EFFICIENT AND SCALABLE NON-STANDARD TRADE MATCHING AND SETTLEMENT

CONTEXT

Established in Hong Kong in 2008, CSOP Asset Management Limited ("CSOP") is the largest RMB Qualified Institutional Investor (RQFII) manager in the market[1] with global footprints across many regions including the United States, Japan, Luxembourg, Cayman Islands and Singapore. Leveraging on its cross-border investment expertise, CSOP builds trusted relationships with overseas investors to make inbound China investments, while building an offshore platform that assists domestic investors to capture investment opportunities across the global market.

Non-standardised, and/or over-the-counter (OTC trades) refers to securities traded via a broker-dealer network and covers a wide variety of instruments such as equities, debt instruments and derivatives. Such high liquidity and accessible assets make up a substantial amount of trade volume.
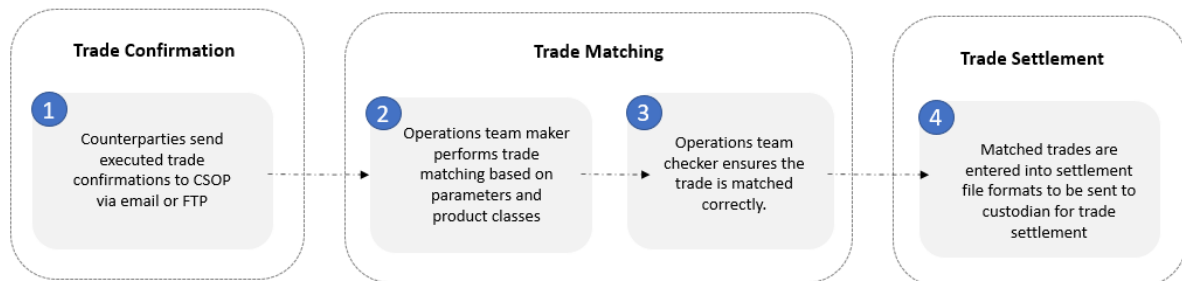

Figure 1. Current CSOP trade settlement process.

First, operations team manually match the executed trades by analysing key parameters (e.g. quantity, price, interest rate) from information coming from a myriad of file formats such as screenshots, PDF (scanned and digital) and excel files received from brokers. This is done via e-mail, posing a risk of missing certain emails. On average, checks take up to 1-3 minutes to enter and match.

Thereafter, the information is reviewed through a "*four-eyes*" check, where another individual review and approve, before sending over to the custodian for the actual trade settlement, prior to the cut-off time.

The overall process is lengthy and cumbersome with much time spent reformatting data to meet the different needs of custodians, instruments and markets where the trades are conducted. There is also a high risk of error, especially during crunch time, when operations

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[1] As of end June 2019

team required to process high volumes of unstandardised documents – potentially leading to trade settlement delays if matched wrongly.

CSOP is seeking solutions to support their trade processing in performing efficient trade matching and settlement by equipping them with real-time actionable data amalgamated from various sources and formats.

This challenge is part of the IMAS Digital Acceleration 2021 Programme (IMAS DAP), catalysing innovative solutions for fund managers to solve problems their businesses face.

PROBLEM STATEMENT

How can non-standardised trades be processed, matched and settled in a quick and accurate manner?

WHAT ARE WE LOOKING FOR?

A working prototype solution that enables operations to process volumes of unstandardised trades easily, simplifying the matching and settlement process and allowing real-time performance tracking. The solution should match the following criteria:

- **Automated Data Extraction and Standardised Report Generation –** Automatically analyse information across various file formats from inbound emails and extract relevant data into a standardised format (e.g Excel) for efficient parameter checking. The output report should be able to be customisable according to the custodian's requirement for the respective asset classes.

- **Smart Trade Matching Logic** – Speeding up the trade matching process by automated sorting according to on pre-determined parameters (e.g. quantity, price, location) – allowing user to follow up based on trade priority and/or sensitivity.

- **Counterparty Agnostic Setup** - A seamless setup/onboarding process for the various counterparties trading with CSOP to initiate real-time trade requests and track trade matching and settlement via one platform, saving time during matching and negotiation, as well as increasing visibility of the entire trade process.

- **One-Stop Dashboard Overview** – For operations to receive a quick snapshot of incoming trades, progress of trades and be informed on follow-ups, based on priority.

- **Secured System Database** – To track data footprint and data tagging for easy search and retrieval for audit, ROI tracking or business reporting purposes.

- Good to have – A Chinese glossary as mutual funds may sometimes be in Chinese language.

There are no restrictions on the geographical location of the problem solvers who may choose to apply to this challenge. However, the POC/prototype must be demonstrated in Singapore.

POSSIBLE USE CASES

1. **Trade Confirmation–** Albert is a part of CSOP operations team and usually receives emails from counterparties to confirm trades with information in various formats such as PDF (scanned or digital), screenshots, excel, etc. He must manually extract and input the data before trade matching can begin, which is tedious especially for non-editable files like screenshots. With the new solution, the platform automatically extracts the critical parameters from incoming emails into an easy-to-read, editable document. The solution also prioritises the time sensitive trades This allows Albert to match more trades in a faster, more accurate manner.

