

Fresh AIR: SmartStream rejuvenates reconciliations

Artificial intelligence algorithms allow business users to reconcile complex sets of data in seconds

Reconciliation for capital market firms can be a laborious, time-consuming and expensive process with large, monolithic platforms supporting a range of functions from cash to digital payments. Issues have often arisen from the exchange of different data sets in different formats, varying know-how and the fact there is much manual work that needs to be done.

In September 2019, SmartStream, a leader in financial transaction management solutions, launched AIR – a standalone application designed to help business users reconcile complex sets of data within moments, whenever they need. Designed to cut lengthy configuration times and take the hassle out of the reconciliations process, SmartStream AIR is powered by machine learning technology and artificial intelligence (AI) algorithms.

The AI within AIR can also help to enhance clients' data quality and enrichment. In the event that a reconciliation has to be processed manually because of incomplete data,

the AI is able to review the manual matches and learn patterns within the data to identify, for example, the appropriate broker, counterparty or department.

Results from the lab

It was the first product to emerge from the SmartStream's Innovation Lab in Vienna, established in 2018 by CEO Haytham Kaddoura because he wanted to 'do something disruptive' with a 'new team with a new perspective'. Staffed by a team of data scientists, the Lab's first mission was to investigate how data is processed for financial institutions and to build a compelling solution for the 'biggest use-cases' for SmartStream's clients.

According to Andreas Burner, chief innovation officer for blockchain and artificial intelligence at SmartStream, it took just six months for the lab to produce its first prototype known initially by the moniker 'Project Lightning' because the idea was for the end-product to be 'super-fast' – quick to configure and super-fast in terms of output.

"I knew many experts in the data science

community in Austria and so I was able to send out the message that we were looking for four candidates and I ended up with four brilliant data scientists," says Burner. "I started explaining my ideas to them, but it took quite a while for them to understand the financial services industry, the problems the industry was facing and how we could go about solving them. But after a few months they really started to understand and began to propose new ideas. That was when I felt that we were all pulling in the same direction."

"We already understood our clients' business case and when they saw our prototype in Singapore at the Money20/20 conference in March 2019, they confirmed that this was the product for them – and so the business case was there, but productising a prototype is another issue because it needs to be scalable, it needs to be in the cloud, it has to be file-format agnostic and the and the user interface (UI) has to be right."

CEO Haytham Kaddoura adds: "The freshness in terms of the user interface and the speed of processing client records was



phenomenal. At that point, Andreas was running the reconciliation of sets of half a million records and having them reconciled within three or four seconds. And, this was running on a demo machine. It wasn't even a full-blown server – it was running on his laptop."

According to Burner, folding AI and machine learning technology into new products or even existing applications requires developers to rethink numerous fields. An application's UI with AI running in the background is different compared with those of traditional products, for example.

"There is much more data, and suddenly you are talking about issues like confidence, because

AI is never 100 per cent confident – it might be 97 per cent confident that it has done something right. So, the issue becomes, how do you present confidence back to the user? Does the user understand that it is just a suggestion and that it is not binary or deterministic and that it is simply suggested by a virtual brain?"

From the start, SmartStream opted to build AIR on the latest frameworks available to the industry, incorporating Docker containers and Kubernetes to simplify and speed up much of the development work, and ensured from the beginning that the prototype would be able to deliver the required performance from the cloud

and produce the same results for one user as it would for 1,000 users.

SmartStream explains that from a data science perspective it used the self-supervised machine learning technology, where you run several AI algorithms against each other and their goal is to learn from each other and improve the results they produce. Within AIR, the machine learning algorithms challenge one another so that they continuously produce better outcomes.

In the early days of the AIR development, the process of feeding a file into it, establishing a configuration and producing a result took about 20 minutes – a major

Reconciliations Premium, believes AIR opens up a number of opportunities to users in new features and ways of delivering better efficiencies – particularly around optimisation.

He says: "The first is around increasing the speed at which firms can onboard new reconciliations. It helps users reconcile data that they have never seen before and it allows them to do it quickly and without needing to know the product in detail – it can help them onboard quicker through the AI analysis."

