**intel**®

# Improving Business Outcomes through Real-Time Data Backed Analytics and Custom Insights with Course5 Discovery

## Course5
### Transformative intelligence

Course5 Discovery leverages Intel® technologies to provide their AI-powered augmented analytics solution to deliver relevant, actionable, and human-friendly insights across multiple data mediums, platforms, and profiles. It provides users with an insights-first tool that rewards businesses with the necessary means to make accurate data driven decisions.

## Overcoming the Challenges of Distributed Data Networks at the Edge

Complex operational networks in enterprises often face challenges like chaotic reports, fragmented insights, and hindered growth due to multiple data sources and tools.

### These issues include

**1** **Data Overload:** Enterprises generate vast and diverse data in various formats.

**2** **Fragmented Landscape:** Multiple tools create silos and hinder collaboration.

**3** **Lack of Standardization:** Non-standard data formats and varying quality complicate integration.

**4** **Missed Opportunities:** Valuable data from nontraditional sources is often overlooked.

Achieving a unified, growth-oriented dashboard tailored to individual and organizational needs is a complex endeavor.

## How Does Course5 Discovery Help Unite Complex Networks?

Course5 Discovery provides a data centralization and analytics solution that simplifies complex insights through an intuitive user interface.

The solution provides a collaborative platform capable of delivering the most relevant insights in the most understandable formats to the right people at the right times.

Course5 Discovery empowers businesses with a cutting-edge solution to unlock the full potential of their data and make data-driven decisions with confidence.

With its advanced analytics capabilities and AI-powered augmented analytics, Course5 Discovery provides organizations with actionable insights and a comprehensive view of their data in one place.

## This includes key components such as:

**Data Integration:** Simplified Data Integration: Course5 Discovery effortlessly blends structured and unstructured data from various sources into a user-friendly interface. With Course5 Discovery, the days of juggling data between platforms are over.

By boasting seamless integration with all data formats, businesses gain a holistic data view through a single source of truth, empowering precise, informed decision-making.

**Custom Visualizations:** Dynamic Visualizations: Course5 Discovery provides user-friendly visualization tools that turn complex data into visually stunning insights.

