

AI-powered solutions for manufacturing - Predictive maintenance, quality control, supply chain optimization.

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# AI-Powered Solutions for Smart Manufacturing

# The Manufacturing Industry Challenge

## Industry 4.0 is no longer optional—it's survival

- Unplanned downtime costing millions in lost production
- Quality defects escaping to customers despite inspection efforts
- Supply chain disruptions creating production chaos
- Skilled labor shortages limiting capacity
- Rising energy and material costs squeezing margins
- Competitors in Asia leveraging advanced automation
- Data trapped in silos across legacy systems

**The reality?** Manufacturers that don't embrace AI will be outproduced and outpriced within 5 years.

# What if Smart Manufacturing Was Predictable?

## Introducing *di-factory*

Fixed-time, fixed-budget AI solutions for manufacturing

We're not another industrial IT vendor with 2-year implementations. We deliver **working solutions**.

## Our Approach: AI-First, Results-Guaranteed

- **Fixed Time Delivery:** 4-week sprints with guaranteed completion
- **Fixed Budget Guarantee:** No surprises, no scope creep, predictable costs
- **AI-Powered Development:** 24/7 development cycles with intelligent automation
- **Manufacturing-Native:** Solutions designed for shop floor realities
- **OT/IT Integration:** Bridging operational and information technology

# AI Solutions for Manufacturing

## Predictive Maintenance

*Fix it before it breaks* - Machine failure prediction with ML - Remaining useful life estimation - Maintenance scheduling optimization - Spare parts inventory optimization - Condition monitoring with IoT sensors - Reduce unplanned downtime by 50-70%

## Quality Control & Inspection

*Catch defects humans miss* - Automated visual inspection with computer vision - Real-time defect detection and classification - Root cause analysis for quality issues - Statistical process control with AI - Supplier quality prediction - Reduce defect rates by 40-60%

## Supply Chain Optimization

*The right materials, at the right time, at the right cost* - Demand forecasting for production planning - Supplier risk assessment and monitoring - Inventory optimization across the supply chain - Logistics and routing optimization - Lead time prediction and buffer management - Reduce supply chain costs by 15-25%

# Smart Factory Solutions

## **Production Optimization**

*Get more output from existing assets* - OEE improvement and bottleneck detection - Production scheduling optimization - Energy consumption optimization - Yield improvement with process optimization - Real-time production monitoring dashboards - Increase throughput by 15-25%

## **Industrial IoT & Automation**

*Connect your shop floor to intelligence* - IoT sensor deployment and integration - Edge computing for real-time analytics - PLC and SCADA system integration - Digital twin development - Robotics process automation - Machine-to-machine communication

## **Analytics & Intelligence**

*Turn factory data into competitive advantage* - Real-time production dashboards - Performance benchmarking across plants - Cost analytics and margin optimization - Workforce productivity analysis - Sustainability and emissions tracking - Executive reporting and KPI monitoring

# Our Core Services for Manufacturing

## 1. Business Consulting Companion

*From assessment to Industry 4.0 roadmap* - Digital maturity assessment - Smart factory strategy development - Technology roadmap and vendor selection - ROI modeling and business case development - Change management and workforce readiness - Pilot program design

## 2. MVP Development for Manufacturing Solutions

*Fixed 4-week sprint delivery for working products* - Production monitoring dashboards - Quality inspection systems - Maintenance management platforms - IoT data collection and visualization - ERP/MES integration - Cloud deployment with industrial-grade reliability

## 3. ML Models for Manufacturing Intelligence

*Custom AI in 4-week sprint cycles* - Predictive maintenance models - Computer vision for quality inspection - Demand forecasting and production planning - Process optimization models - Energy optimization algorithms - Anomaly detection for equipment and quality

# Why Manufacturers Choose *di-factory*

## Speed to Value

- 4-week delivery cycles vs. 18-24 month Industry 4.0 projects
- Start capturing ROI immediately
- Rapid iteration based on shop floor feedback

## Predictable Investment

- Fixed-budget guarantee eliminates project overruns
- Critical for manufacturing's tight margins
- Clear ROI calculations before you start

## Reduced Risk

- Proven manufacturing technology stacks
- Integration with existing OT infrastructure
- Minimal production disruption during implementation
- Scalable from pilot line to full plant

- Deep understanding of shop floor operations
- Experience with OT/IT integration challenges
- Knowledge of manufacturing processes and metrics
- Integration with major PLCs, SCADA, MES, ERP systems

# Success Metrics We Deliver

## Maintenance & Reliability

- 50-70% reduction in unplanned downtime
- 30% decrease in maintenance costs
- 25% extension of equipment life
- 40% reduction in spare parts inventory

