





Information technology will be the next game changer for investment managers

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Investment management organisations are struggling with their day-to-day operations, as the industry faces the challenges of a constantly changing market, regulatory and technological landscape.

“Do you think every single software vendor can do as much as one big collaborating community containing visionaries and practitioners: all with a passion for technology?”

In our earlier publications, we explained the impact of new regulations, such as Solvency II (applicable to the insurance sector), which is having a major impact on investment managers. These enhanced regulations require investment managers to modify their operational procedures, also known as ‘trade cycle management’. They have to deliver increased transparency, demonstrable risk-based modelling, improved look-through reporting and other complex functionalities.

All these challenges, which are handled under pressure and may impact on operational excellence, have led to many organisations evolving a complicated and error-sensitive technological architecture. The well-known software vendors seem to be finding it increasingly difficult to anticipate change and adapt their off-the-shelf solutions to the functional challenges of the market. This new environment can produce the kind of data-related incident that impacts on financial results and/or investment decisions and distracts investment management organisations from their key objective: meeting their clients’ (financial and/or pension) needs. Moreover, the price of primary software packages and the costs involved in maintaining and supporting the required infrastructure (operating systems, databases and transportation platforms) have been increasing over the last decade.

The cumulative impact of these developments has inflated IT budgets to a level often considered to be unacceptably high, resulting in multiple cost reduction programmes. Such programmes have forced IT departments to manage an increased amount of work on a lower budget, with the resulting pressures making organisations more inflexible and unable to take opportunities to introduce innovation or improvement.

IT is changing

These environmental developments are not limited to the investment management sector. The world is experiencing a record pace of technological innovation. Technology today enables competitive advantage, and developments in diverse areas like big data and (emerging) analytics, engagement, (dynamic) cloud or social media are bringing myriad opportunities for enterprise.

Information technology was once considered as ‘hardware centric’ with limited flexibility. Then the IT world moved to a ‘client-server’ approach, and later to ‘internet applications based on virtualisation’, where applications are isolated per virtual machine and the application runtime is abstracted from the hardware. One of the downsides is greater redundancy caused by duplication in full operating systems, libraries and binaries per virtual machine. In the near future, IT will provide cost-efficient solutions for big data, analytics and cloud technologies that will bestow competitive advantage on organisations that are able to adapt.

Open source

One of today’s most wide-ranging and dynamic aspects of software development is the ‘open source revolution’. A number of large technological companies have predicted the structural shifts driving this change. IT already relies heavily on open source development, which enables large-scale innovation through collaboration by the community instead of one company trying to do everything itself. It’s no surprise that the current number of open source projects exceeds 600,000 and continues to double every 24 months. An example of a rapidly growing project is the OpenStack platform. This platform has already been rolled out at financial organisations and covers open source software for building private, public and dynamic



clouds, open-sourced by the hosting giant Rackspace. These big data, dynamic cloud, open source solutions have re-architected the foundations of existing trade cycle management solutions. This new approach will provide new features and solutions to run modern infrastructure stacks and enable organisations such as investment managers to scale hardware, services and applications to deliver a flexible infrastructure tuned to meet business requirements.

Open source projects

Among the most recent and interesting developments, we would highlight the Docker open source platform. This portable, lightweight runtime and packaging project has been designed to build, ship and run distributed applications using a flexible, structured and agile approach. This methodology enables enterprise organisations to quickly assemble software from containerised components and eliminates the friction between development, quality assurance and production environments. As a result, IT departments can ship faster and run the same application, unchanged, on the user side, data centre VMs, and any cloud.

Alongside the Docker containerisation platform, the technological environment has also seen rapid enhancement in other areas, for example, the CoreOS open source project, which covers a lightweight server OS that has been built from the ground up for the modern data centre based on running Docker containers. CoreOS provides tools and guidance that give organisations a clustered platform that is secure, reliable, and stays up-to-date automatically. These strategies and architectures are based on the same criteria that allow companies like Google, Facebook and Twitter to run their services on a massive scale with high resilience.