With interactive dashboards, charts, graphs, and reports, both teams and individuals can effortlessly explore data, uncover critical insights, and share them across the organization. No technical expertise needed—just clear, compelling visuals
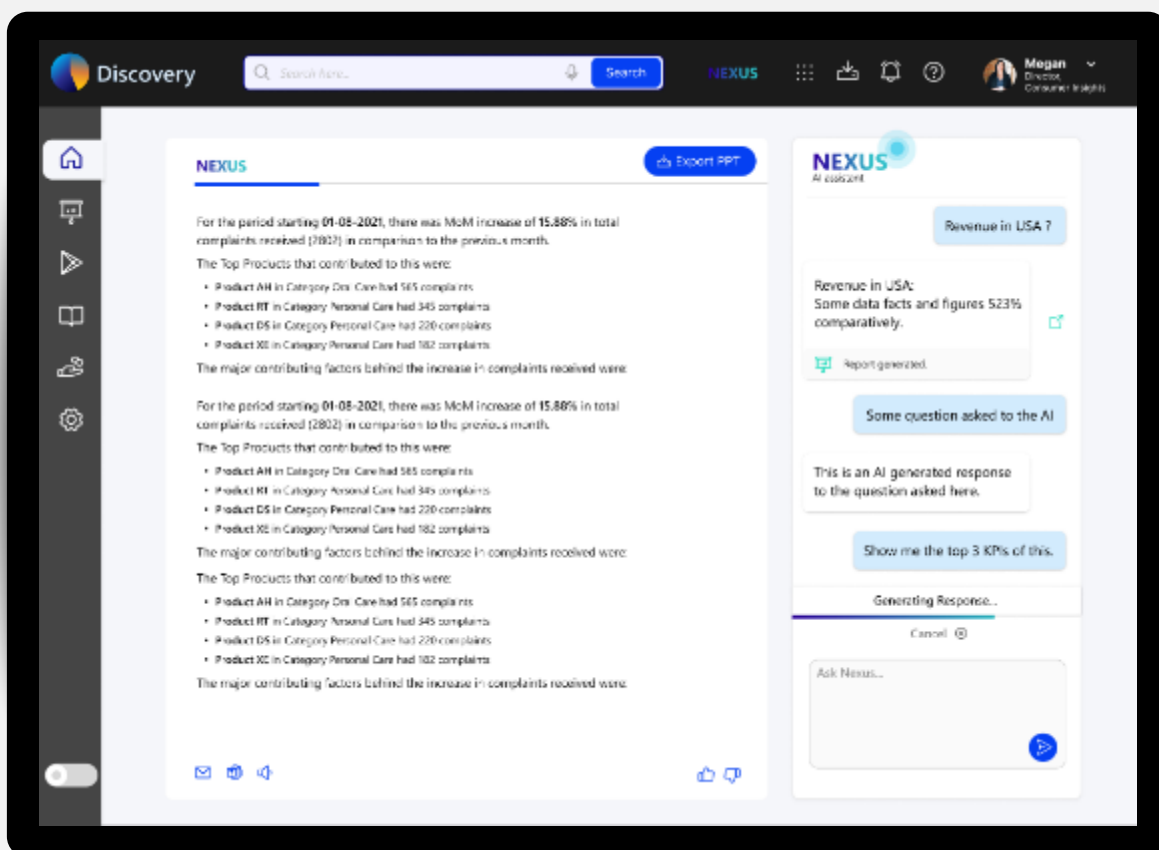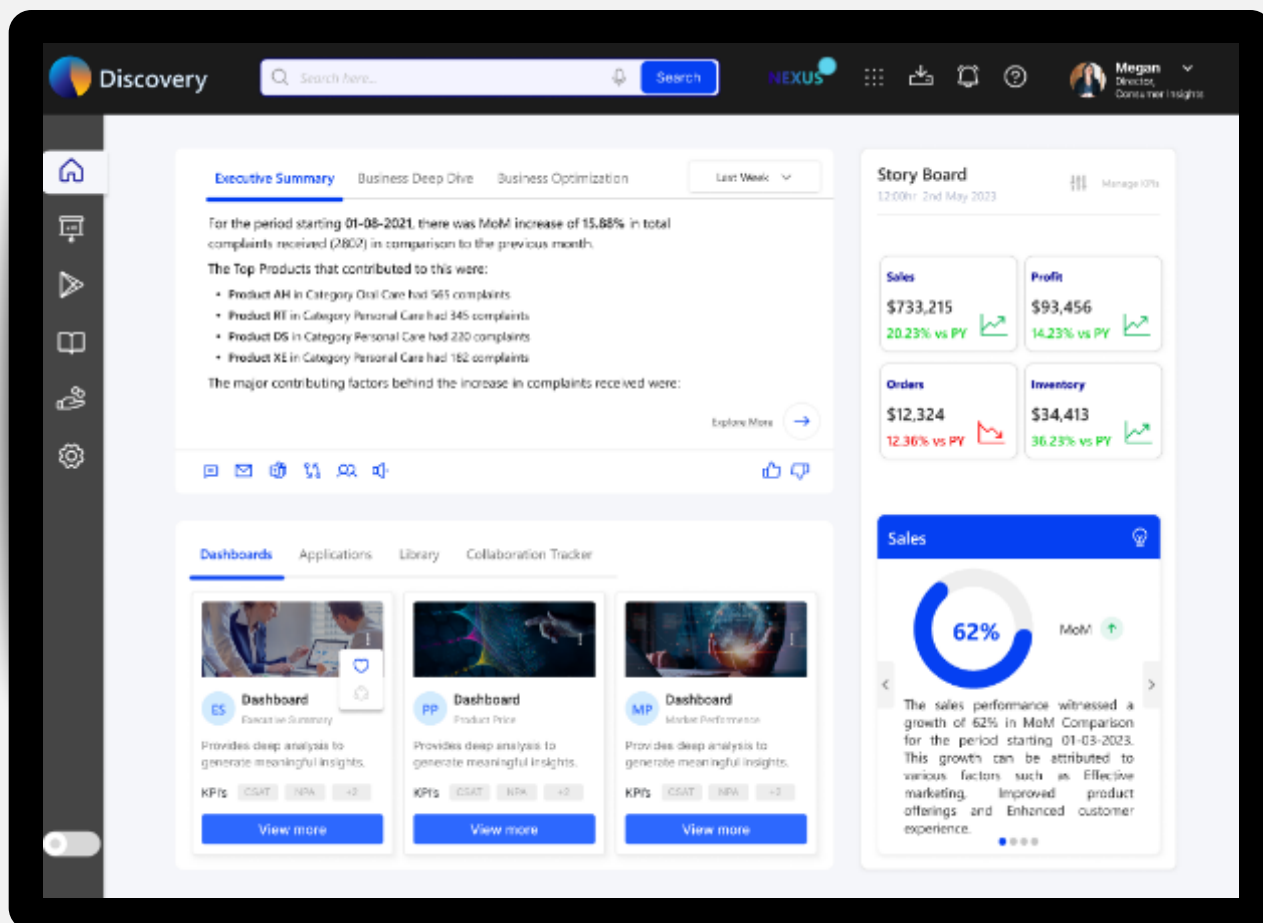
**Industry-Specific Solutions:** Course5 Discovery is industry-agnostic, yet it excels in tailoring solutions for sectors requiring unified data and dashboards. This spans complex operations like logistics, e-commerce, retail, research and development, consumer packaged goods, and more.

