 23 investment managers	
Investment managers embrace operational efficiency and internal STP	5
Significant operational pain experienced in moving to STP	6
Investment managers act to address STP challenges	7
STP initiatives produce results	10
Investment managers plan more initiatives	19
Guidance	
A summary of the learning from the interviews.	
Investment managers' actions refute industry myth	23
Investment managers use STP and operational efficiency to increase competitiveness	23
But getting there will be challenging	24
STP requires broad industry support	24
Managed transition is the path to competitiveness via STP and operational efficiency	25
Case Studies	
This section summarizes two cases that have produced efficiency gains	
Achieving data quality and data integrity	27
Implementing a trade order management system	28
Part II - STP Realities in Canada's Investment Management Firms	
Executive Summary	
Situation Overview	
A review of investment managers' current STP status, business and technology priorities with	
Money managers face a changed landscape	2
Money managers investment priorities for the next 12-18 months	16
What systems and applications do firms use?	19
Firms plan to buy not build	21
Firms see custodians as key partners to achieve STP goals	25
Stage of deployment of industry specific technologies	29
Future Outlook	
This section discusses a fundamental change in investment managers' operations and the	
Canadian firms are moving forward with STP	32
Investment management apps will morph	35
Essential Guidance	
This section offers advice for technology vendors, and suggests ways for investment	
Guidance for IT vendors	37
Guidance for capital markets participants	38
Learn More	
Related research	39

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PART I

**ACHIEVING OPERATIONAL EFFICIENCY:
EXPERIENCE AND PLANS OF CANADA'S
INVESTMENT MANAGERS**

By Robert Smythe

eClientscope conducted a study with 23 investment managers between May and July 2003 to understand how investment managers use operational efficiency and STP to enhance competitiveness and profitability.

Personal interviews were conducted with diverse investment management firms who collectively manage assets exceeding \$600 billion with 9 million trades annually.

Part I prepared by eClientscope focuses on the business, STP and operational efficiency needs of investment managers and provides further insight into the research findings of Part II.

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EXECUTIVE SUMMARY

INVESTMENT MANAGERS ARE INVOLVED IN STP

This study reveals how 23 investment managers use STP and operational efficiency to increase competitiveness and profitability. This part of the report summarizes the 60 current initiatives and 44 additional projects planned by the interviewees that will provide the reader with distinct insights to design their roadmap to competitiveness via STP and operational efficiency. This study also refutes the myth that investment managers are uninvolved in the STP revolution.

INTERVIEW FINDINGS

Internal STP focus. 83% of investment managers are focused on internal STP before turning their attention to external STP issues that require counterparty cooperation.

Operational efficiency key. Operational efficiency is a business priority alongside investment performance; while system integration, process design and data management are top technology challenges.

Data and order management critical. 55% of reported initiatives relate to data management, order management and process design.

System/process consolidation pays off. Integrating systems generates impressive results; process design, data and trade order management initiatives also produce significant benefits.

Post trade results disappointing. Post trade matching, confirmation and settlement initiatives have produced mixed results.

Trade order management future focus. Trade order management systems lead future plans, followed by data management. Risk management is gaining traction.

GUIDANCE

STP leaders will have a competitive advantage. Investment managers that focus on achieving STP and the dramatic gains possible through STP initiatives will have a competitive advantage over those who wait for regulatory, industry or broker and custodian pressure to force the issue.

Start with data management. Investment managers' experience demonstrates that clean and integrate data significantly increase operational efficiency.

Follow with system integration. Integrating internal systems and processes will deliver significant efficiency gains. Linking and consolidating internal business processes with provision for external messaging will facilitate external STP.

Leverage service providers to move to the front of the line. Utilize capabilities of custodians, brokers, TOMS and technology vendors to reduce costs and gain efficiency. Select STP ready counterparties and vendors that can support external interfaces. Outsource if necessary.

Custodian and broker, Ensure you are STP capable. Custodians and brokers must become investment managers' STP partner or risking losing clients.

BACKGROUND

INVESTMENT MANAGERS OPERATE IN A CHANGED LANDSCAPE

Investment managers in Canada and elsewhere operate in a significantly more challenging environment than the heady capital markets days of the 1990s. As a result, firms are focusing on their core competencies of managing money for investment performance whilst looking for opportunities to gain operational efficiency and reduce costs.

Tough Markets. Canadian and major global stock markets posted negative returns in the last three years. Declining asset values compress profit margins: a study published by the Association for Investment Management and Research indicated that investment managers' profit margins will likely drop from 30% range in the 1990s to 6-7% in 2004 as market performances revert to historical means.

Industry moves toward STP. Meanwhile, the securities industry is making a wholesale move toward Straight-Through Processing (STP) to reduce risks and errors and increase processing efficiency. Investment managers need to move alongside the industry and deploy major process re-designs and technology investments (**Figure 1**).

Buy side operational complexity. The complexity of buy side operations further complicates investment managers' operating landscape, as firms juggle with high volumes, multiple client requirements, proliferation of investment strategies and products, increasingly demanding regulatory requirements, and complex accounting and reporting rules (**Figure 2**).

ANALYSIS OF INTERVIEWS WITH TWENTY-THREE FIRMS IDENTIFY OPERATIONAL "BEST PRACTICES"

To identify investment managers "best practices" and address operational and STP challenges, eClientscope studied the results of interviews with twenty-three investment managers from a wide range of asset management firms and positions (**Figures 3-1 and 3.2**). This analysis is an extension to the IDC/eClientscope joint study on "STP Realities in Canada's Investment Management Firms". The interviewees:

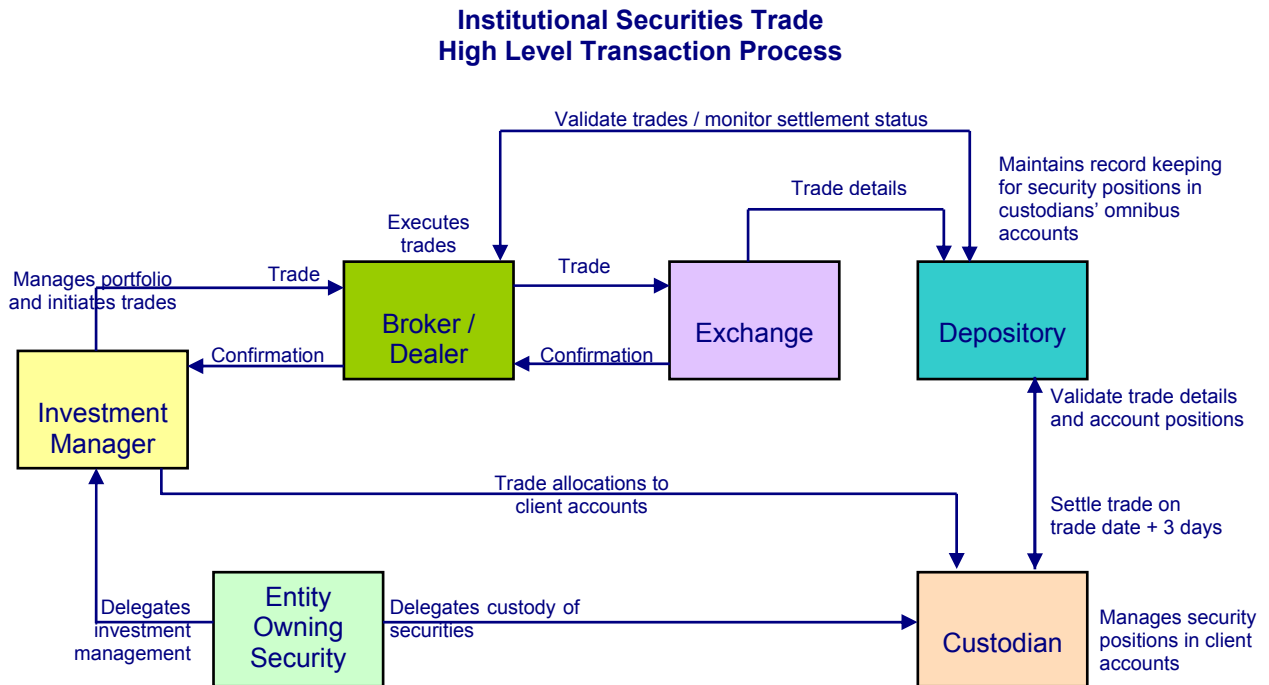
Manage \$600 billion in assets collectively. The 23 investment managers we interviewed manage more than C\$600 billion in assets in aggregate on behalf of a broad spectrum of clients (**Figure 4-1**). A mix of large, medium and smaller firms is represented - with individual assets of \$500 million to more than \$100 billion.

Make 9 million trades annually. These 23 firms collectively made over 9 million trades in 2002 – averaging 750,000 a month. 26% of the respondents reported over 10,000 trades a month, while 42% reported less than 2,500 trades (**Figure 4-2**).

Employ diverse operations and technology support structures. Staffing levels for in-house operations and technology support reflect the inclusion of firms of varied sizes and differing degrees of outsourcing in the study. 19% of the interviewees reported having more than 50 operations personnel whilst another 19% reported having less than 10 (**Figures 5-1 and 5-2**).

