



ALTO* Investment Product Roadmap

Third edition – December 2021

Confidence
must be earned

Amundi



Amundi | Technology



ALTO* Investment Product Roadmap

Editorial

ALTO* Investment introduces new Portfolio Management System functionalities

Amundi Technology, a leading provider of innovative technology and services, is pleased to present this **third edition of the ALTO* Investment Product Roadmap**. Here is introduce recent developments and upcoming enhancements, as always delivered on a continuous basis for the ALTO* Investment front office, dealing, middle office, risk, compliance, performance and reporting modules.



Guillaume LESAGE, COO, Amundi

“Asset managers and investors are facing major challenges in transforming their business models. These challenges include increasing pressure on margins, increasing regulation and growing demand for innovative technology and digital solutions across the investment lifecycle. This is why Technology is the latest battleground in our industry today.

It is becoming increasingly imperative that asset managers master these new technologies and invest in innovation and human capital in order to capture the extraordinary opportunities that technology can bring for new products, services or to improve operational efficiencies on behalf of clients and partners. Technological innovation can empower portfolio managers with a full range of capabilities from decision-making tools, to order management and processing, to client and regulatory reporting across investment strategies.”



Thierry RONCALLI, Head of Quantitative Research, Amundi

“With the new data management features of the Alto* Investment Platform, we have improved our research capacity using higher frequency data and a large scope of alternative data, notably climate and ESG metrics.

Year 2022 will see new developments around climate investing and cause-effects indicators, and we are very excited to use these new data to enhance our quantitative models, especially the most sophisticated ones based on machine learning algorithms.”

ALTO

**Amundi Leading
Technologies & Operations**



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Technology Trends

Shifts & Narratives #6 - Technology trends in Asset Management and Saving Industry

These are the days to be optimistic if you are an Asset Manager. And this is not just because the industry has been doing well and the fundamentals will remain strong going forward. The future looks bright because the same technological forces that are being so disruptive, present an equal number of opportunities for those who are prepared to embrace change.

It is clear that Asset Managers have to juggle an increasing number of challenges: on the one hand, as passive funds grow ever more popular, pressure on prices increases thus reducing fees for active funds and ultimately causing a decline of revenue margins. This dynamic is exacerbated by the emergence of new digitally-savvy boutiques. On the other hand, an increase in the level of sophistication of clients is in play: as they demand more complex and tailored solutions, firms have to invest in people and technologies to keep up with the pace of change. Agile and client-oriented technology is key to support asset managers and savings actors to face multiple investors' requirements and continuous growth objective.

However, while many will blame technology for some - or most - of these ills, technology is in fact part of the solution. It is thanks to digitization that players will manage to solve some of these issues and keep up with the latest digital trends that have so deeply transformed the Asset Management Industry over the last decade. And today, we are no longer talking about a rapidly changing environment in which financial institutions evolve, but rather a full paradigm shift, which opens up a whole series of opportunities for those who move swiftly and decisively. As it became apparent during the COVID-19 crisis, companies will need an efficient technological infrastructure, that first proves to be scalable, secure, and cost efficient and also to have the agility and capability to quickly bring solutions that add value to users.

To do so, companies will need to continue fine-tuning the ongoing investment in technology and innovation or partner with a trusted, cost-effective, robust and scalable technology provider so that they can integrate the newest technologies in their offering. This technology wave features prominently:

- **Cloud and Open Source Solutions**
- **Robo Advisor**
- **Cyber Security**
- **Machine Learning & Artificial Intelligence**
- **Natural Language Processing (NLP)**

Please read the full paper: <https://research-center.amundi.com/article/shifts-narratives-6-technology-trends-asset-management-and-saving-industry>

Partnerships and new clients

A word from our clients

ALTO* Investment is deployed for **Syz Bank** and **Urquijo Gestión** and selected by **AG2R La Mondiale**. Through these agreements, portfolio managers, compliance, risk and middle office teams have access to ALTO* Investment, the front to middle office Portfolio Management System available in Cloud mode, and delegate to Amundi the execution of their orders as well as middle office operations.

The ALTO* Investment management tool enables clients to analyze portfolios, benefit from a real-time IBOR¹ position keeping, simulate and place orders with pre and post-trade compliance checks, measure performance and control risks. The solution also covers the execution of the entire order flow generated by portfolio managers. This dealing service covers the principles of “Best Selection” with rigorous annual broker selection committees and “Best Execution” for all asset classes: equities, bonds, money market instruments, forex, listed derivatives and OTC. The middle office service completes the range of services offered with the matching broker, settlement and delivery instructions, reconciliation with custodians and valuers. In addition, the solution also includes the provision of a reference data management service, centralized and managed by Amundi.



Jaime HOYOS MOLINER, *Managing Director, Urquijo Gestión (Spain)*

“We are delighted to work with Amundi Technology. The involvement of the team to make this project successful has been outstanding, as integration of ALTO* Investment has been executed entirely remotely. The solution will allow us to support our growth and to help us focus on our core business, while benefiting from Amundi Technology’s experience and know-how.”