These industry-specific solutions tackle unique challenges, empowering organizations to extract maximum value from their data and stay agile in competitive markets. For instance, in retail, Course5 Discovery enhances inventory management, reveals customer preferences, and empowers managers to boost sales through data-driven strategies and plans.

**Advanced Analytics:** Leveraging natural language processing (NLP), machine learning, and predictive modeling, Course5 Discovery employs advanced analytics techniques to gain deeper insights and identify valuable patterns within the data. These techniques enable businesses to make accurate predictions, uncover hidden opportunities, and drive growth.

**Automated Insights:** With Course5 Discovery, generating actionable insights from data is automated, saving time and effort for data analysts. AI algorithms are employed to identify trends, anomalies, and correlations within the data, providing timely and tailored insights to the right individuals that support informed decision-making across various business functions.

**Personalized Multi-Media Insights:** By delivering personalized insights tailored to individual roles and departments.

Course5 Discovery is a game-changer for executive decision-making in complex operations. Powered by automation, search indexing, machine learning, and natural language processing, Discovery provides immediate, actionable insights through user-friendly interactive mediums. Whether it's through voice and text chat, email, or document integration, employees can effortlessly access vital information and action plans with a simple click.
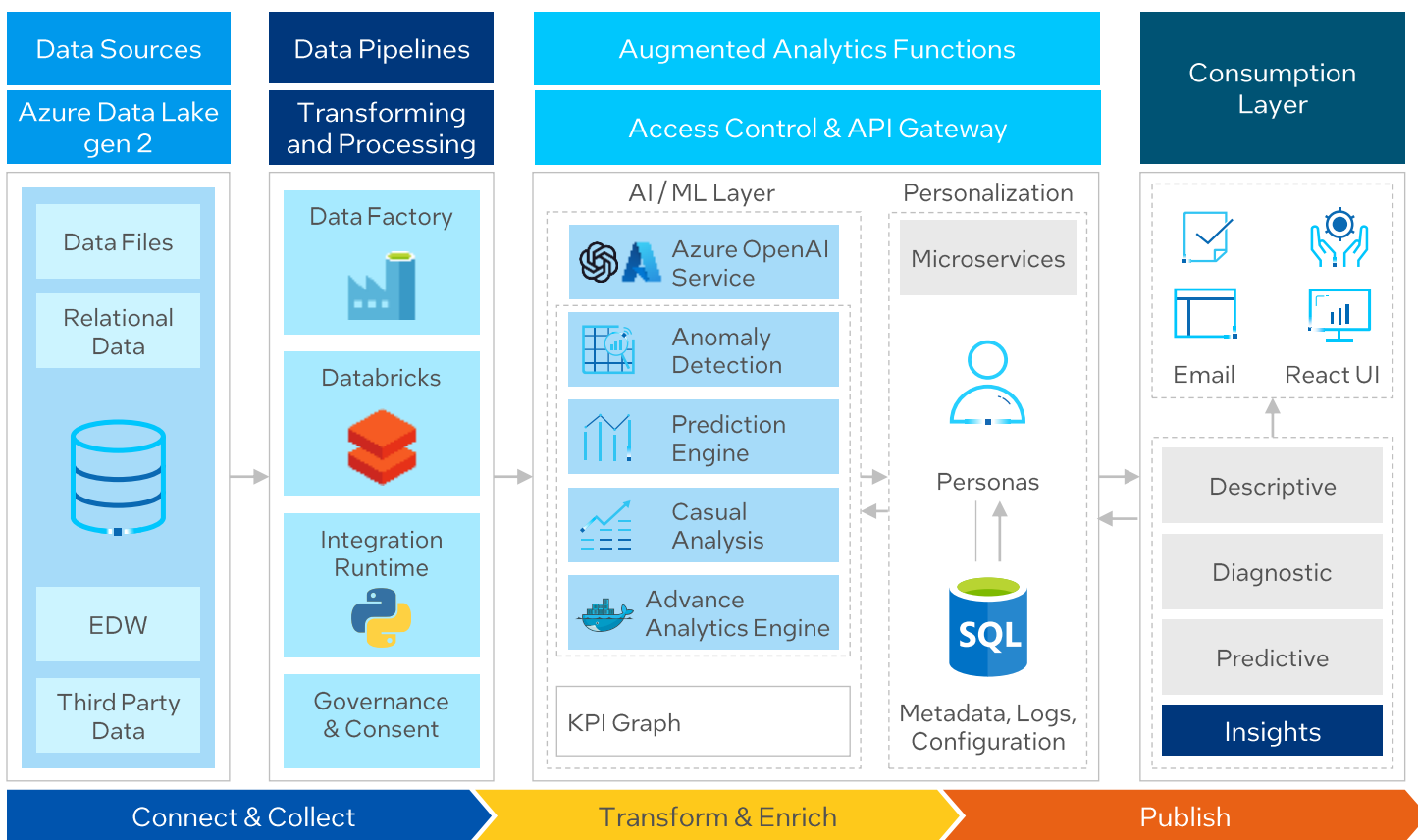
**Collaborative Insights:** Course5 Discovery streamlines collaborative insights, enabling teams to swiftly and effectively make informed decisions. This platform facilitates cross-functional data sharing while maintaining data security, accommodating various permissions and security protocols. It integrates seamlessly with popular collaboration tools such as Microsoft Teams, WhatsApp, and Slack.

The closed-feedback loop ensures transparency by tracking actions, events, impacts, and feedback. The industry-focused Book-of-Knowledge continually updates data from retail, CPG, and technology sectors, uncovering growth opportunities. Ultimately, Discovery is a trustworthy solution for corporations, promoting a culture of communication, collaboration, and proactivity through data metrics, edge compute, and dashboards.