FIGURE 1

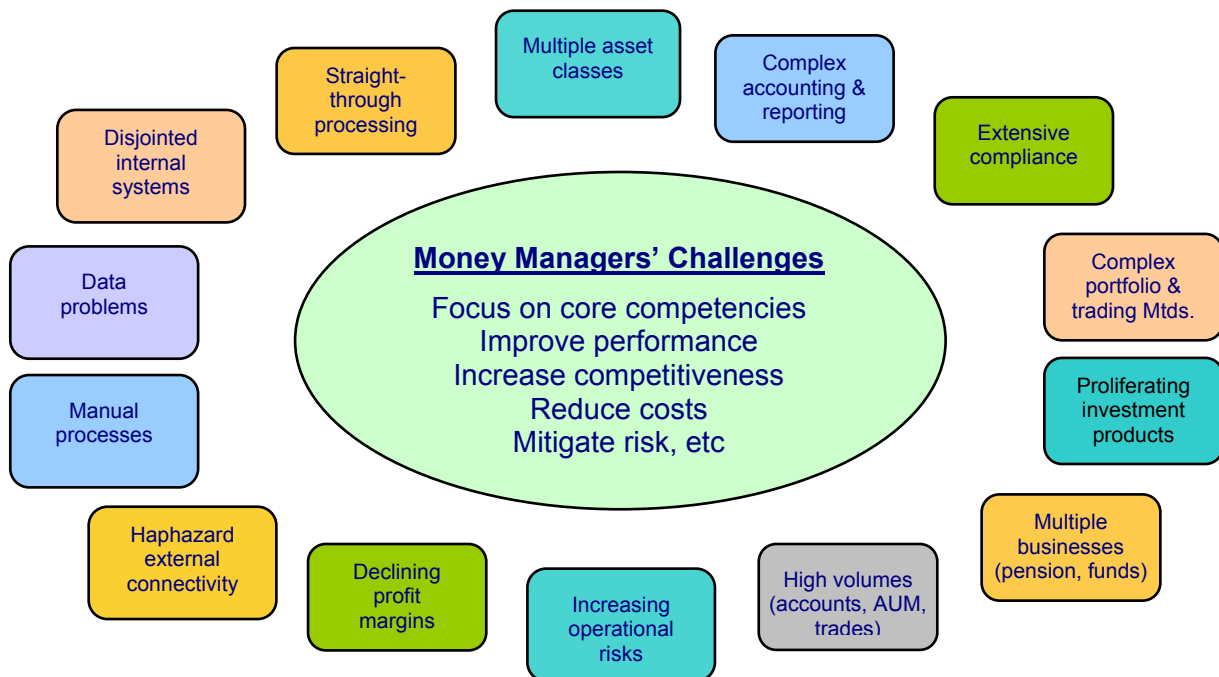
INVESTMENT MANAGERS OPERATE IN A COMPLEX CAPITAL MARKETS SUPPLY CHAIN



Source: Source: eClientscope Inc. and IDC Canada, 2003

FIGURE 2

INVESTMENT MANAGER OPERATIONS ARE COMPLEX

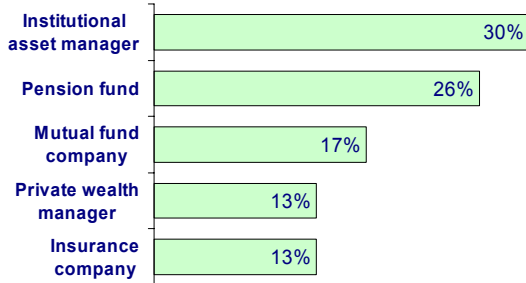


Source: eClientscope Inc., 2003

FIGURE 3

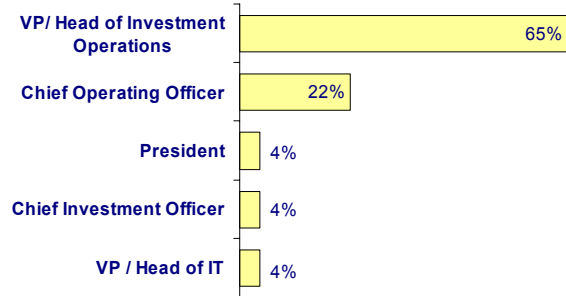
INTERVIEWS ENCOMPASS A BROAD SPECTRUM OF INVESTMENT MANAGERS AND EXECUTIVE TITLES

3.1 What is your principal line of business



Total = 23 firms

3.2 What is your current title?



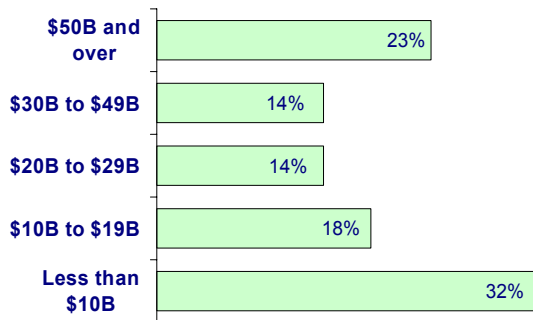
Total = 23 firms

Source: eClientscope Inc., 2003

FIGURE 4

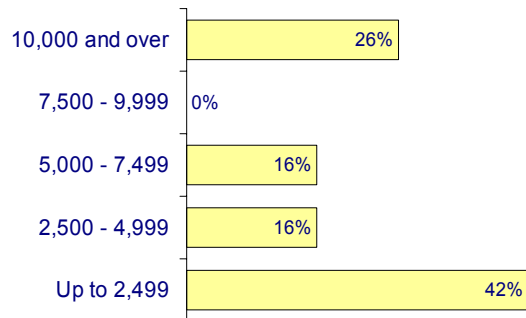
INTERVIEWEES COLLECTIVELY MANAGE \$600B IN ASSETS AND MAKE SIGNIFICANT TRADES

4.1 What are your assets under management?



Total = 22 firms

4.2 How many trades do you make per month?



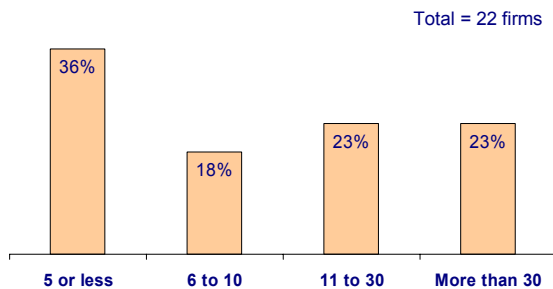
Total = 19 firms

Source: eClientscope Inc., 2003

FIGURE 5

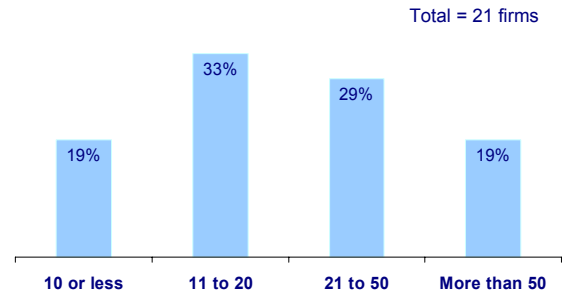
INTERVIEWEES EMPLOY VARYING NUMBER OF IT AND OPERATIONS PERSONNEL

5.1 How many IT support personnel do you have in your firm?



Total = 22 firms

5.2 How many operations personnel do you have in your firm?



Total = 21 firms

Source: eClientscope Inc., 2003

INTERVIEW FINDINGS

INVESTMENT MANAGERS EMBRACE OPERATIONAL EFFICIENCY AND INTERNAL STP

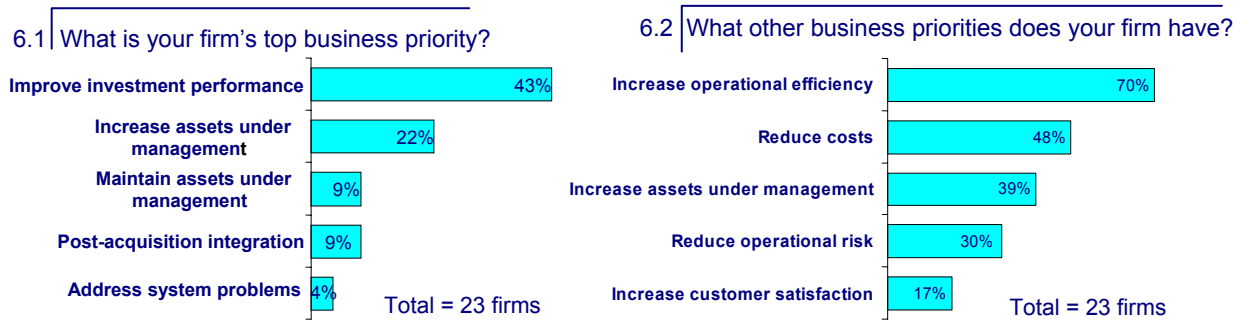
While the securities industry focused on enhancing “inter-firm” STP and trade processing between counterparties, investment managers have been quietly addressing internal operational efficiency issues. 83% of investment managers interviewed by eClientscope for the IDC/eClientscope “STP realities in Canada’s investment management firms” study said they are focused on internal STP.

OPERATIONAL EFFICIENCY CITED AMONG KEY BUSINESS OBJECTIVES

With managing money being investment managers’ core competency, 43% of interviewees in the IDC/eClientscope study cited investment performance as their top business priority. However, 70% of firms identified increasing operational efficiency among their crucial business priorities. **(Figure 6)**

FIGURE 6

INVESTMENT PERFORMANCE AND OPERATIONAL EFFICIENCY ARE KEY BUSINESS PRIORITIES



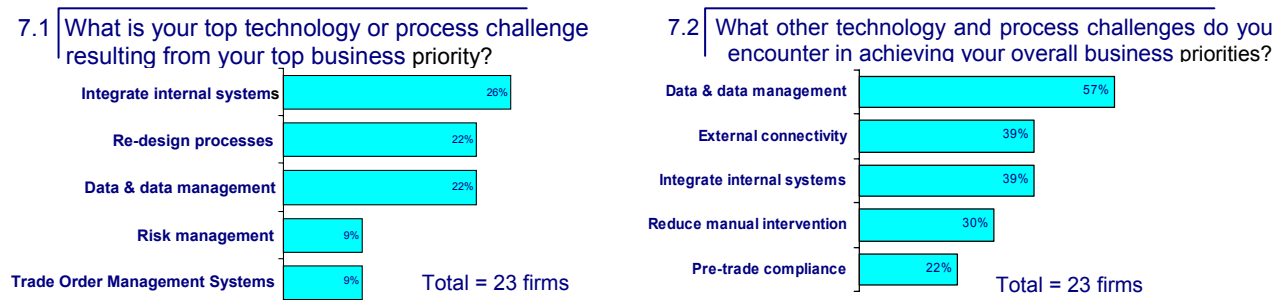
Source: eClientscope Inc. and IDC Canada, 2003

SYSTEM INTEGRATION AND DATA MANAGEMENT TOP TECHNOLOGY CHALLENGES

Investment managers are keenly interested in integrating internal systems, improving data management and process redesign. At this time external connectivity is a lower priority item as firms focus on internal STP. **(Figure 7).**

FIGURE 7

KEY TECHNOLOGY CHALLENGES: SYSTEM INTEGRATION, PROCESS DESIGN AND DATA MANAGEMENT



Source: eClientscope Inc. and IDC Canada, 2003

SIGNIFICANT OPERATIONAL PAINS EXPERIENCED IN MOVING TO STP

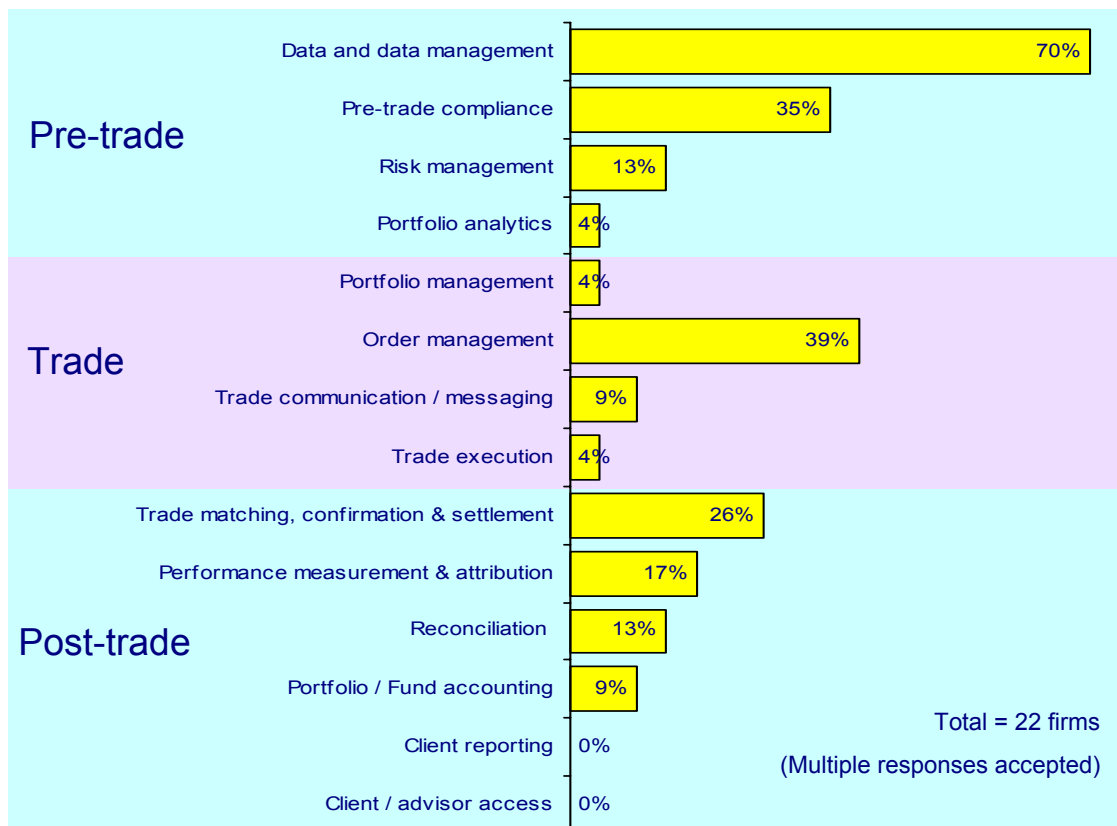
In their efforts to achieve STP in the last 12 -18 months, investment managers experienced significant operational pain across the entire asset management value chain – from pre-trade to trade to post trade – according to the IDC/eClientscope study. Data is cited as the most significant operational problem, followed by trade order management, with trade matching, confirmation and settlement a distant third. **(Figure 8)** With the industry fixated on the external STP issues related to clearing and settlement while investment managers give priority to internal STP data and order management, it is not surprising there is not a common ground for communication around STP.