Sébastien Bouchet, *COO of Bank Syz (Switzerland)*

“At Syz, we’ve always believed that to offer best-in-class investments, we need to be prepared to adapt and evolve. Faced with the paradox of needing a fund management platform that could both reduce complexity and costs while giving us the flexibility to seize entrepreneurial opportunities and grow, we looked hard for the right solution. With their all-inclusive front-to-back service covering systems, dealing and middle-office for our Mutual Funds, Amundi Technology stood out as the right partner. Successfully migrating to ALTO* Investment in record time, we’re now free to focus on delivering the service and performance our clients expect, safe in the knowledge that we have a world-class partner supporting our growth ambitions for the future.”

*ALTO: Amundi Leading Technologies & Operations
1. IBOR: Investment Book Of Records

Partnerships and new clients

Guido Bolliger's, CIO at Asteria IM, testimonial on Amundi Technology platform and services

Asteria IM uses Amundi Technology's products since 2020 and benefits from the ALTO* Investment platform, the Dealing and Middle Office services.



Founded by the REYL group in 2020, Asteria IM offers only impact products across the entire liquidity range. They manage two distinct products: Global Equity Fund called Asteria Planet Equity Fund which has the objective of targeting the challenges related to pollution, energy transition, and they also manage Asteria Climate Bond Fund, which invests in green bonds.

What are the key drivers of the decision to work with Amundi Technology for ALTO* Investment and services?

We looked at several providers and the following factors made the difference:

- We felt that Amundi had the most mature solution in the industry. Some of Amundi's competitors launched the same type of services but you could clearly feel that their solutions were in their very early stage and a lot of specific services that were missing.
- We liked the flexibility of the solution. We have an investment process that is highly systematic and automated. For instance, we needed to have the ability to automatically load (transactions, analytics) for the impact investing business and extract data from ALTO* Investment and this is very easy to do.
- Costs are certainly a factor that entered into the equation. The offering is very attractive especially for start-up like Asteria.
- People and trust. Even if the Covid prevented us to meet Amundi's team members in Paris, the interaction with the members of the project team and the involvement of the project leader were outstanding.

Please read the full testimonial:

<https://www.amunditechnology.com/en/news/pdf/private/long-news-alto/testimonial-asteria-investment-managers/0>

Partnerships and new clients

ALTO* Investment rolled out in China at Amundi BOC Wealth Management

Amundi BOC Wealth Management portfolio managers enjoy ALTO* Investment's features since the first joint venture product launch in December 2020. Amundi's Portfolio Management System, provides an end-to-end coverage of the entire investment management life cycle, including portfolio analysis and simulation, order management and execution, risk management, compliance, performance and client reporting. For several months, ALTO* Investment has been improved to meet the requirements of the Chinese market.



To Meet Amundi BOC Wealth Management's needs, major evolutions were integrated into the ALTO* Investment Platform throughout 2021:

- Support for exchange traded repos and reverse repos (Shanghai and Shenzhen markets);
- Connection to a Chinese FIX router (SSCC Fixhub) for trading on the local market;
- Management of real time pricing of positions on exchanges;
- Chinese translation with the introduction of Chinese characters in ALTO* Investment for data and menus.

Future developments for 2022 are:

- Pre-trade checks on "intraday contrarian trades" (opposite transactions on the same security) on several Amundi BOC Wealth Management portfolios;
- ALTO* Investment connection to local data providers.



Focus on ESG (1/2)

Integrating sustainability analytics has never been easier

In 2022, Amundi Technology will significantly increase the engagement to support ESG investing and sustainable finance. ALTO* Sustainability will bring additional flexibility using an innovative and modular approach to help clients align investment decisions with their values. The solution will enable users to consolidate ESG and sustainability analytics into the core investment data set and across the front-to-back investment workflow. ALTO* Sustainability is fully integrated with ALTO* Investment compliance engine and regulatory reporting frameworks.



Therefore, investment professionals can efficiently implement active and passive ESG investment strategies and build custom portfolios matching their client ESG factors.

ESG

Assess a portfolio's overall ESG character through Amundi ESG ratings, bespoke or raw ESG analytics

Issuer, instrument and portfolio rating module

- 15 data providers with data feeds and quality controls;
- Definition of scoring universe;
- Definition of ESG scoring methods (ESG expertise, SDGs, temperature and more);
- ESG score analysis and real time portfolio ESG ratings simulations;
- Management of constraint and exclusion lists.

Climate

Get clarity on a portfolio's current carbon emissions trajectory by bridging climate science with asset modeling

Issuer, instrument and portfolio rating module

- Portfolio climate stress tests;
- Portfolio climate GIEC scenario analysis;
- Measuring and aligning net-zero emission trajectories;
- Portfolio temperature analysis and projection.