## How does Discovery work?

Course5 Discovery is designed to efficiently manage diverse data from various sources, including customer records, sales data, and social media posts. This integration provides organizations, external partners, and customers with user-friendly access to data and analytics, enabling quick and transparent decision-making.

Once integrated, Course5 Discovery employs advanced analytics techniques such as natural language processing (NLP), machine learning, and predictive modeling to reveal hidden patterns, correlations, and trends within the data. Leveraging AI algorithms, it automates insight generation, saving time and effort for data analysts and delivering accessible visualizations and dashboards..

### Data Sources — Azure Data Lake gen 2

- Data Files
- Relational Data
- EDW
- Third Party Data

### Data Pipelines — Transforming and Processing

- Data Factory
- Databricks
- Integration Runtime
- Governance & Consent

### Augmented Analytics Functions — Access Control & API Gateway

**AI / ML Layer**
- Azure OpenAI Service
- Anomaly Detection
- Prediction Engine
- Casual Analysis
- Advance Analytics Engine
- KPI Graph

**Personalization**
- Microservices
- Personas
- SQL
- Metadata, Logs, Configuration

### Consumption Layer

- Email
- React UI
- Descriptive
- Diagnostic
- Predictive
- Insights

**Connect & Collect** | **Transform & Enrich** | **Publish**

## Use Cases

### E-commerce

- Audience Profiling & Segmentation
- Next Best Step (Content and Offer Recommendation)
- Churn Analysis
- Lifetime Value Analysis
- Digital Customer Experience & Journey Analysis
- Dynamic Pricing
- Promotions Effectiveness
- Time-Series & Causal Forecasting

### Supply Chain

- Exception Analytics
- Lead Time Optimization
- Multi-Echelon Inventory Optimization
- Inventory Fill Rate Optimization
- Demand Sensing & Forecasting
- Maximize On-Shelf Availability
- Sales & Distribution Channel Optimization
- Hub Optimization

### Sales & Marketing

- Lead Scoring & Classification
- Voice of Customer Analysis
- Digital Marketing Attribution
- Marketing Simulations
- Audience Profiling & Segmentation
- Next Best Step (Content and Offer Recommendation)
- Churn Analysis
- Lifetime Value Analysis
- Marketing & Sales Funnel Analysis

# Course5 Leverages Intel® Distribution of OpenVINO™ Toolkit to Optimize Machine Learning Performance

Intel technology plays a significant role in empowering Course5 Discovery with enhanced performance, scalability, and connectivity.

## The Intel® Distribution of OpenVINO™

By optimizing Discovery's Natural Language Understanding (NLU) model with the Intel® Distribution of OpenVINO™ Toolkit for Intel® Xeon® processors, businesses are able to improve the throughput and latency of the processing pipeline, which helps effectively balance edge compute loads and high-volume data processing. This is particularly important as deep learning models such as NLU can be extremely resource-intensive, and optimizing them for deployment environments such as cloud and edge devices is essential.