Note that for analytical purposes, data management is categorized as a pre-trade activity in this study in view of data being used across the complete asset management value chain, starting with such pre-trade activities as portfolio analytics and management.

FIGURE 8

STP NUMBER ONE PAIN POINT: DATA MANAGEMENT

What are the activities that you experienced the most operational pain in trying to achieve STP in the last 12-18 months?



Source: eClientscope Inc. and IDC Canada, 2003

INVESTMENT MANAGERS ACT TO ADDRESS STP CHALLENGES

Investment managers described 60 distinct initiatives they have actively pursued in the last 12-18 months to address operational and STP challenges. 38 initiatives have been fully implemented with varying results, while 22 are still in progress. These initiatives encompass all three trading phases of the asset management value chain – pre-trade, trade, and post-trade – as well as multi-phase STP initiatives to benefit all trading phases. **(Figure 9)**.

DATA MANAGEMENT DOMINATES PRE-TRADE INITIATIVES

Data management – the core pre-trade pain point and the most frequent initiative – accounts for 16 initiatives (27% of all initiatives), involving either data cleansing or consolidation and data hub/warehouse projects. Pre-trade compliance while creating 35% of the operational pain only drives four initiatives (7% of all initiatives) as it is often included within a larger trade order management initiative. **(Figure 9)**

“We implemented a data hub to address data quality issues related to the lack of data sharing across different units identified in an STP audit two years ago.” (Institutional asset manager)

“We cleaned up our security master file and centralized data management. We have gone through all our securities to ensure they are set up properly throughout the firm.” (Institutional asset manager)

“We use Excel to enhance pre-trade compliance, because FMC doesn't have everything we need.” (Institutional asset manager)

ORDER MANAGEMENT LEADS TRADE PHASE INITIATIVES

Order management initiatives account for nine of the 60 initiatives (15% of all initiatives), making order management the second most frequent area of focus. The majority of these initiatives involve implementation or upgrade of a trade order management system (TOMS), others pertain to system integration, system automation and process design issues. Only two respondents reported initiatives to alleviate trade communications and messaging difficulties. **(Figure 9)**

“We are implementing a new trade order management system with pre-trade compliance, FIX capability and electronic trade communication with brokers.” (Pension fund)

“We worked with several vendors to resolve a system integration problem in linking a U.S. vendor product for order management, pre-trade compliance and trade messaging.” (Institutional asset manager)

“We built an interface with our internal system in response to difficulties we experienced in establishing a connection to FMCNet.” (Pension fund)

POST-TRADE INITIATIVES DIVIDED BETWEEN TRADE MATCHING AND PERFORMANCE MEASUREMENT

Reported post-trade initiatives are divided between trade matching/confirmation/settlement and performance measurement/attribution operational areas. Seven of the 60 initiatives (12%) pertain to trade matching/confirmation/settlement whilst six (10%) address performance measurement and attribution. **(Figure 9)**

“To enhance trade matching, confirmation and settlement, we set up an up-to-date settlement instruction database and we require all our brokers to use it.” (Institutional asset manager)

“We tried to have our brokers change their systems to accommodate faster trade confirmation.” (Mutual fund company)

“We implemented a methodology to handle the “back date” issue in daily performance. We also selected a new performance system that includes both daily performance and daily attribution.” (Pension fund)

“We are developing an in-house central database with data drawn from our multiple asset class databases to overcome difficulties in capturing added value from our derivative overlay strategy.” (Pension fund)

PROCESS REDESIGN IS THE PRIMARY MULTI-PHASE INITIATIVE

Process redesign and automation, often implemented in tandem with system integration, accounts for nine of the 60 initiatives taken (15%). These initiatives address operational challenges caused by disjointed legacy systems, or in preparation for STP. Other multi-phase initiatives involve system integration (three initiatives) and external connectivity (one initiative). Many of these initiatives were intended to overcome difficulties experienced with brokers, custodians, external managers and distribution channels. **(Figure 9)**

“We are in the middle of a complete system and process re-architecting of the firm’s front and middle-offices....to accommodate our shift to a new business model that utilizes external managers in addition to our in-house management team.” (Private wealth manager)

“In order to streamline the process with our custodians, we consolidated our relationships into a sole custodian.” (Pension fund)

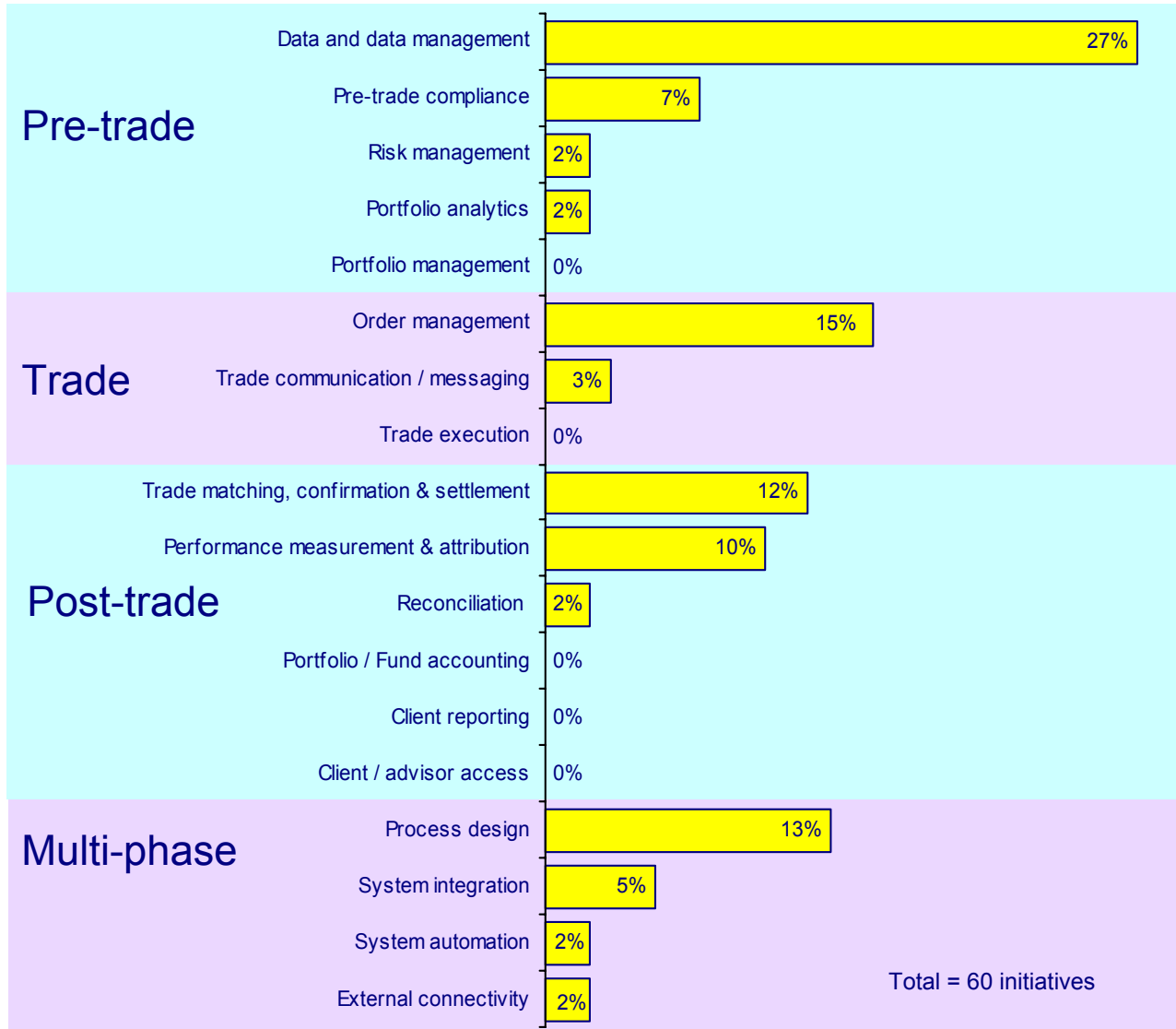
“Along with initiatives taken to address our disjointed legacy system and antiquated processes, we made some organizational and staff changes, and we connected to an intelligent messaging hub to enable communications between users and the consolidated securities master file.” (Insurance company)

“We did a complete process review resulting in a technology blueprint for system re-design.” (Institutional asset manager)

FIGURE 9

DATA MANAGEMENT TOPS INVESTMENT MANAGERS' INITIATIVES

What initiatives have you taken to address these operational issues in the last 12 – 18 months?



Source: eClientscope Inc., 2003

STP INITIATIVES PRODUCE RESULTS

Investment managers reported that 38% of all initiatives have produced significant increases in operational efficiency with another 35% expected to realize major increases once implementation is complete. However, respondents also reported that 22% of the initiatives resulted in little or no increases in efficiency (**Figure 10**). On the whole, projects undertaken to address data management, system integration, process design and order management generate the best results. (**Figures 11 to 14**)

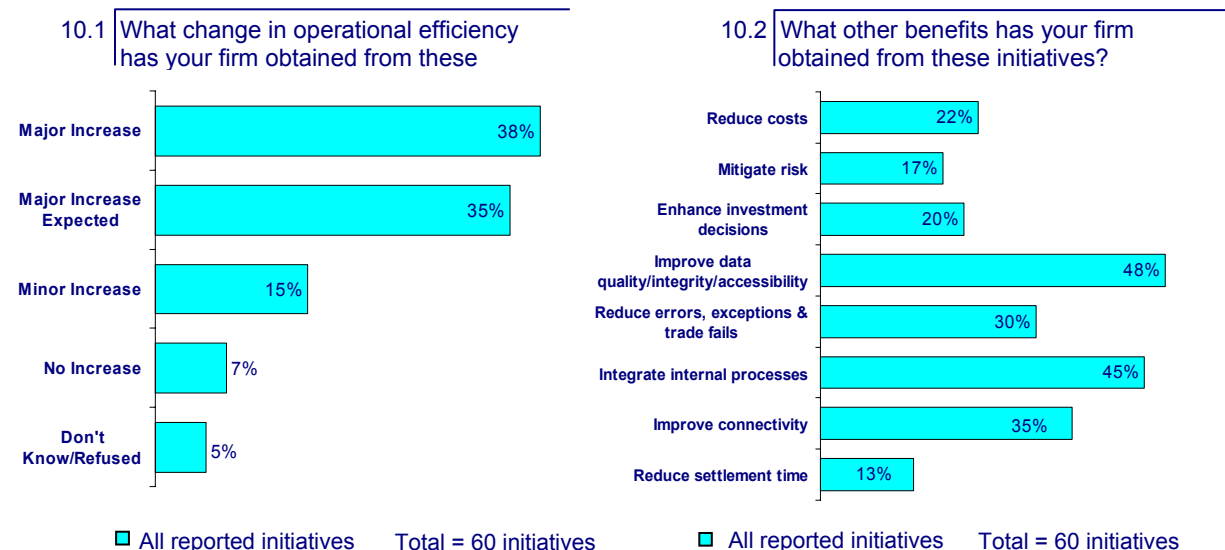
Improving data quality/integrity/accessibility lead added benefits. In addition to operational efficiency gains, 48% of the initiatives achieved or expect improvements in data quality, integrity and/or timely accessibility as benefits.