## Quality & Yield

- 40-60% reduction in defect rates
- 30% decrease in scrap and rework
- 50% faster root cause analysis
- 90%+ automated inspection accuracy

## Production Efficiency

- 15-25% improvement in OEE
- 20% increase in throughput
- 15% reduction in cycle times

- 25% improvement in on-time delivery

## **Cost Reduction**

- 15-25% reduction in supply chain costs
- 20% decrease in energy consumption
- 30% improvement in labor productivity
- \$2-10M annual savings for mid-size plants

# Case Study Framework

## Scenario: Automotive Parts Manufacturer Transformation

**Challenge:** - High unplanned downtime (15% of production time) - Quality escapes costing millions in recalls - Manual inspection unable to keep pace - Energy costs rising faster than margins

### *di-factory* Solution:

**Phase 1 - Consulting (4 weeks)** - Plant assessment and opportunity mapping - Priority use case selection - Technology and integration roadmap

**Phase 2 - MVP Development (4 weeks)** - Real-time production monitoring dashboard - IoT sensor integration for critical equipment - Alert and notification system

**Phase 3 - AI Enhancement (4 weeks)** - Predictive maintenance for critical machines - Computer vision quality inspection - Energy optimization model

**Expected Results:** - 60% reduction in unplanned downtime - 45% decrease in quality escapes - 20% improvement in OEE - 15% reduction in energy costs - \$4M annual savings

# Security & Compliance

## Industrial-Grade Security

- OT/IT network segmentation
- IEC 62443 cybersecurity alignment
- End-to-end encryption for data
- Multi-factor authentication
- Regular security assessments

## Compliance & Standards

- ISO 9001 quality management integration
- Industry-specific standards (IATF 16949, AS9100)
- Data privacy and sovereignty compliance
- Audit trails and traceability
- Documentation for regulatory requirements

## Infrastructure

- AWS/Azure with manufacturing workload optimization

- Edge computing for real-time processing
- Hybrid cloud for OT data sensitivity
- 99.9% uptime for production systems
- Disaster recovery and business continuity

# Engagement Models

## Pilot Line

*Prove value on a single line or machine* - Single use case implementation (4 weeks) - Measurable impact on key manufacturing metric - Foundation for plant-wide rollout - **Ideal for:** Risk mitigation, stakeholder buy-in

## Plant Transformation

*Comprehensive smart factory deployment* - 8-12 week program with multiple AI solutions - Integration across production systems - Full ROI realization - **Ideal for:** Committed Industry 4.0 initiatives

## Enterprise Partnership

*Multi-plant standardization and scaling* - Dedicated team and platform - Rolling sprints across facilities - Center of excellence development - **Ideal for:** Multi-site manufacturers

# Investment Framework

## Consulting Services

- Plant Assessment: Starting at \$15,000 USD
- Smart Factory Roadmap: Starting at \$25,000 USD
- Full Business Case & Strategy: Starting at \$40,000 USD

## MVP Development

- Basic Monitoring Dashboard: Starting at \$50,000 USD (4 weeks)
- Standard Production Platform: Starting at \$80,000 USD (4 weeks)
- Complex OT Integration: Starting at \$120,000 USD (4-6 weeks)

## AI/ML Models

- Single Model (Predictive Maintenance, Quality, etc.): Starting at \$40,000 USD (4 weeks)
- Model Suite (2-3 models): Starting at \$100,000 USD (6-8 weeks)
- Enterprise AI Platform: Custom pricing

**All pricing is fixed and guaranteed. No surprises.**



# Why Now?

## Manufacturing is Transforming

- Labor shortages making automation essential
- Supply chain volatility requiring better prediction
- Sustainability pressures demanding efficiency
- Competition from AI-enabled factories globally
- Technology maturity making Industry 4.0 achievable

## AI is the Manufacturing Advantage

With *di-factory*, you can: - Deploy predictive maintenance in weeks, not years - Catch quality issues before they reach customers - Optimize production without massive capital investment - Compete with the most advanced factories globally

**The manufacturers that embrace AI now will lead their industries.**

# Next Steps

## Discovery Call

- 30-minute conversation to understand your challenges
- Initial opportunity identification
- Partnership fit assessment

## Plant Assessment

- On-site or remote evaluation
- Priority use case identification
- Fixed scope and budget proposal

## Pilot Launch

- 4-week proof of value
- Measurable results on production metrics
- Foundation for plant-wide rollout

# Let's Build the Factory of the Future Together

Ready to accelerate your smart manufacturing journey?

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