Regulatory standards

Assess a portfolio's standing with current & incoming regulatory standards

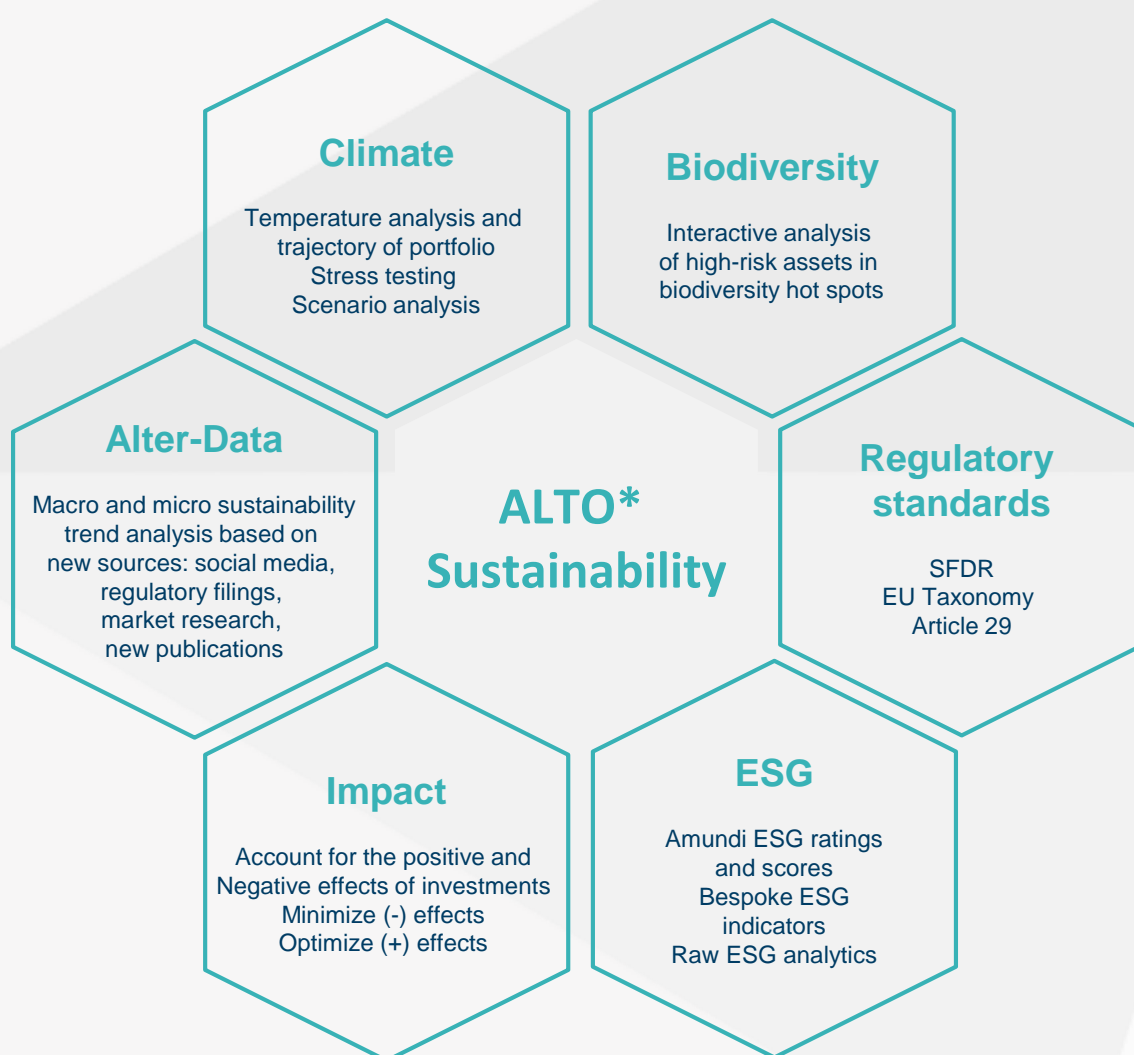
Specialized module on climate trajectory analysis

- SFDR;
- Engagement & Voting;
- CSR;
- Taxonomy.

Focus on ESG (2/2)

ALTO* Sustainability, will allow users to:

- Build bespoke scores at issuer and/or portfolio level;
- Integrate own ESG data and analytics on ALTO* Investment;
- Integrate your third-party ESG data and benefit from a dedicated data workspace with segregated access.



What is new in ALTO* Investment?