Integrating processes produce benefits. 45% of the initiatives have resulted in or expect internal process integration as an added benefit. Improving external connectivity was cited as a benefit for 35% of the initiatives.

Few risk mitigation and settlement time reduction improvements. Risk mitigation was achieved from only 17% of the initiatives. Notwithstanding the attention given to trade matching, confirmation and settlement by the securities industry, only 13% of our interviewees' initiatives focused on settlement – highlighting the difficulties facing projects requiring counterparty and general industry cooperation.

FIGURE 10

INVESTMENT MANAGERS' OPERATIONAL AND STP INITIATIVES YIELD DIVERSE RESULTS



Source: eClientscope Inc., 2003

PRE-TRADE DATA MANAGEMENT INITIATIVES GENERATE GOOD RESULTS

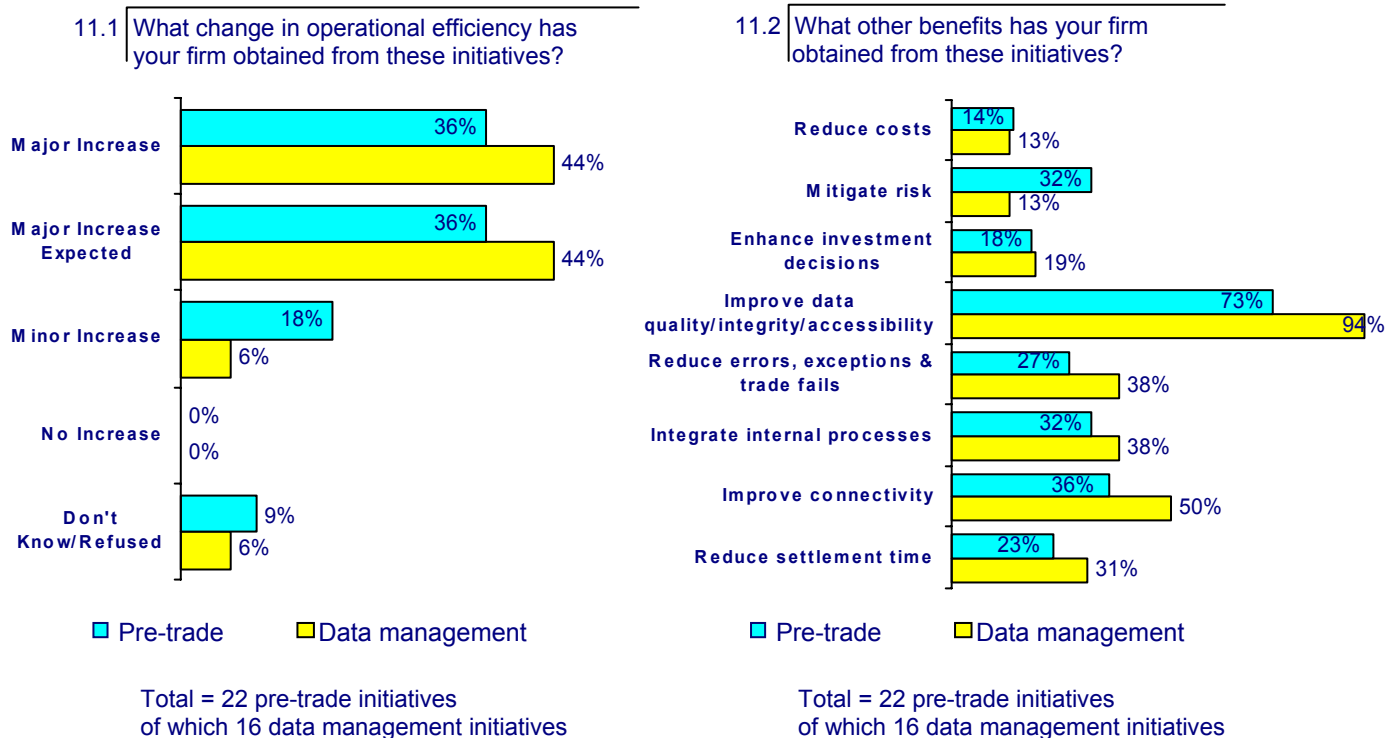
Investment managers reported that 36% of pre-trade initiatives produced major increases in operational efficiency and another 36% are expected to yield gains after implementation. Improvements in data quality/integrity/accessibility lead the additional benefits cited for 73% of pre-trade initiatives. In addition, external connectivity improvement, internal process integration and risk mitigation were cited as benefits in 1/3 of the pre-trade initiatives. (Figure 11)

Data management projects yield impressive results. Data management is the most frequent initiative taken by the investment managers (16 of 60 initiatives). 44% of the data management projects produced major operational efficiency increases and another 44% are expected to bring significant increases once fully deployed. Close to 100% of data management initiatives have resulted in improved data quality/integrity/timely accessibility benefit. They also lead to improvements in connectivity, process integration and reduced errors, exceptions and trade fails, which ultimately contribute to reduced settlement time. (See also case study on “Achieving Data Quality and Integrity” on page 27).

Pre-trade compliance initiatives generate few increases in operational efficiency. Only one of four reported initiatives resulted in major increases in efficiency. However, three quarters of these initiatives helped mitigate risk, the principal reason for these projects.

FIGURE 11

PRE-TRADE INITIATIVES, PARTICULARLY DATA MANAGEMENT, ACHIEVE GOOD RESULTS



Source: eClientscope Inc., 2003

SELECTED PRE-TRADE INITIATIVES

Data Hubs/warehouses – Data Consolidation Initiatives:

“A data hub has been implemented to address the lack of data sharing across business units identified in an STP audit two years ago. Our SQL-based data hub is our central source of information and the benefits are the ability to query data and “plug-and-play” XML functionality. All in all, this initiative has resulted in much higher efficiency.” (Institutional asset manager)

“We use Excel and manual intervention a lot and we need to give our portfolio managers more flexibility. We expect a major increase in efficiency from a data hub that will resolve data quality problems caused by data coming from different sources being stored locally and used in different activities. We are now in the RFP process for the implementation of a data hub.” (Institutional asset manager)

“To resolve data quality problems caused by our antiquated post-trade G/L setup, we built an integrated business architecture and database that identifies advisors' data in a single source which other systems can subscribe to. There is no physical centralization of data or actual system integration, but now the system can use the data dictionary to identify the data source and go directly to it. This also allowed us to move to a different back office outsourcing vendor.” (Private wealth manager)

Data Cleansing Initiatives:

“With our new custodian, we house our data in the custodian's location. We then extract and normalize the data back to here, combine it with data from our brokers, and then bring it into our reconciliation system for automated reconciliation. This has resolved the data integrity problem we experienced due to multiple data sources and the resulting required reconciliation of data differences.” (Pension fund)

“Using FMC products we resolved our CUSIP problems by mapping our internal CUSIP to actual industry CUSIP. We can now automatically match trades, and we use a delivery instruction database. This has resulted in a major increase in operational efficiency....Our STP rate has improved from 35% to 87% in the last year.” (Institutional asset manager)

“We sensitized our custodian (which we also use as our broker) to the difficulties in obtaining appropriate data from them and worked with them to generate the necessary data. This resulted in a significant increase in efficiency. Errors are reduced by 40%, and our custodian can now handle U.S. securities and other securities that don't have ticker symbols.” (Private wealth manager)

Pre-trade Compliance Initiatives:

“We added some base rules from our accounting system to the pre-trade systems. It's more for risk mitigation than for efficiency, so it did not produce a significant efficiency increase.” (Institutional asset manager)

“We don't have sufficient resources to do complete pre-trade compliance. We added some programs for risk analysis, measurement and attribution which have yielded some increase in efficiency and some decrease in risk.” (Institutional asset manager)

TRADE PHASE INITIATIVES PRODUCE MAJOR EFFICIENCY GAINS

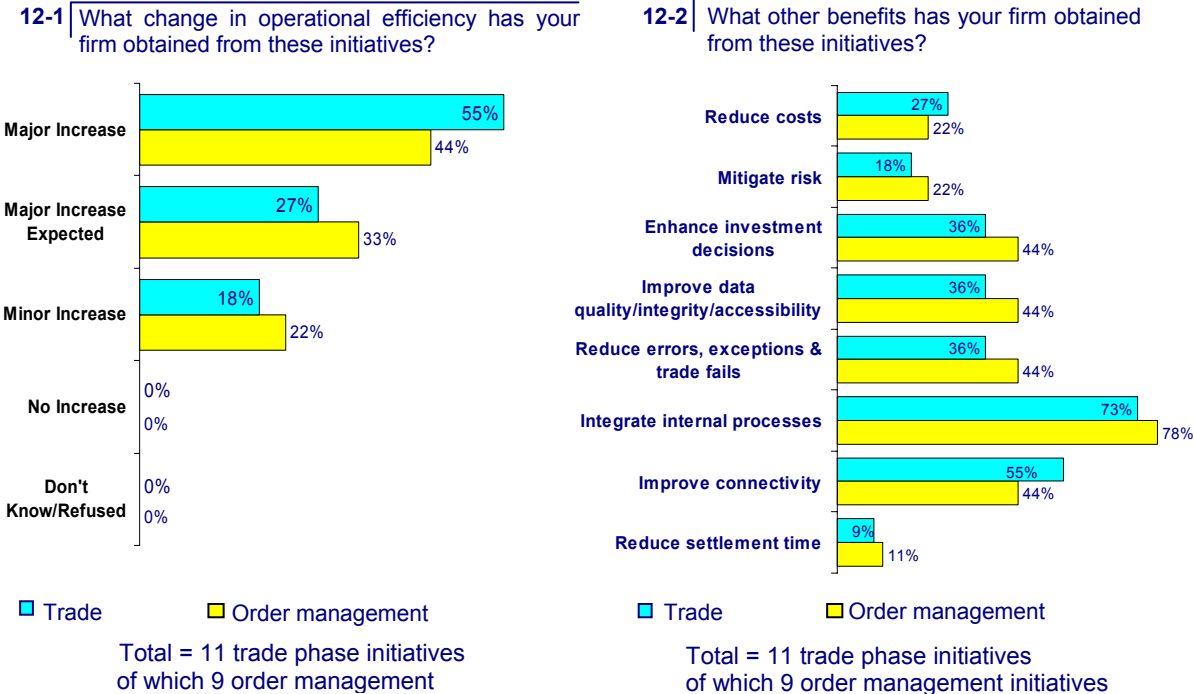
When asked about results of initiatives to overcome trade phase impediments, investment managers reported 55% of the initiatives have produced major increases in operational efficiency and another 27% are expected to perform likewise once fully deployed. In addition to operational efficiency, integrating internal processes (73% of responses) and external connectivity (55%) were the two areas most frequently cited as benefits, followed by enhanced investment performance, better data quality, and reduced errors.