2. **Trade Matching** – Benson is part of CSOP's operations team. Together with Albert, he would need to ensure that the trade matching is matched correctly before sending it to the custodian for the final settlement. Together, it would take them, on average, about 30 mins-1 hour for this process. With the solution, Benson is able to reduce the time spent on operational checks and can easily track the overall progress of the team's trades (incoming, processing and executed) via a real-time data dashboard.

3. Trade Settlement – After matching the trades, Benson needs to manually reformat the data into specific file formats before sending it to the custodian to conduct the trade settlement. Through the new solution, he can transfer the required information in the most preferred method to the custodians in an automated fashion (e.g. email, FTP, direct upload to web portals). Once the custodian completes the trade settlement, the solution notifies the operations team whom can track the status of the trade, if required.

WHAT'S IN IT FOR YOU

- SGD 20,000 of prize money for each winner of this challenge (see Award Model)
- Gain access to IMDA's Technology resources and facility for prototyping
- Collaborate with IMAS (Investment Management Association of Singapore) to reach out to the greater community for exposure, refinement and deployment
- Opportunity to pitch to industry audience in IMAS Digital Events
  (For more information, visit www.imasdap.com)

EVALUATION CRITERIA

The Applicants shall be evaluated in accordance with the evaluation criteria set out below.

Solution Fit	• To what extent does the proposed solution address the problem statement effectively?
Solution Readiness	• How ready is the proposed solution to go to the market? • Is there any evidence to suggest capacity to scale?
Solution Advantage	• Is the solution cost effective and truly innovative? • Does it make use of new technologies in the market, and can it potentially generate new IP?

	• What are the top 3 key benefits will the solution bring to the Asset Management industry? Optional • To share estimated cost for pilot trial, deployment and software support.
Company Profile	• Does the product have user and revenue traction? • Do the team members possess strong scientific/technical background and when is the company founded? • Does the team have relevant clients/ use cases? • Does the team have plans to grow and propagate the solution in Singapore?

AWARD MODEL

30% of the prize money will be awarded to each selected finalist at the start of the POC/prototype development process, with the remainder 70% to be awarded after completion of the POC/prototype solution, based on milestones agreed between Problem Owner(s) and the solver. Prize money will be inclusive of any applicable taxes and duties that any of the parties may incur.

Note that a finalist who is selected to undertake the prototype development process will be required to:

- Enter into an agreement with Problem Owner(s) that will include more detailed conditions pertaining to the prototype development;
- Complete an application form with IMDA that will require more financial and other related documents for the co-funding support.

Teams with public research performers are required to seek an endorsement from their respective innovation and enterprise office, and submit the attached IEO form together with the proposal.

DEADLINE

All submissions must be made by **30th July 2021, 1600 hours (SGT/GMT +8)** Problem Owner(s) and IMDA may extend the deadline of the submission at their discretion. Late submissions on the OIP, or submissions via GeBIZ, will not be considered.

FAQ

1. **Question**: Can we understand a little bit more about the types of systems (order management systems etc) that CSOP is using which you see as key for integration in the solution you are looking at? Also, would you be able to share examples of your main counterparties that you interact with?

We do use different order management systems such as Bloomberg AIMS and Ezesoft. The solution should be able to accept trades from both software. It should include trade feeds from different OMS systems so that we can bring in our own trades that represent our side of the trade and the other side will represent broker-dealer trades so that we can perform reconciliation. The main counterparties are mainly mix of international brokers, local Chinese-based brokers.

2. **Question**: Are CSOP using any platforms like Enfusion?

No.

4. **Question**: Are you looking for an on premise or cloud solution?

Operating on a cloud solution will be a lot more scalable and at the same time brings in other problem of privacy

5 **Question**: Is COSP intending to be the operator of the platform?

If the economics is right and if we are keen, we will be happy to be the operator of this platform because it provides benefit to our business in a big way.

7. **Question**: Can you provide the list of datapoints you are looking to extract and match? Can you provide sample documents at project kickoff?

The most common parameters will be allocation, price, quantity, underlyer, and depending on trade type there will be other additions fields, financing rates, day count, settle date, currency etc.

8. **Question**: So are these ISDA trades?

Yes, governed by ISDA for swap trades

9. **Question**: Assume main text formats are English/Chinese Simplified/Chinese Traditional?

Mainly English, then Chinese.

10. **Question**: For Swaps, are they more of equities underlyers or include Interest Rates and others?

Currently, equity swaps but would be great if they can be built to support more product types

11. **Question**: What is the breakdown on the documents PDF/Word/Excel/CSV were mentioned. What is the breakdown perfectage here (what amout are pdfs etc)

CSV is predominant. pdf/word a lower proportion

Unanswered Questions

Question: Any possibility of bringing all your various partners including custodian into a network? this problem is a typical good use case for decentralized solution, If you have the influence power to bring in all your partners including custodians, we can build out a network that can work.

Answer: That will be very ideal if we can reach that stage that is almost a very innovative leader approach but at this stage we do see that it will be challenging as you know bringing different custodian and different counterparties onboard is not just offering a solution but also negotiation and pitching an adoption of idea.

We do have a platform that we operated ourselves that we have influenced our partners to get onboard because if you want to do business with us you have to be on that platform. The platform I am talking about is specifically dealing with creation and redemption of our ETF products.

Question: Based on your presentation the scope starts only after you are getting trade info via a mail or files.

Answer: Yes, for the post trade process. However, it is possible that this information is available earlier during the order creation and execution fill stages.