Front Office

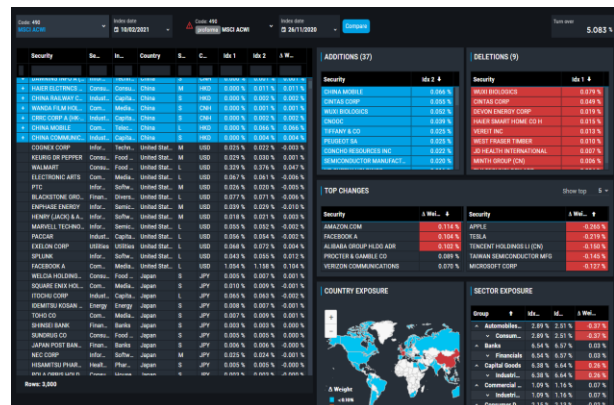
“Empowering all investment business lines with cutting edge technologies”

Bond Index Tracking steps into the future

ALTO* Index Tracking is a portfolio management module that helps managers build a passive investment strategy. Using advanced convergence algorithms, comprehensive index monitors and risk analysis views; ALTO* Index Tracking efficiently maintains a balanced portfolio close to its target allocation, while keeping the trading to a minimum through optimized rebalancing.

The module has been enriched with new features:

- “Index Revision Monitor” is equipped with a new index events view with comprehensive information about index data and corporate actions. Users can easily update index constituents and simulate the impacts before any change. We also enhanced the configuration of index revision monitor to facilitate data administration: index mappings, modifications, index document/file and data downloads/uploads;



- New “Index Composition Comparison” monitor offers a detailed line-by-line comparison of two indices, including additions and deletions, top changes, exposures, turnover and more;
- Computation of ex-ante tracking error using Amundi’s multi-asset class factor model. New absolute and relative risk analytics;
- New notifications of breaches related to ESG exclusions are now available in “Portfolio Monitoring”;
- “Portfolio Position” price and quantity override capability;
- Improved “Portfolio Monitoring” view;
- New exclusion types for better anticipation of index rebalancing: DNB (Do not Buy) and DNS (Do not Sell). Other new exclusions.

What is new in ALTO* Investment?

Enhancing Order Management

In order to offer more flexibility and accuracy to the order management process, Amundi Technology upgraded its order transmission systems to include new order types, advanced order status and new pre-trade alerts.

The changes improve order modification and cancellation processes, enhance the collaboration within fund management teams and simplify communications between portfolio managers and traders.

In addition, for more efficient order transmission, new order input restrictions are now available to assist portfolio managers choose the accurate execution strategy or transmit clear instructions to trading desks.

Using these new fully integrated features, portfolio managers can strengthen their order-handling and trading workflows and gain valuable competitive advantage.

What is new in ALTO* Investment?



Dealing

“Empowering traders with a state-of-the-art Execution Management System to ensure best execution”

Auto Order Routing

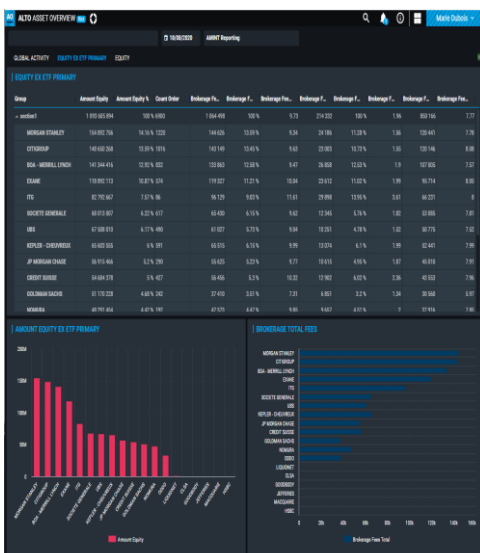
ALTO* Trading technology enables full automation and reliable order routing. This is built within flexible workflows to achieve operational and trading objectives.

We extended supported asset classes to equities, ETFs, fixed income and listed derivatives. We also upgraded administration tools with new parameters to fine-tune the decision-making and manage execution risk, including liquidity and capacity.

Traders are now provided with powerful and real time dedicated workspace to monitor the overall exceptions and abnormalities impacting the trading flow, and change in real-time any execution if necessary.



Trading Activity Reporting and Monitoring



ALTO* Dashboard - Dealing is a digital web reporting tool for all trading activities across asset classes. Co-designed in collaboration with our clients, this self-service solution gives direct and easy access to a large number of trading data and analytics. Using ALTO* Dashboard - Dealing customizable dashboards, users can now easily - and in real time - create their operational and regulatory reports.

We enriched the portal with comprehensive daily data and analytics provided at transaction level. Clients can now benefit from automatic overview and access to their trade activity in an easy-to-navigate environment and build their own custom monitoring reports.

What is new in ALTO* Investment?



Reporting

Integrating and Opening Reporting Platforms

ALTO* Client Reporting is a comprehensive solution for automating client reports. Its scalability and flexibility guarantees full autonomy of business teams for the design, production, validation and communication of any report type.

Fully integrated with ALTO* Investment, the solution reduces operational complexity, ensures full quality controlled automation and offers better user experience through digital and interactive reports.

We enhanced ALTO* Client Reporting with new “Investment Compliance Reports” dashboard and workflow including a dedicated template designer. The platform was upgraded to support PRIIPS KID standards with automatic translation capabilities leveraging new external API connectivity to content translation service providers.