According to Hasson, AIR also plays an instrumental role in expanding the firm's reconciliations capabilities to new markets and users – especially those with relatively rudimentary reconciliations needs who would like to configure new reconciliations on the fly.

"It's not designed for the highly complex reconciliations space and does not come with domain-specific features. What AIR brings is a new reconciliations option to departments and other parts of an organisation not needing automation or depth-of-business features, and it does so using the very latest AI and machine learning technologies. Some users want to run ad hoc reconciliations as quickly and simply as possible, and SmartStream AIR delivers absolutely into that space. It is cloud-hosted and requires no training, so users are productive from day one.

The really good part is that the techniques and technologies it delivers are available through TLM Reconciliations Premium as well – for example, to analyse and onboard new feeds and to improve automatic matching."

One of the key functions AIR brings to TLM Reconciliations Premium is allowing clients to utilise AI services while retaining the level of oversight and control they say is essential.

Hasson explains: "They can quickly build or re-use business rules that confirm specific combinations, validate tolerances and so

on, but what the AI does is squeeze out a few extra percentages in terms of automatic matches, which for our existing clients is normally in excess of 90 per cent. It automatically finds matches that may otherwise not be identified. Essentially, they get more out of the system with less work."

Using AI in business

Recent research from Gartner found that by 2022, only 15 per cent of use cases leveraging AI techniques will be successful, despite many AI systems coming to market.

SmartStream's Burner suggests that the issue could be that not all products meet the use-case nor produce a return on investment and that he always advises answering three key questions: Is there a task that is mainly data driven? Is the data needed to manage the task readily available (in effect, no phone calls are needed to manage it)? Is there a lot of manual work needed to manage the task, or does it need to scale?

If the answer to those three questions is yes, then you have an AI use-case.

"We identified early on about five to 10 use-cases for each of our products and then we selected the ones with the most potential and those are the ones we've started on. In the Lab right now we have 12 projects, of which five are super-active and one is AIR. The others will follow soon," said Burner.

According to SmartStream, the automation drive that is already underway within large capital markets firms and their back offices is set to continue, with SmartStream AIR, TLM Reconciliations and the firm's underlying AI technology playing a critical, emancipatory role.

It will allow firms to reallocate staff members to higher-value tasks as opposed to simply manually processing exceptions and investigating failed trades or incomplete data.

"The future will focus even more on replacing humans performing manual matching," says Hasson.

"We are currently working on the best way of automating that process through machine learning, both batch and interactive. The idea is that you review the manual matches and learn from them with the view to automating them in the future using AI."

What's next?

Data scientists at SmartStream's Innovation Labs are currently working on adding support for unstructured files – emails, PDFs and large volumes of payment messages – which continue to cause headaches for large numbers of capital markets firms, irrespective of size, technology stacks and the sophistication of underlying investment and business models. SmartStream explains that the processing of unstructured data is a

complex, manually intensive and therefore arduous undertaking for large numbers of capital markets firms – especially larger institutions, which typically employ small armies of back-office staff to address the challenge.

"In the area of exception management, big banks typically employ between 1,000 and 2,000 people just to manage that process, and they come to us because they cannot cope with the volume of work," Burner says. "We have a number of data scientists working on that and it's a super-interesting topic. We use natural language processing for that, and we transform that data into something that AIR understands." With SmartStream already running promising prototypes, we may not have to wait too long. **IT**

AT A GLANCE

WHO WE ARE: SmartStream is a recognised leader in financial transaction management solutions that enable firms to improve operational control, reduce costs, build new revenue streams, mitigate risk and comply accurately with regulations. By helping its customers through their transformative digital strategies, SmartStream provides a range of solutions for the transaction lifecycle with artificial intelligence and machine learning technologies embedded – which can also be deployed in the Cloud or as managed services. As a result, more than 2,000 clients, including 70 of the world's top 100 banks, rely on SmartStream Transaction Lifecycle Management (TLM[®]) solutions to deliver greater efficiency to their operations.

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