Order management initiatives start to produce good results. Order management accounts for the second largest group of initiatives taken by the investment managers (nine of 60 initiatives). 44% of trade order management projects resulted in major increases in operational efficiency. Another 33% of the initiatives are in the rollout stage and expected to produce significant gains once complete. In addition to operational efficiency, integrating internal processes is the most important benefit, cited in 78% of projects. 44% of the order management initiatives also provided improvements in data quality, reduced errors, enhanced external connectivity and better investment performance. (See case study on “Implementing a Trade Order Management System”).

A limited sample of trade communication initiatives yields good results. Our interviewees reported only two trade communication/messaging initiatives, both resulting in major operational efficiency increases.

FIGURE 12

ORDER MANAGEMENT AND OTHER TRADE PHASE INITIATIVES GENERALLY PAID OFF



Source: eClientscope Inc., 2003



SELECTED TRADE PHASE INITIATIVES

Order Management Initiatives:

“We are testing a front office system that includes trade order management and pre-trade compliance, however we expect major efficiency increases once implementation is complete. Information will flow through to the back office and changes will flow automatically to the brokers once this functionality is tested.... This system will streamline processes and make our front office more efficient, and consequentially our back office will also be more efficient.” (Insurance company)

“Our paper-based trade order management process causes errors and delays, particularly in trade execution. We created extracts from systems like Belzberg, but only gained a minor efficiency increase. Going forward, we will implement a TOMS to give us a tool to make decisions without manual calculation. Tracking trades will be easier, whether fully or partially filled. Also, a TOMS will integrate with other internal systems and link to third-party systems to ensure best possible trade execution. We expect a new TOMS will give us better analytics, reduce errors, increase efficiency and resolve risk issues.” (Institutional asset manager)

“After working with several vendors to solve the integration problem of a US vendor product for order management, pre-trade compliance and trade messaging, we obtained a significant increase in operational efficiency.” (Mutual fund company)

“Our use of non-industry standard benchmarks made the shift from manual to electronic order management for fixed income challenging. The automated order management system for fixed income yields a minor increase in efficiency, but more than efficiency, we gained information transparency.” (Pension fund)

“As a first step to re-engineer and standardize trading platforms within the group, we implemented a new securities accounting system to replace the hard coded legacy system. We estimate a 30% decrease in back office unit cost.” (Insurance company)

“We added a front-end trading system between the portfolio managers and the trading desk to gain a major increase in portfolio manager efficiency. It also gives the portfolio manager who uses it more information; however, few portfolio managers use the system thus reducing the overall gain.” (Institutional asset manager)

Trade Communication / Messaging Initiatives:

“FMCNet was a challenge to interface to our purchased data management/order management/accounting system, Thomson Portia. So we built our own interface with FMCNet and this resulted in a major increase in efficiency.” (Pension manager)

“We use our custodians' direct counterparty interfaces for part of our trade messaging in addition to FMCNet to help keep our costs and our custodians' costs down and to increase efficiency.” (Institutional asset manager)

POST-TRADE INITIATIVES ARE NOT PRODUCING RESULTS

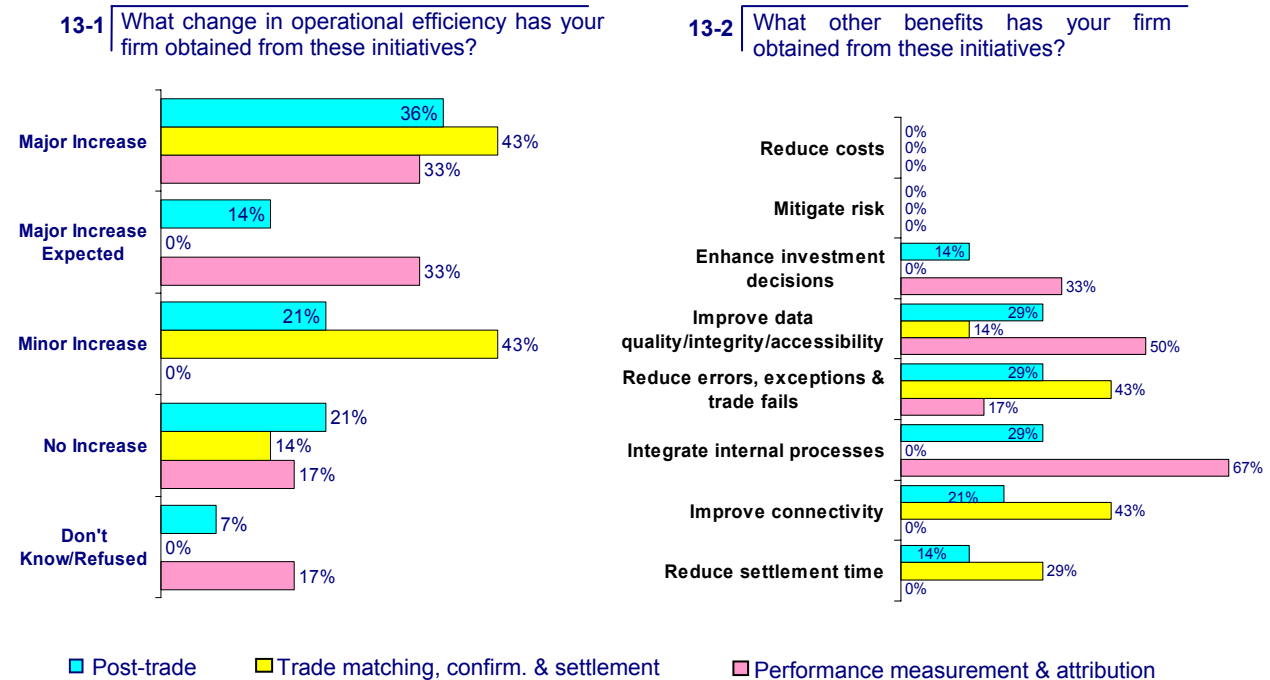
Investment managers said 42% of initiatives addressing post-trade operational difficulties have resulted in little or no increase in operational efficiency. Post-trade initiatives also generated fewer ancillary benefits. The top three reported additional benefits – reducing errors, improving data quality and integrating internal processes – were achieved in only 29% of the initiatives. **(Figure 13)**

Trade matching, confirmation and settlement initiatives produce mediocre results. Only three of the seven projects undertaken (43% of initiatives) to alleviate trade matching, confirmation and settlement impediments resulted in a major efficiency increase. Lack of cooperation from counterparties, brokers, custodians (to a lesser extent); legacy systems and batch processes are cited as reasons for the mediocre results. This reflects the slow pace of the industry movement towards external STP and the difficulty of realizing on STP efficiency gains until a majority of the industry is STP enabled.

Performance measurement and attribution initiatives yield better results. Of the six performance measurement initiatives, 67% already produce or are expected to produce major efficiency increases. In addition to operational efficiency, integration of internal processes and improvement in data quality are benefits cited in 67% and 50% of the reported initiatives respectively. More timely, accurate and granular reports generated by the performance systems may also enhance firms' investment decisions.

FIGURE 13

POST-TRADE INITIATIVES: MIXED RESULTS REPORTED



Total = 14 post-trade initiatives; of which - 7 trade matching, confirmation & settlement initiatives
 - 6 performance measurement & attribution initiatives

Source: eClientscope Inc., 2003

SELECTED POST-TRADE INITIATIVES

Trade Matching, Confirmation and Settlement Initiatives:

“We had the vendor for our trade processing and settlement system change from the U.S.-based confirms to Canadian confirms resulting in a major increase in operational efficiency.” (Mutual fund company)

“We gave the custodian an authorized trade mandate, so if a trade doesn’t match, the custodian can resolve the problem with the brokers directly. Now we have few issues with trade matching, confirmation and settlement.” (Insurance company)

“We implemented our own delivery instruction database, so broker and securities identifiers that previously caused trade matching and confirmation problems are a non-issue for us.” (Mutual fund company)

“We implemented a settlement instruction database and provided our brokers a one-pager with all our account information. We achieved minor increase in operational efficiency from these initiatives. We need to do a lot of these small things to get major impact in operational efficiency. Process design and communication are key STP enablers.” (Institutional asset manager)

“No increase in operational efficiency has resulted from working with brokers to change their systems to provide faster confirmations, because the way brokers work in overnight batch is an industry aspect.” (Mutual fund company)

Performance Measurement and Attribution Initiatives:

“We experienced difficulties in capturing value from our derivative overlay strategy because our performance system doesn’t integrate data from our multiple asset class databases, and also because we don’t have a central repository. We developed an in-house central database drawn from the disparate systems. The project is not yet finished, but we expect major increase in efficiency once it is complete.” (Pension fund)

“We implemented a new performance system but it didn’t integrate well with the rest of the product suite from the same vendor, so we gained no increase in operational efficiency. We are now planning to install a product upgrade to resolve the problem.” (Institutional asset manager)

“We experienced operational issues regarding daily performance measurement due to our use of non-industry standard benchmarks. We built a highly customized performance system using a vendor product as the core and added an information management tool, a benchmarking tool and an automated reconciliation tool. The system also spins off daily risk information for the portfolio managers. This system development was driven more by a goal of improved investment performance, however, it did result in an increase in efficiency.” (Pension fund)