We have also released a number of technical enhancements to improve report templates with new dynamic modules and content editors.

Choose generation options

Generate booklet

Translations, local disclaimers & non-latin alphabets management



What is new in ALTO* Investment?



Performance

GIPS Support for performance

ALTO* Performance delivers performance measurement and risk analysis, performance contributions and attributions and enables GIPS® 2020 compliance for managers and asset owners.

ALTO* Performance provides firms with composite reports including performance results and a range of disclosures. All performance data, portfolio classifications and calculations methodologies are consistent with the latest GIPS standards and guidance.

The performance platform is quality controlled and fully integrated with ALTO* Investment modules and ensures consistency and comparability.

ALTO* Performance will remain up to date of upcoming changes to GIPS requirements, thanks to flexible calculation engines easily adaptable to new guidelines from both asset managers and asset owners perspectives.

What is new in ALTO* Investment?



Risk, Compliance & Regulation

“Ensuring broad coverage of investment guidelines and regulations with highly accurate analytics”

Enhancing Investment Compliance Solution

ALTO* Investment Compliance has been improved with new functionalities related to rules coding and calculation, incident management and client reporting. These features offer high flexibility in compliance rules definition leveraging ALTO* Portfolio Analysis features (views, filters, functions, splitters, etc.). The new revamped constraints definition screen gives users the ability to code and test rules on portfolios in real-time. Constraints engine is now triggering and orchestrating all investment compliance calculations based on ALTO* Investment Compliance rule definitions.

We also enhanced ALTO* Investment Compliance incident management with new features:

- Constraint group management and a dynamic constraint assignment to portfolios;
- Bulk modifications of breaches;
- Enhancements on breach details: attachments, comments;
- Comprehensive details of ratio calculations now captured and accessible to risk controllers via a new screen;
- Multi-site breach management with strong data segregation capability;
- Categorization of active versus passive breaches with an asset-class based on an advanced algorithm;
- Detection & reporting of missing data during rule calculation.

Finally, client reporting combined with ALTO* Reporting is now offering:

- Client compliance reports in Word, Excel and PDF format with optimized performance;
- Compliance reports scheduling and triggering.

What is new in ALTO* Investment?

ESMA Liquidity Risk solution: Compliance Integration

ESMA's guidelines regarding liquidity stress tests of investment funds, applicable to both AIFs and UCITS, introduce a number of important requirements. This has become a key challenge for our clients. We have designed ALTO* Liquidity to embed LST (Liquidity Stress Testing) guidelines and help our clients comply with ESMA's requirements.

ALTO* Liquidity provides the users with liquidity data and indicators on equities and bonds through an ad hoc module, APIs or flat files. This large data is mainly based on Amundi Intermediation liquidity models, and being enriched using external market data.

The tool offers new advanced LST features:

- Stress testing fund assets on equities and bonds. The scope has been extended to ETFs, Mutual Funds, listed derivatives and OTCs;
- Simulation of stress testing fund liabilities;
- Combined asset and liability LST using various liquidation methodologies;
- Various liquidity cost methodologies with justification documents and data;
- Pre-trade liquidity monitoring using front-office modules for portfolio managers;
- Liquidity post-trade and pre-trade integration for investment compliance guideline monitoring.



In addition, all liquidity indicators are fully integrated into ALTO* Investment and can be used as key risk factor. We can also provide our clients with liquidity reports aggregating LST across funds.

In order to further enrich ALTO* Liquidity with state of the art features, we are constantly collaborating with our Amundi research and development team. Learn more about the latest LST research performed by our specialists "Liquidity stress testing in asset management":

<https://research-center.amundi.com/page/Publications/Working-Paper/2021/Liquidity-Stress-Testing-in-Asset-Management?search=true>

What is coming next?



Front Office

“Empowering all investment business lines with cutting-edge technologies”

Managing Strategic Allocation

Amundi Technology is developing a new module to manage the strategic asset allocation process, where a multi asset portfolio manager is deciding on allocations to different asset classes or macro strategies, based on a long term investment policy.

The allocator can easily delegate client capital across internal portfolio managers, and manage the global allocation as a standalone portfolio. SAA (Strategic Asset Allocation) levels can be adjusted within a pre-defined range, and combined with a tactical asset allocation level to define risk budgets.

The module automatically processes cash transfers between the master portfolio and sleeve / pocket portfolios created in ALTO* Investment.

The fund of pockets is mainly internal to ALTO* Investment, the custodian and fund admin would not replicate the master/sleeve structure to match ALTO* Investment's. Master and pocket portfolios roll up to one custodian account, and all cash movement are internal.

This module offers allocation portfolio managers comprehensive views of all investments in each underlying manager. Enabling look through and applying various breakdowns, giving the allocating portfolio manager more details to run a full analysis of the global portfolio.

For managed pockets, portfolios managers have access to detailed capital activity by allocator. They can also trigger cash flows back to the master portfolio in case of excess cash or distribution.

What is coming next?

