



HOW A SME BECOMES A HIGH PERFORMANCE INDUSTRY: **THE AXYON AI CASE**



The Services We Offer to Businesses

At EuroCC Italy, we support businesses in integrating advanced technologies into their processes to stay competitive and innovative.

Our comprehensive services include:

CONSULTING ON STRATEGIC INNOVATION

We provide strategic consulting to deeply understand your business needs, identify the most functional innovative technologies, and implement them effectively

Our goal is to ensure that your business leverages cutting-edge solutions to enhance productivity and growth.

INNOVATION PROJECTS

Our experts in High-Performance Computing (HPC) help you to develop Proof of Concept projects, drive innovation, and optimize the performance of your company's codes.

As part of these projects, we offer technological support for creating Digital Twins of real predictive physical processes, with a "test before invest" approach. Moreover, you can utilize our smart repositories for storing multi-format Big Data that enable flexible and quick data analysis, helping you make informed decisions based on comprehensive data insights.

EDUCATION AND TRAINING PROGRAMS

We offer training courses at various levels to help your team learn and use supercomputing and artificial intelligence technologies. These courses can be customized to meet specific needs, ensuring your workforce is equipped with the skills required to harness these advanced technologies effectively.

High-Performance Computing (HPC) plays a crucial role in modern computational tasks, especially in fields requiring the handling of vast datasets and complex algorithms. In the **Asset Management industry**, where decisions need to be made swiftly and based on precise analyses, HPC is indispensable.

Who is EuroCC Italy

EuroCC Italy addresses the business world to set up paths of innovation and digital transformation through the adoption of High Performance Computing (HPC) technologies. Together with professionals and our network of skills, we accompany companies in defining the most effective tools to optimize work processes and improve business performance.

Who is Axyon AI

Axyon AI is a fintech company at the forefront of transforming the Asset Management industry through advanced AI and deep learning technologies. The company helps asset managers improve their performance with AI powered asset rankings and model strategies to uncover alpha opportunities with precise, AI-driven predictive solutions.

The projects developed by Axyon AI

2019

Project: Shape

Programme: PRACE, Partnership for Advanced Computing in Europe



The project enhanced the Axyon AI Platform, improving scalability and performance for managing ML tasks across varied computational resources, and ensuring data security and compliance for fintech applications. This upgrade supports more efficient handling of large-scale data processing in finance.

ROI = $100 \times (\text{Net Return} / \text{Cost})$ of Investment = 140%

Axyon AI has strategically integrated **CINECA's** HPC infrastructures into its core operations to meet the demanding computational requirements of its advanced AI and deep learning models. This integration has been pivotal in managing the immense data volumes and complex computations that these models entail. By employing HPC, **Axyon AI** could significantly accelerate its model training processes and enhance the precision of asset performance forecasts.

2020

Project: Esax

Programme: EOSC DIH
Digital Innovation Hub



The Axyon AI Platform, powered by an automatic meta-optimization engine, performs parallel deep-learning jobs, requiring a week per cycle on a small GPU cluster. With ESAX integration, scalability and efficiency have increased, enabling the platform to handle larger datasets and more complex financial models, including varied assets and sentiment data.

ROI = $100 \times (\text{Net Return} / \text{Cost})$ of Investment = 150%

Enhancing deep learning models through HPC

Starting in 2019, Axyon AI developed several innovation projects based on the use of HPC infrastructure, which were implemented within various European programs designed to put HPC infrastructure at the service of research and enterprise. The gradual implementation of HPC across the projects has consistently yielded a high return on investment, demonstrating the value and effectiveness of integrating advanced computational technologies in enhancing business operations and financial strategies.

2021

Project: AI/Deep learning-based software for time series application

Programme: EuroCC Italy



This project provided a significant opportunity to access advanced computational resources and expertise by collaborating with Leonardo Spa. This access enhanced Axyon AI's capabilities in financial analytics by enabling more sophisticated data processing and modelling techniques.

ROI = $100 \times (\text{Net Return} / \text{Cost}) \text{ of Investment} = \text{N.A.}$

The added value for Axyon AI

The implementation of High-Performance Computing (HPC) posed challenges but also enhanced Axyon AI's platform significantly, providing substantial growth opportunities. Through the collaboration with CINECA, Axyon AI has achieved several key enhancements:

1. Enhanced Analytical Capabilities:

Processing of vast datasets and complex calculations, enhancing predictive accuracy and insights in financial markets and giving asset managers a competitive edge.

2. Innovation Acceleration:

HPC accelerated innovation cycles, allowing for rapid development, testing, and deployment of new AI models, enhancing responsiveness to market changes.

2021

Project: Leveraging HPC for AI and DL powered solutions for asset management

Programme: FF4 EuroHPC



This project developed an AI-based platform to enhance asset management, automating investment models and creating risk management tools to stabilise markets. It expanded investment strategy support from 100 to over 1,000 financial assets and integrated continual learning to improve adaptiveness and reduce re-training times.

ROI = $100 \times (\text{Net Return} / \text{Cost})$ of Investment = 180%

3. Scalability and Performance:

Efficient operations scalability to manage more clients and larger datasets without sacrificing performance.

4. Cost Efficiency:

Optimization of computational processes led to significant cost savings in data processing and model training, enhancing the cost-effectiveness of Axyon AI's solutions.

5. Risk Management:

HPC enabled more sophisticated risk analysis models, providing tools for better informed, data-driven decision-making in a volatile market.

These advancements have solidified Axyon AI's position as a leader in AI-driven investment solutions, leveraging HPC to add significant value across various aspects of its operations.

Discover more on our website:

euroccitaly.it



EuroHPC
Joint Undertaking

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