MULTI-PHASE INITIATIVES GENERATE BEST OVERALL RESULTS

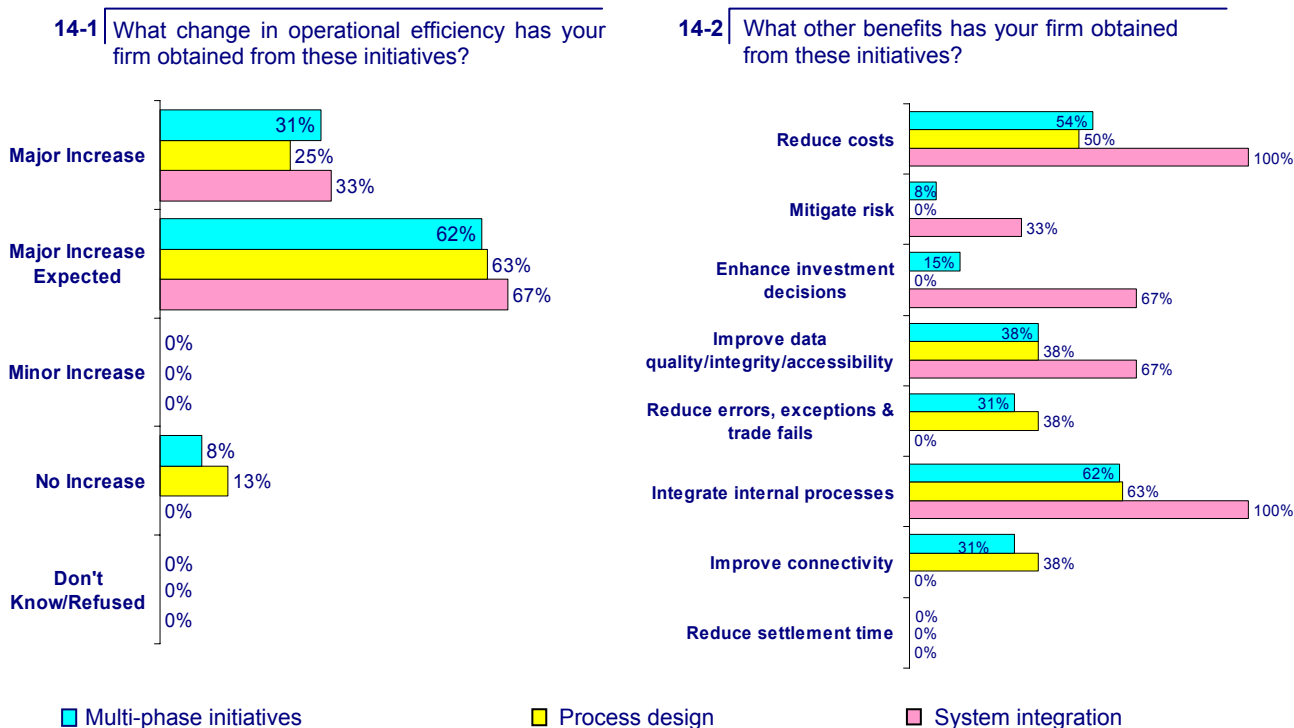
From the descriptions provided by investment managers, multi-phase initiatives undertaken to remove general operational impediments produce the best overall results. Firms reported that four of the 13 multi-phase re-engineering initiatives have already achieved major increases in operational efficiency, and another 8 are expected to produce significant gains once fully implemented. In addition, internal process integration was cited as a key benefit for eight of these projects (62% of multi-phase initiatives), while cost reduction is cited as a key benefit in seven projects (54% of multi-phase initiatives). **(Figure 14)**

Process design initiatives deliver significant benefits. Seven of the eight process design projects (87% of multi-phase initiatives) already, or expect to, yield significant efficiency gains. The other benefits include internal processes integration, improvement of data quality, reduction of errors, and enhancement of external connectivity.

System integration projects all pay off. All three system integration initiatives have generated or forecast major increases in operational efficiency. Cost reduction and internal process integration are also cited as benefits for all these projects, while enhancement of investment performance and data quality are cited in two cases.

FIGURE 14

MULTI-PHASE PROCESS DESIGN & INTEGRATION INITIATIVES EXPECT SIGNIFICANT BENEFITS



Total = 13 multi-phase initiatives; of which - 8 process design initiatives
- 3 system integration initiatives

Source: eClientscope Inc., 2003

SELECTED MULTI-PHASE INITIATIVES

Process Design Initiatives:

“To alleviate STP challenges due to disjointed legacy systems, manual processes and widespread use of spreadsheets, we complemented our data warehouse initiative with organizational redesign. As a result, we saved 51 FTE and improved investment performance by 3 to 5 basis points by getting better, more accurate and more timely data.” (Insurance company)

“We completed a process review from top to bottom in preparation for STP and came up with a technology blueprint that will help grow our business. We have only implemented minor components at this time so we have corresponding benefits; however we expect a major increase in efficiency once the whole project is complete.” (Institutional asset manager)

“To position ourselves to triple our size, we are replacing disparate systems with a new distributed back office system and re-engineering dealer operations. We expect a headcount saving of 30.” (Private wealth manager)

“We are undergoing a system and process re-architecture of our entire front and middle office to deal with legacy system and process problems and accommodate a shift to a new business model involving external managers alongside our in-house managers. We plan to install an ASP based integrated front/middle office solution. Once the project is fully deployed, we expect a major increase in operational efficiency as well as an ability to meet our multi-manager needs. That means better reporting to clients, a more robust database with better data quality and integrity, and STP, i.e. better, faster, cheaper workflow resulting in improved efficiency and service. We estimate this project could support a 30% revenue growth plus a 20-30% cost reduction.” (Private asset manager)

System Integration Initiatives:

“Our investment units use a variety of portfolio analytical tools, so we are implementing a common portfolio analytical platform that integrates pre-trade compliance for all managers. We have selected application and middleware vendors who will custom-build the system and we are now into tool selection. We expect significantly increased efficiency; however we also expect improved investment decisions because of the on-line analysis, much better client reporting and performance attribution, and lower operating costs.” (Insurance company)

“To bypass the difficulty of getting external managers to assign resources at the same time to establish system linkages with ourselves, we approached each external manager independently to establish an electronic link. This yielded a major increase in operational efficiency.” (Mutual fund company)

“To address the lack of external manager automation which causes us STP problems, we require external managers to define their path to STP and we work with them to increase their STP rates. We just started but we expect a major increase in efficiency from this process.” (Pension fund)

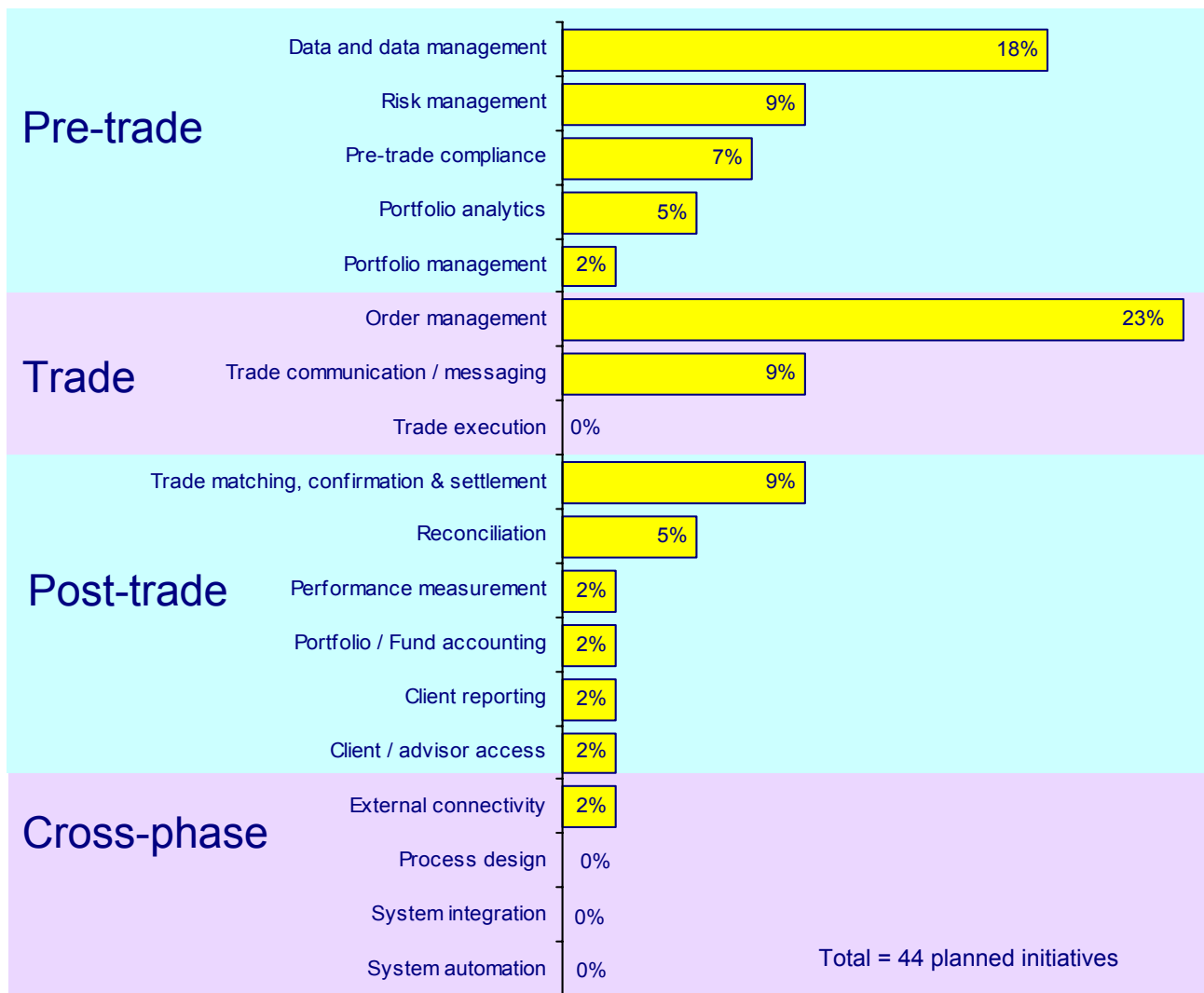
INVESTMENT MANAGERS PLAN MORE INITIATIVES

In addition to completing 22 existing projects, interviewees plan 44 additional initiatives over the next 12-18 months to alleviate operational and STP impediments. Data management and order management - investment managers' top two operational project focuses in the last year and half - continue to lead firms' future project plans. However, the number of planned data initiatives decreases in favour of an increase in order management initiatives. Firms who started their data hub/warehouse and data cleansing projects ahead of the pack have obtained good results and are now turning their attention to operational and STP issues in the middle- and back-offices. Interviewees were able to forecast benefits from just over half of the planned initiatives at this time. **(Figure 15)**

FIGURE 15

ORDER MANAGEMENT LEADS FIRMS' PLANNED INITIATIVES

What other areas your firm will be making investments in the next 12-18 months to address operational issues?



Source: eClientscope Inc., 2003

DATA MANAGEMENT REMAINS MAJOR PRE-TRADE FOCUS

Investment managers plan 18 additional pre-trade projects, of which eight are related to data management (18% of all planned initiatives), six involve data hub/warehouse enhancements and two involve data supplier rationalization. Risk management projects still account for a minority of investment managers' attention, but are expected to increase to four (9% of planned initiatives) projects involving automated risk or compliance systems. This is reflective of firms' growing concern about operational risk and related regulatory scrutiny. In addition, respondents plan three pre-trade compliance, two portfolio analytic and one portfolio management initiative (**Figure 15**). Noteworthy is the portfolio management initiative which involves the use of collaborative solutions to remove operational impediments caused by multiple office locations.