Insurance multi-accounting: IFRS9, French GAAP

As part of our continued efforts to extend ALTO* Insurance platform capabilities, and to complement local GAAPs coverage, we will be upgrading our tools to support IFRS9 standards. ALTO* Insurance will offer advanced front office capabilities and sophisticated connectivity to external accounting systems, to provide our clients with a comprehensive solution to manage their insurance portfolios.

In the coming months, ALTO* Insurance platform will address IFRS9 requirements:

- Accounting standards: IFRS9 valuations and analytics. Reconciliations with accounting data;
- Asset classification: SPPI Tests and business model support;
- Impairment of assets and expected credit loss calculations and/or integrations;
- Upgrade of accounting analytics, book yields, book values with calculation details;
- Advanced P&L calculation and analysis with various aggregations and breakdowns;
- Investment compliance rules based on accounting valuations (issuer limits, ratings, etc).

In addition, we will enrich our accounting data integration capabilities for both managed and external portfolios. This will include new accounting analytics (PDD, P&Ls, and more), and allow seamless integration with ALTO* Insurance.

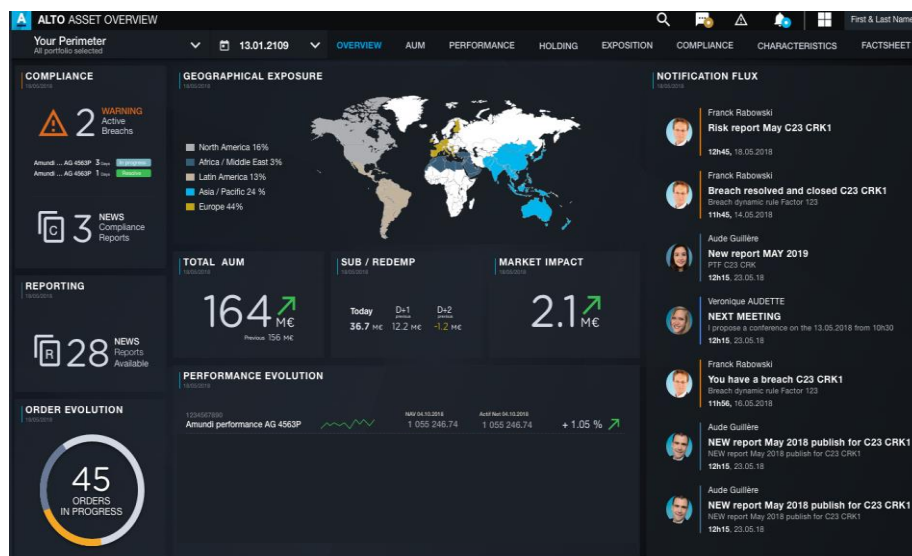
What is coming next?

360° Overview of your assets with a CIO Cockpit

Additional ALTO* Dashboard widgets and functionalities will be delivered to provide Management Cockpit views for CIOs (Chief Investment Officer) and COOs (Chief Operating Officer). The module will offer CIOs a bird's eye view of information to monitor key investment data, such as exposure to various risk factors, performance, compliance analytics, cash flow and any aggregated analytics.

Web-based and easily configurable, the solution facilitates analysis at asset management level, investment business line or portfolio group level.

ALTO* Dashboard is offering a high-level overview of business operations. The COO Cockpit will include additional flexible dashboards capable of displaying a broad range of new KPIs for middle office, reporting and data management activities. This solution will help team leads, operation managers and COOs monitor daily processes and will foster quality operation control.



What is coming next?

Cash Management: Optimize and Secure your Treasury Process

ALTO* Cash Management module supports different cash investment policies, and help portfolio managers delegate cash management to other teams and define all constraints and rules for cash investments. The tool includes dashboards with various cash ratios and analytics, and offers a global and unified overview of cash investments by vehicle and contributor, to control and secure the cash management activity.

ALTO* Cash Management module will be upgraded to offer:

- Additional cash instruments including money market and repo instruments
- Collateral cash management
- Mutual funds optimization and order simulation using an advanced allocation algorithm
- Administration panels for investment guidelines
- Automatic position roll and cash adjustments and optimization
- Extended cash ladder: new breakdowns and cash types

These upgrades will simplify cash management and FX hedging processes and give more transparency and control on all types of cash investments.

What is coming next?

Powering Private Debt management

ALTO* Private Debt, empowered by a leading provider, is a dedicated loan management tool that automates debt operations, performs valuations, reconciliations and NAV control:

- Position keeping and control against accounting and agents;
- Loan data capture and transactions characteristics maintenance;
- Monitoring of interest/coupon payment and other back-end events;
- Cash reconciliation against custodians;
- Valuation input and NAV control

In the next release, ALTO* Private Debt users will be able to:

- Enhance reporting and document management
- Integrate investment compliance monitoring
- Enrich performance analysis and asset valuation capabilities.
- Implement new views for fund investor operations and daily analyst follow ups.