This allows Discovery users to help organizations rapidly decrease latency in inferencing and provides other models which significantly accelerate deep learning tasks and enhances throughput.
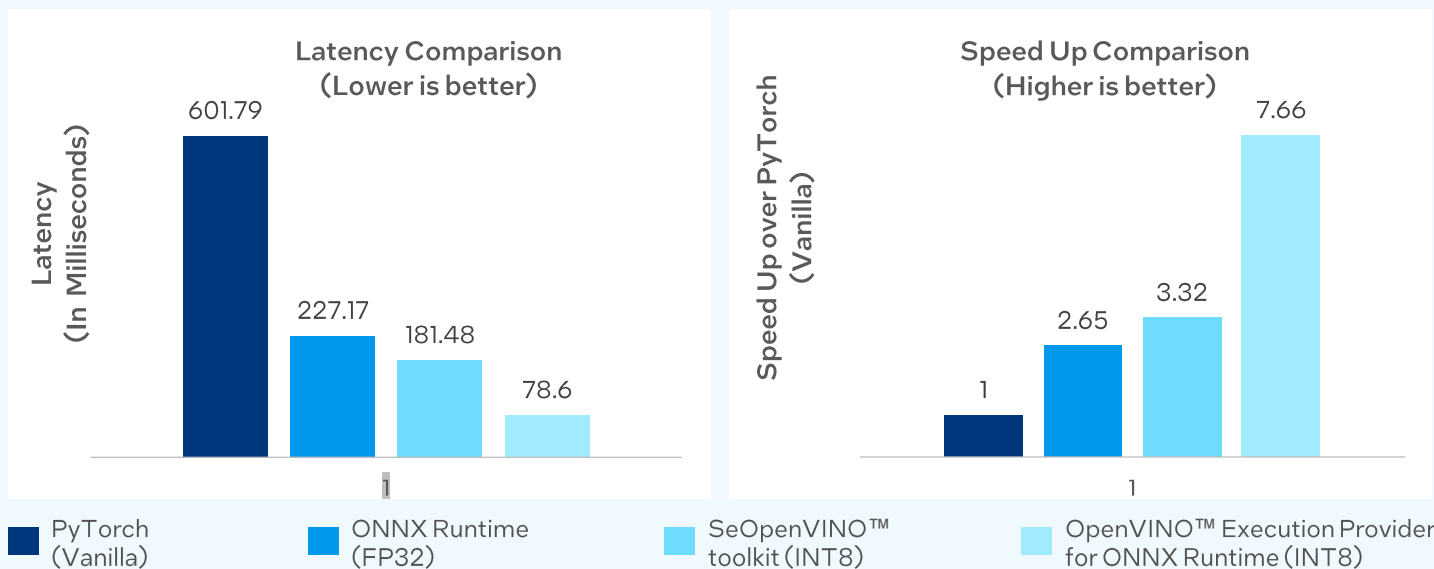
## Intel® Xeon® Gold Processors

Intel® Xeon® processors are the ideal choice for optimizing the Course5 Discovery platform. By utilizing these powerful processors, Discovery accelerates neural network computations and delivers superior performance for edge and AI enabled workloads. Additionally, Intel® Xeon® processors offer excellent power-saving optimizations, making them a sustainable and reliable option capable of for deployment environments such as cloud and edge devices.

## The Power of Intel Hardware and Software Combined

By optimizing their AI models with the Intel® Distribution of OpenVINO™ Toolkit for Intel® Xeon® processors which leverage tools such as Intel Deep Learning Boost: VNNI, Course5 Discovery provides real-time analysis at the edge and cloud, enabling organizations to make well-informed decisions, while adopting an architecture that can effectively scale, and support large scale institutional digital transformation. By utilizing Intel technology, the platform can leverage hardware optimizations and efficiently execute tasks, resulting in a remarkable 7.66x faster performance in terms of latency compared to PyTorch.[1]

## Results and Discussion[1]

**Latency Comparison (Lower is better)**

- PyTorch (Vanilla): 601.79
- ONNX Runtime (FP32): 227.17
- SeOpenVINO™ toolkit (INT8): 181.48
- OpenVINO™ Execution Provider for ONNX Runtime (INT8): 78.6

Latency (In Milliseconds)

**Speed Up Comparison (Higher is better)**

- PyTorch (Vanilla): 1
- ONNX Runtime (FP32): 2.65
- SeOpenVINO™ toolkit (INT8): 3.32
- OpenVINO™ Execution Provider for ONNX Runtime (INT8): 7.66

Speed Up over PyTorch (Vanilla)

Legend:
- PyTorch (Vanilla)
- ONNX Runtime (FP32)
- SeOpenVINO™ toolkit (INT8)
- OpenVINO™ Execution Provider for ONNX Runtime (INT8)