"We plan to implement a data warehouse using a vendor product to extract data into a central repository. The benefits we expect are better, timely data, less operational risk with automated reporting, and better, more granular reports for our portfolio managers to interpret the data." (Pension fund)

"We are undergoing a project to make our data hub more robust, using Microsoft.net and another system." (Institutional asset manager)

"We will review and consolidate market data feeds. The benefits we expect are increased efficiency, cost savings, and STP compliance; i.e. increase automation and reduce manual intervention." (Mutual fund company)

"We will acquire a new risk system to replace a 5-6 year old system to generate the best possible risk-adjusted investment decisions." (Pension fund)

"We will purchase a compliance system and link it to our portfolio accounting system. Now we have 10 people doing compliance." (Institutional asset manager)

"We will implement an Intranet for investment research to coordinate between our three field offices. We expect this will speed up communications, increase productivity, and increase efficiency." (Private wealth manager)

TRADE ORDER MANAGEMENT SYSTEMS LEAD TRADE PHASE INITIATIVES

14 additional trade phase initiatives are planned by the investment managers interviewed. Order management projects, the largest project category, account for 10 of the 44 (or 23%) planned initiatives. Eight projects entail the implementation of new TOMS, often integrated with pre-trade compliance and sometimes with FIX messaging capability. One project involves enhancing an existing TOMS, and another searches for cross-border trading solutions. Four trade communication/ messaging initiatives are planned (9% of all planned initiatives) - two involving connectivity to a future virtual matching utility (VMU), one working with FMCNet to develop delivery and settlement instructions, and one to negotiate lower trading costs. (**Figure 15**)

“We are looking for a modeling and trading system with pre-trade compliance for 2004 installation. We are looking into Bloomberg, Reuters, McGregor and Charles Rivers and we are ready to put together an RFP.” (Institutional asset manager)

“We will implement a TOMS from scratch via RFP. It will strictly be for order management for the next two years. Beyond this, we will look at inter-operability with other functions. The benefits are trading process efficiency, less costs and the STP aspects of less errors and fails from clean information right up to settlement.” (Institutional asset manager)

“For order management, we plan to implement electronic messaging with our brokers as an extension to our existing order management system.” (Pension fund)

“We will work with FMCNet to address counterparty communications issues. We expect more timely trade execution; reduced errors and fails and the ability to track where our trades are when errors occur.” (Institutional asset manager)

“For trade communications and messaging, we are looking at either a VMU or FMCNet connection as an extension to our order management/portfolio accounting system, Portia. With the VMU connection, we expect better trade matching, validation and possibly trade settlement, and faster trade settlement. This will mean better communications with our counterparties.” (Pension fund)

POST-TRADE PROJECTS RECEIVE INCREASED ATTENTION

Four of the 11 additional post-trade initiatives (or 9% of all planned initiatives) will address trade matching, confirmation and settlement impediments; all involving enhanced external connectivity with counterparties. This relatively modest number of trade matching initiatives may foreshadow a continuation of investment managers' decision to focus on internal STP issues. Performance measurement and attribution – a major category of projects undertaken in the last 12-18 months – is cited as the activity focus for only one future project. This is not surprising as four of the six current projects are still in progress. Besides trade matching and performance system initiatives, there are plans for reconciliation, portfolio accounting, client reporting and web access initiatives (Figure 15).

“We want to ensure that we get better electronic connection with brokers to address the broker batch processing issue... that hinders us from achieving STP. We are looking into what the new TOMS offer in term of functionality for this purpose. We are hinging a lot of our efforts around our new TOMS.” (Mutual fund company)

“In the next 18 months, our investments will include automating affirmation and confirmation globally.” (Mutual fund company)

“After the front office system, we will be investing in a new performance measurement and attribution system. We expect reduced manual processing, increased automation, more timely information and more timely decisions.” (Insurance company)

“We will automate reconciliations for mutual fund operations to reduce time spent on reconciliation. We expect a 50% reduction in reconciliation workload to redirect to control and compliance.” (Insurance company)

“For client reporting, we will upgrade our statement generator to SQL. We expect an increase in productivity (10 times faster in generating statements) to accommodate our business growth objective.” (Private wealth manager)

ONLY ONE MULTI-PHASE INITIATIVE PLANNED

Investment managers only foresee one additional multi-phase project (**Figure 15**), no doubt due to the fact that five of the 13 current initiatives are not yet complete. Firms are prioritizing efforts to remove system integration and process impediments – two of their most significant technology challenges – in order to be prepared for the inevitable STP requirements.

“We will invest in technology to link up with FUNDSERV using standard STP file formats, so that when we take an order from our client systems the trade and money will move electronically via FUNDSERV. We expect significant efficiency gain and staff reduced from 30 to 10 people in this area.” (Insurance company)

GUIDANCE

INVESTMENT MANAGERS' ACTIONS REFUTE INDUSTRY MYTH

A popular belief in the securities industry is that investment managers are aloof bystanders to the STP evolution; however this study clearly demonstrates investment managers taking active steps to prepare for STP and improve operational efficiency. Initiatives taken to address STP encompass front, middle and back-office activities and span internal and external STP issues.

CCMA STP definition causes disconnect. The Canadian Capital Markets Association's "inter-firm", post-trade definition of STP lacks overlap with investment managers' focus on "intra-firm" operational efficiency challenges.

But benefits keep firms motivated. Firms are focused on STP despite this apparent disconnect as they gain internal efficiency, reduced cost and risk and other benefits resulting from current Initiatives.

Focus on clean data and integration pays off. Investment managers understand the importance of clean data and are taking action to ensure their data is clean. Firms' experience also confirms that a focus on data management and process integration pays off.

INVESTMENT MANAGERS USE STP AND OPERATIONAL EFFICIENCY TO INCREASE COMPETITIVENESS

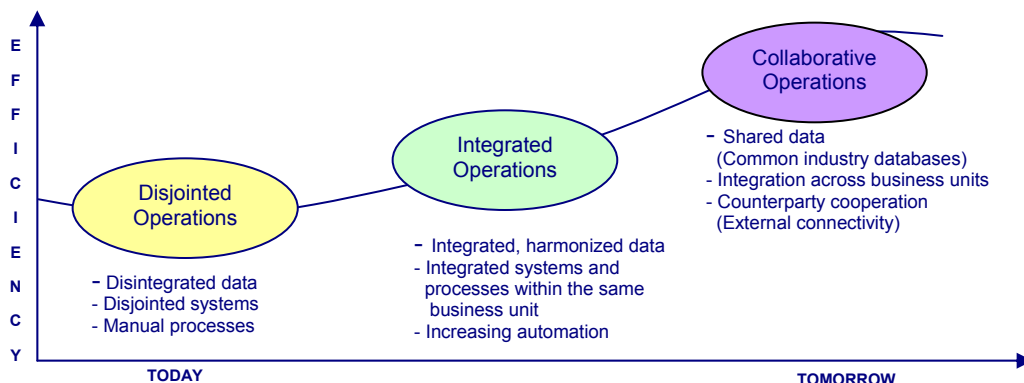
Investment managers understand the importance of adapting to today's capital markets and lower profit margins: trading operations are becoming more efficient and sophisticated as firms pursue STP operational efficiency. Respondents to this survey report dramatic cost efficiencies from internal STP initiatives and external STP will add to these benefits by reducing manual processes to resolve inter-party differences. To remain cost competitive, investment managers and their servicers must become STP enabled.

And the benefits are more than simple cost reduction. Risk reduction and good governance will ultimately demand that all securities trades be settled virtually in real time to reduce settlement times and irregular trading risks.

Data management and system/process integration will be key progress indicators as investment managers evolve into more sophisticated operational models.

FIGURE 16

THE FUTURE OF INVESTMENT MANAGEMENT OPERATIONS



Source: eClientscope Inc., 2003

BUT GETTING THERE WILL BE CHALLENGING

Significant transitional challenges await investment managers as they sail through rough seas in pursuit of STP and operational efficiency:

STP is an extremely large, complex project. Few firms will succeed in implementing all necessary STP process and system changes simultaneously. Firms are advised to consider a strategy of incremental enhancements, even at the price of delayed benefits.

Standards and vendor solutions are moving targets. Technology, data and communication standards and the associated vendor solutions are evolving. Investment managers risk selecting standards and vendors that may not be relevant tomorrow.

The industry is not STP ready. The industry is moving toward STP slowly. Realizing efficiency gains will be difficult until a majority of industry participants (investment managers, broker-dealers, custodians) are STP enabled. The limited benefits from post trade initiatives testify to this.

Investment managers are advised to adopt two fundamental strategies in addressing these challenges: firstly to maintain a high level of involvement with industry efforts to migrate to STP, and secondly to follow a managed transition path to the ultimate goal.

STP REQUIRES BROAD INDUSTRY SUPPORT

To remain cost competitive, investment managers need to establish STP interfaces with counterparties and obtain STP support from vendors and suppliers. Monitoring and influencing the STP efforts of the following parties will assist this process:

Regulators are monitoring STP. Securities industry regulators are interested in STP in view of its potential to reduce governance and settlement risk and enhance the competitiveness of the Canadian securities industry. Regulators are monitoring STP progress made by the industry and may eventually intensify their pressures on industry participants to ensure steady progress towards industry-wide STP. Support and input from investment managers will be welcome.

CCMA must expand its STP definition. There is a need to make the securities industry aware of the significant efforts underway by many investment managers to introduce internal STP. CCMA can assist by broadening its “inter-firm” STP definition to acknowledge investment managers’ “intra-firm” internal STP initiatives. Both parties will gain through the delineation and coordination of external STP efforts.

Investment managers can influence key suppliers. Technology application vendors, brokers, custodians and other service providers should be challenged to improve processes and interfaces to help investment managers reduce trading costs and errors. Comprehensive, well-integrated solutions from vendors can also minimize integration efforts and chaos.

Custodians can leverage STP to expand their service offerings to investment managers at a time when their core custodial service increasingly becomes commoditized. Key opportunities for adding value include data management, full electronic interfaces and back office support. To leverage these opportunities, custodians must first step up their STP ability to provide accurate, timely trade processing and settlement information to their clients.

MANAGED TRANSITION IS THE PATH TO COMPETITIVENESS VIA STP AND OPERATIONAL EFFICIENCY

Investment managers are advised to pursue a managed transition strategy. This begins with a holistic master plan defining the firm's overall STP and operational objectives and key milestones to be achieved. Implementation then follows a systematic, step-by-step approach keeping the scope of each project within bounds, addressing internal STP issues first for ease of control and establishing linkages with external counterparties on a bi-lateral basis, not waiting for every counterparty to become STP ready.

With industry-wide STP looming on the horizon, the plan should acknowledge that shared systems and data integration have become business critical. Independent systems and databases for sister companies, divisions, departments or individuals are not practical in an STP world. Firms need to step up efforts to interconnect and integrate, seizing apparent efficiency gains.

The transitional plan will be based on a foundation of the right service providers and accurate, accessible referential data:

SERVICE PROVIDER SUPPORT IS CRUCIAL

Managed transition to operational STP depends on the support of suppliers such as custodians and other securities servicers as well as trade order and other application vendors. Firms will want to align with the right providers after considering vendor selection factors beyond price:

Stability - The right service provider is expected to be in the business for the long run as industry standards evolve.

Commitment to Open Standards - The right service provider has aggressive plans to remain compatible with evolving data and communication standards; so that the investment manager can "mix and match" with other vendors, connect to anyone anywhere and allow for application modification to respond to local requirements.

Fewer is better - To minimize implementation challenges related to evolving interface and data standards, minimize the number of vendors requiring interfaces to other systems.

Outsourcing – Non-core functions can be effective for many firms.

Managed transition also hinges on choosing an infrastructure technology that promises flexibility to cope with future requirements. Beyond the main hardware/software/communications choices, firms' should explore the role of middleware and collaborative tools in dissolving information and processing bottlenecks to ultimately achieve "real-time" information flows with external counterparties.

The key planning decision relates to the trade order management system at the heart of every investment manager's operation. TOMS vendors are in a race to add new functionalities and integrate front and middle offices, thereby affecting most employee activities within the firm. Firms are advised to carefully design an implementation/conversion strategy coincident with selecting a TOMS to avoid implementation chaos.