What is coming next?



Dealing

“Empowering traders with a state-of-the-art Execution Management System to ensure the best execution”

Enhancing Dealing Platform

The ALTO* Trading platform enables real-time, transparent and efficient order transmission between portfolio managers and traders with broad connectivity to markets. Fully integrated with order-booking modules, data and trade analytics, it offers valuable decision support for traders. ALTO* Trading simplifies complex order and execution management with a feature-packed and uniquely customizable blotter to easily process any execution strategy and facilitate tracking.

We are reinforcing ALTO* Trading platform with new features and upgrades, mainly:

- Market impact: A new set of data and indicators are available directly in ALTO* Trading to help dealers analyze market impact in real time before executions to prevent market abuse;
- Execution strategy: Additional execution strategies are available for portfolio managers and dealers in the ALTO* Investment platform;
- FIX connectivity with external trading desk: Implementation of order routing API using FIX protocol that is compatible with ALTO* Investment, to transmit orders to external trading venues;
- Reinforcement of order transmission with new rules and order types.

What is coming next?



Middle Office

“Industrialising operations with automation of manual tasks and new crowdsourcing tools”

NAV Calculation and Control

New views give portfolio managers more insight into NAV (Net Asset Value) details for full transparency on variations of NAV constituents: market impact, fees, cash, hedging costs, etc. This complements and reinforces checks against third party statements conducted by middle office teams.

ALTO* Investment NAV Control confronts pre-validated admin NAV data with ALTO* Investment valuations (IBOR), and gives a high level summary of NAV control overall status. Using portfolio group dashboard view, users can monitor the validation process using multiple criteria, and access detailed views for each portfolio or sleeve.

All accountant NAV components are compared with ALTO* Investment NAV calculations, from cash holdings to fees and number of shares. The views offer various features to group and compare by asset class, currency and more, and also drill down to instrument level.

Using the NAV Validation view, users can approve or reject pre validated NAV through file transfer, generated email or redirection to admin portal. Validation can be set to be automatic, when all compared data are within thresholds.

For managers wishing to validate portfolio NAVs through a performance consistency check, a new module based on ALTO* Investment performance engine is offering performance calculation based on pre-validated data. The performance calculation can be set for the NAV period at investment portfolios and share class levels.

Calculated performance analytics help managers examine generated performance and run tracking error analysis with benchmarks to examine any discrepancy before final validation.

Reinforcement of Trade Processing and Settlement with CSDR

ALTO* Investment post trade is reinforcing the processes of cash and securities settlement, to comply with the latest CSDR regulations.

This development improves the quality of all settlement flows and the monitoring of the reconciliation process. Using the claims view, clients can easily integrate, manage all claims, and monitor overall status.

Furthermore, in order to better manage cash penalties, ALTO* Investment offers a dedicated module to track all late settlements and manage penalties workflow with third parties.

What is coming next?



Reporting

Regulatory Reports: PRIIPS

Starting from July 2022, the new PRIIPS RTS will apply to a range of retail and insurance products that are marketed to retail investors, including UCITS. The new RTS will deliver several changes to the way costs, charges and performance scenarios are calculated and disclosed, as well as introducing template amendments.

ALTO* Investment regulatory reporting platform is building a new flexible architecture for KID production process to support these requirements. In addition, in order to ensure successful implementation, we are deploying a specific data governance framework with a dedicated validation workflow and automated first and second level controls.



Data & Research

Data and Referential Management

ALTO* Investment provides clients with an enhanced data management solution that enforces decision-making process, reduces operational risk and increases agility.

Our model is based on a combination of a data platform and data services. We deliver your investment data as a service, by deploying a robust data governance process enabling full control and oversight. We manage third party, vendor and your custom data, to equip your teams with tools to support all your investment management functions.

ALTO* Investment data management platform will give our clients a new and streamlined access to reference and custom data for securities, portfolios and issuers. Administrating your own data elements will be simplified to ensure effortless integration in ALTO* Investment.

We are also working on a new security entry graphical user interface to maximize efficiency and reduce operational risk. This will cover equities, fixed income and derivative instruments and also some new OTC instrument types.

All ALTO* Investment data will be accessible using ALTO* Dashboard, flat files or APIs.

Lab Initiatives

Access to cloud, innovation, and open-source

The environment financial firms are evolving in is constantly changing and it forces companies to look for efficient, scalable and secure infrastructures while adapting quickly to new technologies through the integration of AI or Machine Learning in IT systems. Amundi Technology is investing strongly in Cloud, Innovation and Open Source technology, which are both key for the future of financial institutions.



The 100% cloud platforms enable clients to enhance their user experience. Amundi Technology developed a private cloud able to welcome all applicative platforms from ALTO* Investment, enhancing scalability, flexibility, security and performance to support customers in their day to day activity and growth objective.

