Mindtrace.ai Platform Data Sheet

Brain-Sense™, NeuroForge™ and Inspectra™

About Mindtrace.ai

Mindtrace develops and deploys AI technology that integrates seamlessly into existing and new industrial automation systems, providing precision manufacturers with an end-to-end quality inspection solution.

By combining Brain-Sense™ AI technology, NeuroForge™ integrator, Inspectra™ analytics, and agent intelligence, Mindtrace delivers the industry's most adaptive, scalable, and trustworthy platform for manufacturing quality inspection.

- **Brain-Sense™** — the core AI computer vision techbology engine
- **NeuroForge™** — the integration layer (bridging AI to production cells)
- **Inspectra™** — the analytics/insights portal

Brain-Sense™ — Core AI Technology Platform

Brain-Sense™ is Mindtrace's proprietary AI platform for manufacturing defect detection. It provides manufacturers with fully automated, high-accuracy defect detection, with significant advantages:

- Detects defects faster and more accurately, reducing escapes and improving yield
- Operates 24/7/365 without fatigue
- Delivers cost savings compared to manual inspections

NeuroForge™ — AI Integration and Deployment Layer

NeuroForge™ is the integration platform for Brain-Sense™. It provides a set of tools and gateways that embed Brain-Sense™ AI defect detection into the existing production cells, workflows, data pipelines and production-specific requirements.

NeuroForge™ transforms Mindtrace innovation into operational reality — bridging the gap between AI research and the factory floor. It enables secure, scalable, and efficient deployment, reducing risk and accelerating ROI.

Inspectra™ - Analytics Portal for Smart Manufacturing

Inspectra™ is a powerful analytics portal that synchronizes with NeuroForge™ deployed "AI Brains" to collect, catalog, and analyze defect data on the factory floor. It delivers:

- Predictive analytics
- Root cause analysis
- Compliance reporting
- OEM-facing dashboards and reports

By turning inspection data into actionable intelligence, Inspectra™ empowers OEMs and suppliers with transparent, auditable insights that improve quality, compliance, and customer trust.

"AI Brains"

The Brain-Sense™ defect recognition capability is supported by a library of pre-trained AI data models or "brains" that are optimized for specific data sets relevant to manufacturing defect detection. As a result, Mindtrace customers receive an AI "brain" that can recognize over 80% of the defects that occur in each manufacturing category "out of the box". These pre-trained AI models further reduce training time, improve accuracy, and increase adaptability.

Brain-Sense™ Computer Vision

Brain-Sense™ uses computer vision to bring a new approach to defect detection — one that is faster, smarter, and more adaptable than traditional systems.

Core Differentiators:

- Brain-Inspired AI — designed to mimic human-like perception in industrial inspection
- Few-Shot Learning — achieves high accuracy with as few as 20 images, not thousands
- Continuous Learning — self-learning agents adapt automatically to new data, process changes, becoming smarter over time

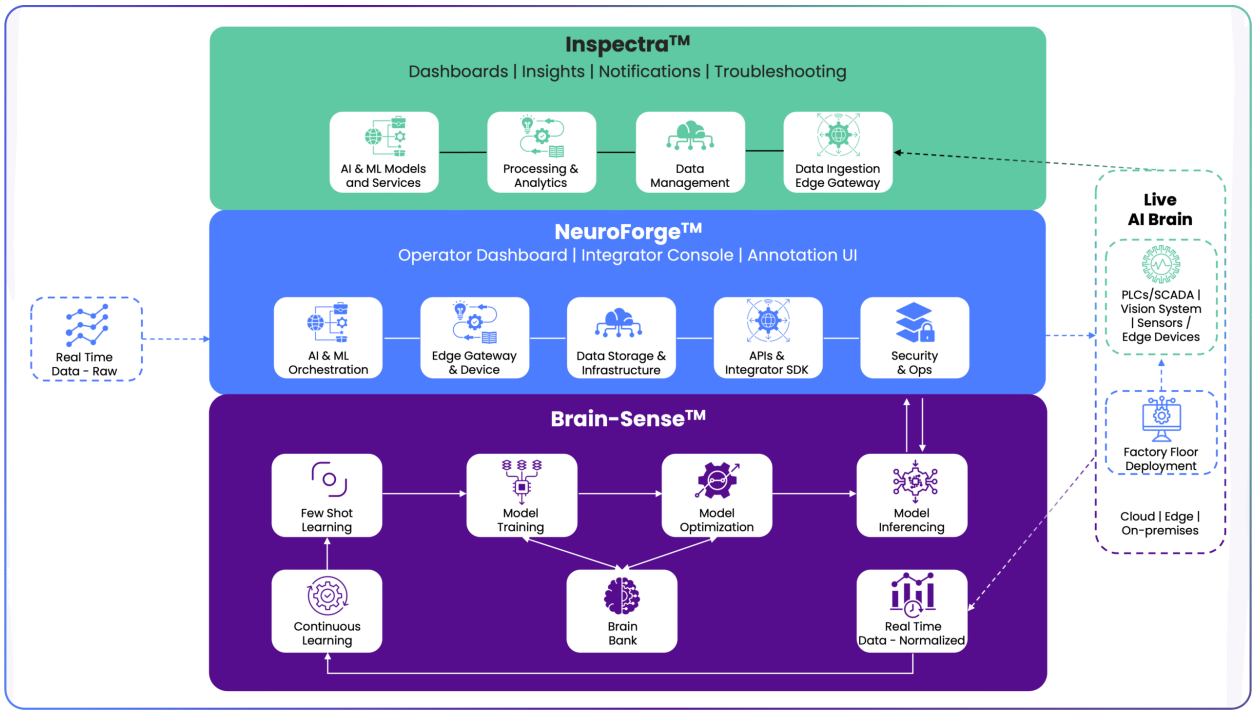
Computer Vision vs. Machine Vision AI:

- Machine Vision is a rule-based AI that requires thousands of images and up to a year or more of training before it can perform accurately. It is also very inflexible and requires almost total training when changes are introduced to the process.
- Computer Vision trains its models to recognize defects using image learning. Brain-Sense™ computer vision only requires about 20 training images and can be online in weeks, not months. It uses self-learning to adapt to new information, so process changes improve its capabilities.

How Brain-Sense™ Compares

Feature / Capability	Mindtrace	Camera Providers (Machine Vision)	Cloud Platform / Vision Integrators / In-house AI
Training Data Required	~20 images	Thousands	Hundreds-Thousands
Deployment Time	Weeks	6-18 months	3-12 months
Adaptability to Change	Self-learning, continuous	Rigid, retrain from scratch	Manual retraining
Accuracy Over Time	Improves with Data	Stagnates	Case-by-case
Out-of-the-box Capability	Pre-trained "brains" ~80%	None	None
Cost Profile	Low (fewer data + faster)	High (long projects + hardware)	Medium-high
Support	Inception to go-live	Typically, hardware only	None/consulting basis
Hardware	Agnostic	Locked-in	Agnostic
AI Tech	Adaptive pre-trained AI	Typically, SDK based	Cloud based generic model architectures

Mindtrace AI Platform Illustration



Mindtrace.ai Advantage – Delivering Measureable Efficiency Gains

Cross-Vertical Efficiency Gains

75-80%
Reduction in TAKT time

12 month
ROI through head count, throughput, yield

>98%
Gage R&R accuracy Score
Zero escapes, 3% false alarms

Precision Manufacturing – Defect Detection