REFERENTIAL DATA IS AN STP ENABLER

Every discussion on STP ends as a discussion of reference data! Electronic messaging between internal functions or external counterparties is hostage to agreed, accurate data concerning security ID, corporate action, counterparty and individual identification, market data and much more. Leading firms are:

Monitoring industry initiatives. Even the largest firms are looking for industry agreed sources of market and security information. Operational STP demands that every firm be aware of and benefit from industry initiatives to develop common data hubs.

Adopting a data consolidation strategy. Clean data begins with housecleaning multiple files containing similar information. Leading firms typically begin building a "golden copy" of their referential data by aggregating files in a single location before integrating and harmonizing the data. Finally, translating data generated by or sent to older systems, thus enabling them to utilize "data hubs" is an on-going and increasingly sophisticated process requiring intelligent translation tools and data cleansing procedures.

CASE STUDIES

ACHIEVING DATA QUALITY AND DATA INTEGRITY

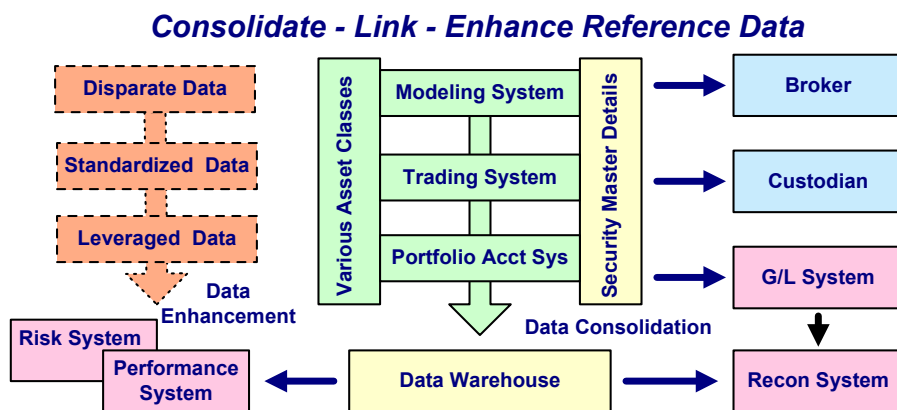
A pension manager decided to adopt an integrated operational model to achieve STP two years ago. Initially the firm focused on developing operational efficiency and system-to-system linkage. Half way through the process, the firm realized that in addition to attaining the technology sophistication enabling data to pass from system to system, achieving data quality and integrity is a vital part of the integration process. The firm spent an extra six months addressing data issues.

The data management project had two objectives – create a system foundation of quality reference data, and establish a data strategy with standards and conventions across all systems. Working with custodians, data providers and indexers, the firm defined critical data identifiers, established data logic definitions between different systems, and matched data across different sources to ensure it would be posted correctly. A data warehouse was used as the central data repository.

A major data challenge facing the firm was the requirement to address backdated cancellations and revisions to transactional data. These data corrections triggered “back date” on the daily performance system.

The firm deployed three initiatives to address data issues. Firstly, daily data integrity and reconciliation reports were created and run from the data warehouse to identify and automatically scrub mismatched data. Secondly the firm focused on the correcting the cause of data anomalies. Finally, a methodology was implemented to handle “back dates” for daily performance.

Clean data is now the norm within internal systems and with counterparty communications. Investment decisions and reporting quality are enhanced and the original objective to increase operational efficiency was achieved.



Source: eClientscope Inc.,2003

Learning Note

The path to the “golden copy” of data is rarely achieved in a single step. Leading investment managers are choosing first to bring the various copies of master records to a single location before integrating the data into a harmonized format and adding data cleansing procedures. This is an on-going process as additional data is integrated and improved cleansing tools are identified. Intelligent translation tools can be used to convert data generated by or sent to older systems; thus enabling old systems to utilize the “data hub”.

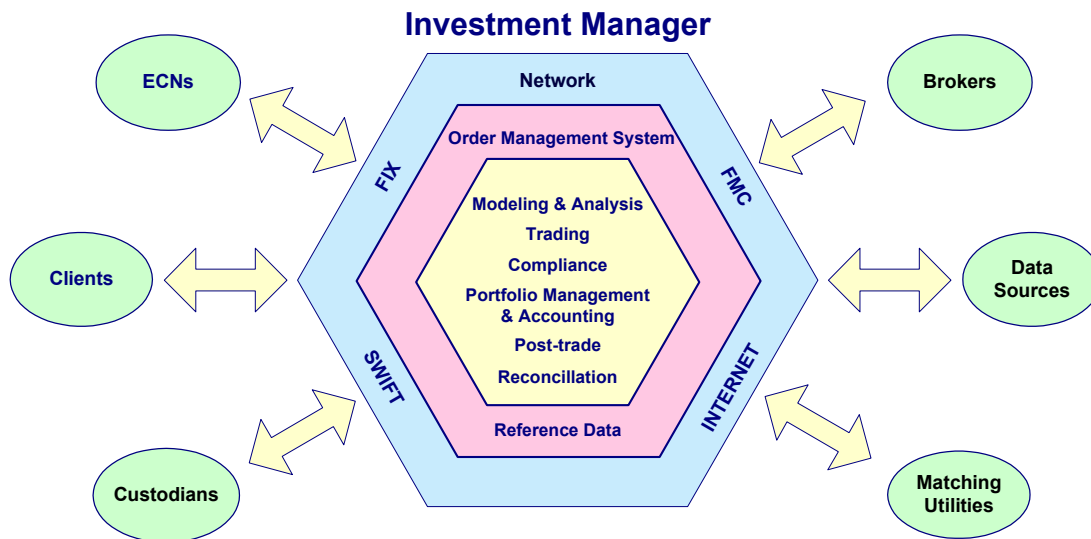
IMPLEMENTING A TRADE ORDER MANAGEMENT SYSTEM

A mutual fund company decided to implement a new trade order management to replace a ten year old internally built system. The objectives were to allow for timely pre-trade compliance, improve external connectivity with counterparties, particularly brokers, and lay the ground work for STP. During the process, the firm experienced difficulties determining the most appropriate system requirements and the conversion strategy once the system was selected.

“In order to select the right TOMS, we first looked at our current system deficiencies. We then developed an RFP with detailed descriptions of needed functionalities. Next, our IT group researched the vendors and came up with a short list for further investigation. We then proceeded to interview the short-listed companies, sometimes including a due diligence on-site visit. Finally we selected a product that best answers our requirements.” Said the firm’s VP.

“Initially we included a fund accounting engine as a requirement, but later we reduced the project’s complexity by focusing on the TOMS. This allowed us to move the process along more quickly and we are now testing the new system.” “Once the new TOMS is in place we expect significantly increased operational efficiency from:

- a lot less manual intervention in the process
- better information flow with counterparties
- better analytical information for the portfolio managers



Source: eClientscope Inc., 2003

Learning Note:

Keep the scope of the project within bounds: stay focused on the core issue.

In view of the plethora of systems to choose from and the multitude of external interfaces, carefully map external message formats to internal system data structures. Firms should also ensure their TOMS product has standard interfaces that permit “mix and matching” with other vendor systems.

STP Realities in Canada's Investment Management Firms

IDC Canada and eClientscope Inc. conducted a joint study between May and July 2003 to determine how investment managers operating in Canada utilize technology to meet business, operational and straight-through processing (STP) challenges.

Interviews encompassed a broad spectrum of investment managers - ranging from pension funds, institutional and private investment counseling firms, mutual fund companies and insurance companies. In aggregate, the 23 firms interviewed manage \$600 billion in assets and, on an allocated trade basis, made 9 million trades in 2002.

The study provides capital market players and technology vendors with visibility into STP challenges facing investment managers. The report also identifies key areas where investment managers plan to invest in the next 12-18 months, and the technologies and standards they expect to adopt to address STP and operational issues.

Key Findings:

- **Investment managers are interested in STP despite the deferral of T+1.** The Canadian Securities Administrators' STP readiness survey in April/May 2003 has intensified the STP momentum.
- **83% of firms are focused on internal STP.** In the current difficult market environment, the majority of investment managers believe that addressing STP issues within their organization will help raise operational efficiency and provide tools to achieve better performance – their two key business priorities.
- **Expand CCMA's working definition of STP.** To further catalyze STP progress the Canadian Capital Markets Association (CCMA) should expand its inter-firm, external-focused STP definition to incorporate investment managers' current internal STP focus.
- **External STP will gain focus in 2005.** 78% of investment managers expect to shift their focus to address external STP issues, particularly external connectivity with counterparties, in 2005 once they have resolved internal STP issues.
- **Data management solutions, trade order management systems, pre-trade compliance and trade messaging tools top firms' planned investments.** Data management is identified as the pre-eminent investment area - 68% of the investment managers interviewed plan to invest in data management tools, including data hubs/warehouses.
- **Firms prefer to buy, not build.** Across pre-trade, trade and post-trade activities, the respondents indicate a strong preference for buying and integrating technology solutions when implementing their STP plans. Technology vendors must be cognizant of this preference.
- **Software leads planned IT investments.** 52% of firms saw investing in new software very important in 2003, primarily due to their data hub/warehouse and TOMS investment plans.
- **Investment managers view brokers as the biggest roadblock to STP.** Most complaints about external STP/connectivity problems centered on brokers' legacy systems, overnight batch process and inability to establish linkage to their TOMS as problematic. Brokers must invest in technology to establish electronic linkage with investment managers or lose business.

- **Custodians are seen as critical to investment managers' STP success.... but they must address their own STP issues.** 83% of the respondents regard custodians as critical to their STP success, but for mixed reasons – some saw custodians as providers of essential information necessary for STP, others viewed custodians' systems and manual processes as causes of operational problems
- **70% of firms saw application vendors as critical STP partners.** Vendors should leverage this good will to provide appropriate solutions to investment managers in areas where they plan to invest – data management, TOMS, pre-trade compliance and trade communications.
- **System integrators will need partnerships to successfully sell to investment managers.** The investment managers we spoke to preferred to use integration service from the software application vendors rather than third-party integration consulting service firms. Partnering in this area may overcome this hurdle.
- **Collaboration solutions, middleware and data hubs/warehouses top planned technology adoption.** 70% of respondents are either piloting or considering collaborative solutions. For both integration middleware and data hubs/warehouses, 60% of firms are either piloting or considering these technologies.
- **STP will change investment managers' operations fundamentally.** Automation will reduce back office headcount, free up employees performing manual reconciliation, performance measurement or data re-keying, and place a premium on analytical skill sets. With integrated systems and enhanced processes, the distinction between front and back offices will blur.
- **Messaging standards are expected to transform trade communications.** The use of communication messaging standards will increase dramatically within the investment industry, in particular ISO 15022, FIX, FIXML and MDDL.
- **Industry-wide data hubs will become Canadian realities.** We expect industry-wide referential data hubs to emerge in Canada. Investment managers and other capital market participants will benefit significantly from common databases, such as a corporate action hub, a common securities classification database, or a common industry advisor database.

About eClientscope

eClientscope is a specialized financial industry consultancy. Our people combine senior financial and investment industry experience with extensive operational and technology expertise. eClientscope's current focus is Straight Through Processing (STP) and the innovative possibilities end-to-end automation can bring to securities processes for capital markets stakeholders. For more information, visit www.eclientscope.com, or contact:

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