Open source projects also exist in the area of programming languages. One of the recent developments is the Go language, which has been developed by Google with the help of many contributors from the open source community. This language has been designed to be expressive and efficient, and concurrency mechanisms make it easy to write programs that get the most out of multicore and networked machines.



Helping investment managers reach 'alpha'

Investment managers' operational departments have to process vast volumes of data on transactions, positions, cash movements, financial events, corporate actions, price adjustments and much more. The diversity of these events and the number of financial positions taken means that investment managers need to be flexible, adaptable and robust, without losing sight of their key objective: investing their clients' (pension) assets while reaching their financial goals. Investment managers that are able to turn information technology from an expense into a game changer by applying the new technologies described earlier to the trade cycle management process can achieve excellence in the following areas:

Scalable infrastructure supporting the trade cycle management process

Implementing these new flexible, scalable and robust technological concepts will be extremely valuable in the trade cycle management processes. Such concepts allow the investment manager to upscale the technical infrastructure for processes that rely on heavy and complex operations such as the calculation of a fund's net asset value (NAV) or historical value-at-risk (VAR), when the trade cycle management process requires this. The infrastructure can then scale down as soon as the heavy processing has finished. This instant flexibility can reduce the operational costs related to hardware, CPU, network bandwidth and internal memory. From an information technology (budget) perspective the investment manager is able to 'hire' infrastructural resources as required, instead of always having them available within budget for exceptional circumstances at a specific moment during the day. Furthermore, this technical approach can be extended to resource accounting, which enables cost-efficient allocation accounting and will reduce operational costs in the long term.

IT budgets will also be reduced when investment managers implement open source projects as they currently use trade cycle management support platforms that are built on top of expensive database or operating systems. The extra licenses and maintenance fees associated with this infrastructure are added to the costs related to the trade cycle management platform itself, and the investment manager must negotiate and maintain two contracts, each with its own standards and services.

Shorter time-to-market

Investment managers that have adopted the technological strategies described can implement real-time, secure connections to and from clients, brokers, custodians, data vendors and exchanges in minutes instead of months. These opportunities can lead to the opening of new distribution channels and unexpected possibilities with new trading platforms—all based on secure, real-time, flexible information requirements that will reduce implementation and operational costs.

“Innovation contains more than the underlying technology. It’s about culture, passion and attitude.”

New connections and interfaces can be integrated within a shorter time-to-market, with less effort and time, and a smaller budget. The investment manager can use the freed-up resources for (emerging) analytical capabilities in order to harvest the best financial investment opportunities available. Turning trade cycle management data from an expense into an asset enables investment managers to focus on their core processes with greater analytical skill and support.

Trade cycle management optimisation

Trade cycle management software should be developed more quickly, and deployed with increasingly flexibility to any device or server, without needing to rebuild from

scratch. This will enable the investment management organisation to implement the required functionality in a controlled and structured framework. Moreover, it can reduce operational concerns where uncertainties currently exist in relation to:

- The investment manager’s trading position
- Trades that are open with counterparties
- The quality of securities and cash held by custodians
- The net asset values of the funds
- The reports sent to regulators, clients or other stakeholders

To the point:

- The latest technological developments enable investment managers to dynamically (de)allocate technological resources as performance, scale, network space and stabilisation requirements demand. This means that the investment manager can implement a flexible, defined resource usage for each application instance whereby applications can be upgraded, enhanced, rolled back or removed in seconds
- Instead of implementing trade cycle management platforms as one big blob of files, investment managers now have the opportunity to decompose functionalities into several pre-installed, well- configured isolated containers that can be orchestrated intelligently: resulting in an architecture or software solution that is flexible, elastic and changeable on short timelines. These

functionalities can be deployed to reflect (regulatory) reporting requirements and distribution opportunities, as well as offering a solution to increase the stability of the current infrastructure. By adopting these new fundamentals within the trade cycle management process, the investment management organisation is now able to fully devote its resources to its key objective: generating stable absolute returns, while accepting minimal risk within an extended investment horizon. This can be achieved without operational expenses outpacing the return on investment

- Whether or not investment managers should use these technologies is not in question; if they intend to survive the next decade, they ought to be considering how such technologies should be applied