## Results and Discussion (Continued)[1]

- Inference with OpenVINOTM toolkit (INT8) is 3.32x faster than PyTorch (Vanilla).
- ONNX Runtime (FP32) got a speedup of 2.65x over PyTorch (Vanilla).
- OpenVINOTM Execution Provider for ONNX Runtime (INT8) got a speedup of 2.89x over ONNX Runtime (FP32).
- OpenVINOTM Execution Provider for ONNX Runtime (INT8) is 7.66x faster than PyTorch (Vanilla).
- ONNX Runtime provides BERT layers specific optimizations (like gelu approximation, embed layer norm, etc. i.e., using BertOptimizationOptions), and the optimized model can take dynamic shape as input during inference which is an advantage.

## Case Study: Course5 Discovery Helps Transform Waste Management

**Challenge:** An organization faced significant increased costs, environmental impact, and operational inefficiencies relative their waste management protocol. To mitigate these problems, they sought a solution that would enable them to reduce waste, streamline operations, and achieve cost savings while minimizing their environmental footprint.

**Solution:** Course5 Discovery, an AI-powered augmented analytics solution, provided the ideal platform for the organization's waste management challenges. By leveraging advanced analytics techniques and data integration capabilities, Course5 Discovery empowered the organization to gain actionable insights and implement effective waste management strategies.

**Results:** Through the implementation of Course5 Discovery, the organization achieved remarkable results in their waste management practices. Key performance indicators (KPIs) were closely monitored and included.

**Waste Reduction:** The organization successfully reduced waste generation by 36%, resulting in significant cost savings and minimizing their environmental impact.

**Improved Operational Efficiency:** With improved waste tracking and streamlined disposal processes, the organization experienced enhanced operational efficiency, leading to optimized resource allocation and reduced waste handling time.

**Enhanced Environmental Sustainability:** By implementing sustainable waste management practices, the organization demonstrated a strong commitment to environmental stewardship and achieved notable reductions in their carbon footprint.

**Cost Savings:** The organization realized cost savings of $10.5 million, thanks to optimized waste disposal practices and efficient resource allocation.

## Conclusion

This integration exemplifies how Course5 Discovery's advanced analytics capabilities and AI-driven insights transformed waste management at an unnamed organization. By harnessing the power of data and leveraging Course5 Discovery's comprehensive solution, the organization successfully addressed their waste management challenges, achieved substantial improvements, and set a new standard for sustainable waste management practices.

## About Course5

Course5 is a global technology company specializing in advanced analytics, AI-driven solutions, and digital transformation services. With a customer-centric approach, Course5 helps businesses unlock the power of data to drive growth, optimize operations, and enhance customer experiences. Their flagship product, Course5 Discovery, is an AI-powered augmented analytics platform that enables organizations to derive actionable insights from complex data sets using advanced techniques like NLP, machine learning, and predictive modeling. Working closely with clients across industries, Course5's team of experts collaborates to design tailored solutions that deliver tangible business outcomes. Recognized by industry leaders like Gartner, Course5 is a trusted partner for analytics and AI, empowering organizations to navigate the digital landscape and achieve sustainable growth.

## Book a Live Demo with Course5 to See How it Can Transform Your Workplace

To see how Course5 Discovery can transform the approach for business intelligence:

- Get in touch with Course5 subject matter experts and account managers from their contact page
- Book a demo with the Course5 team on their website

## Learn More

**To learn more about the Course5 Discovery solution, visit:**

- The Course5 Website
- The Course5 Discovery AI-powered Augmented Analytics Platform Page

**To learn about Intel® technologies, visit:**

- Intel® Distribution of OpenVINO™ Toolkit
- Intel® Xeon® Scalable Processors
- Intel® Optimization for PyTorch
- Intel® Extension for Scikit-learn

1. An Augmented Analytics Platform Optimized Using OpenVINO™ ExectionProvidor for ONNX Runtime with Cnvrg.io, Course5 Discovery, 2022

## Notices & Disclaimers