Innovation is at the heart of the future of the industry. Therefore, Amundi Technology implemented a dedicated innovation team called “Le Lab” which can identify study and develop relevant use cases in an agile mode. Among the latest innovations on ALTO* Investment, there are ESG analytics available through the platform to support and facilitate investment decisions (Natural Language Processing, Research Dashboard, Policy ...)

The technological innovation necessary to support businesses is nourished by the strength of communities, their flexibility and their superior longevity. Thanks to its technological transparency and as an independent software developer, Amundi Technology is able to provide a state of the art platform which relies on open-source solutions to access the latest innovations.

Learn more about cloud, innovation and open-source in ALTO* Investment: <https://www.amunditechnology.com/en/news/pdf/private/long-news-alto/access-to-cloud-innovation-and-open-source-with-alto/0>

Lab Initiatives

ESG forecasting thanks to causal network analysis

Portfolio managers and analysts have to consider more and more criteria to make investment decisions. Their objective is to be able to predict and anticipate market evolutions to sell or reinforce positions at the right time to generate alpha.

They have at their disposal tools, structured data, and information available on the markets, where the production of textual data is important and the extraction of relevant information is essential. The boom in the volume of available textual data represents many opportunities, and it is lifted by the progress of NLP.

To support this innovation, an R&D structure called "The Innovation Lab" was created in 2020 at Amundi Technology. One of the areas of work is the Composite AI, which is made of several AI methods and models.

The solution developed helps to identify causal chains involving positive or negative signals on an issuer, a country or a sector:

- Extract causal links to better understand results;
- Access easily explainable, responsible and frugal AI.

The innovation extracts causal links from millions of documents in 28 different languages, increasing the accuracy and responsiveness of investment processes. The first use case focuses on ESG analysis. The association of causality algorithms and ALTO* Investment aim at:

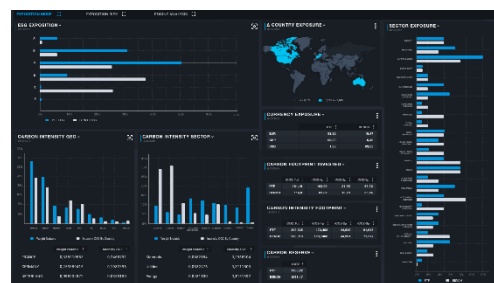
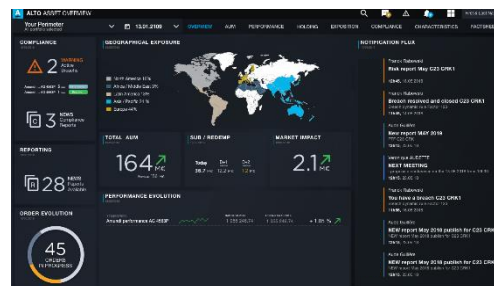
- Decrypt millions of documents;
- Offer an explainable and responsible AI;
- Extract causal links to optimize the consideration of extra-financial criteria in ESG analysis in the constitution of portfolios;
- Understand the links that signal changes in trends;
- Combine data mining techniques.

Composite AI (recognized by Gartner as one of the 30 trends that will significantly change the approach to decision support in the coming years), interprets data in greater detail, and facilitates more scalable decision making. Amundi Technology's integration of this innovation combines several AI techniques: Symbolic, NLP, decision trees, knowledge graphs, bayesian networks and very reduced modeling of connectionist networks

About ALTO* Investment and Amundi Technology

ALTO* Investment

ALTO* Investment is Amundi's Portfolio Management System (PMS) covering the entire Asset Management value chain and providing a 360° portfolio view for all asset classes. ALTO* Investment offers a cross-asset and integrated front-to-back solution, covering the entire investment management life cycle, including position keeping, portfolio analysis and simulation, order booking and execution, compliance, performance and reporting. Its comprehensive functional flexibility is adaptable to all types of investors: Asset managers, Insurance companies, Pension Funds, Family Offices. ALTO* Investment's fully integrated solutions provide a 360° view of all information required to analyse, manage and control portfolios. It covers all asset classes and facilitates portfolio managers' decision-making in real-time.



Amundi Technology

Amundi Technology offers innovative technology and operational services to support clients reshaping their operating model. The solutions proposed aim to meet the needs of all savings and asset management actors: asset managers, asset owners, distributors, wealth managers and asset servicers. The technology platforms provide clients with adaptive solutions enabling them to focus on their core business.

- **ALTO* Investment**, a powerful modular platform covering the entire Asset Management value chain, with services for Dealing, Middle Office and Data Management;
- **ALTO* Wealth & Distribution**, a modular core-to-digital platform for Discretionary Portfolio Management and Advisory solutions;
- **ALTO* Employee Savings & Retirement platform**;
- **Specialised solutions** with a wide range of technology and services solutions capitalising on Amundi's experience and know-how.



Amundi | Technology

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ALTO* Investment



ALTO* Wealth &
Distribution



ALTO* Employee
Savings & Retirement

Specialised solutions



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*ALTO: Amundi Leading Technologies & Operations

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