

Business Plan for Commercialization of Automated Electrodeposition Machine (AEM)

Executive Summary

The Automated Electrodeposition Machine (AEM), developed by the Prototype Engineering Development Institute (PEDI) under NASENI, represents a transformative innovation for Nigeria's industrial sector. Designed to automate electroplating processes, the AEM integrates precision monitoring, real-time control, and energy efficiency. This business plan outlines a commercialization strategy that will enable the machine to serve SMEs, educational institutions, and industries across Nigeria, while reducing import dependency, creating jobs, and positioning Nigeria as a hub for electroplating technology in Africa.

1. Company Overview

- **Institution:** Prototype Engineering Development Institute (PEDI), Ilesa (under NASENI).
 - **Mission:** To provide indigenous, energy-efficient, and automated solutions that strengthen Nigeria's industrial base.
 - **Vision:** To position Nigeria as a regional hub for electroplating technology and sustainable industrialization.
 - **Mandate Alignment:** Supports NASENI's Strategic Launchpad and the Ministry of Mines and Steel Development's industrial diversification agenda.
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2. Product Description

- **Name:** Automated Electrodeposition Machine (AEM).
 - **Features:**
 - Automated plating control with real-time monitoring.
 - Instantaneous mass measurement.
 - Auto-shutdown at target coating mass.
 - Compact, energy-efficient, and user-friendly design.
 - Suitable for SMEs, technical institutions, and scalable industrial production.
 - **Value Proposition:** Consistent plating quality, reduced waste, cost savings, environmental compliance, and affordable pricing for SMEs.
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3. Market Analysis

- **Global Market:** Electroplating market valued at **USD 17.8 billion (2023)**, projected to reach **USD 24 billion by 2030** (Grand View Research, 2024).
 - **Nigerian Market:** Electroplating equipment and services market grew **35% in 2024**, reaching **₦6 billion** (Transparency Market Research, 2024).
 - **Target Customers:**
 - SMEs in automotive, food processing, electronics, and manufacturing sectors.
 - Universities and technical institutions.
 - Large-scale manufacturers seeking import substitution.
 - **Market Drivers:**
 - Rising demand for quality surface finishing.
 - Increasing industrialization and SME participation.
 - Government push for import substitution and economic diversification.
 - **Competitive Landscape:** Dominated by imported machines from China, Germany, and France. AEM's competitive advantage lies in affordability, localized support, and alignment with government policy.
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4. Business Model

- **Revenue Streams:**
 - Direct sales of AEM units.
 - Service contracts (plating services, machine maintenance).
 - Training programs for operators and SMEs.
 - Export sales to West African markets under AfCFTA.
 - **Pricing Strategy:** Competitive pricing tailored for SMEs while maintaining profitability.
 - **Distribution Channels:**
 - Direct sales through NASENI and its development institutes.
 - Regional distributors and dealers.
 - Online sales platforms.
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5. Operations Plan

- **Production Process:**
 - Year 1: Industrial prototyping, certification, and pilot production.
 - Year 2: Pilot sales and feedback integration, expansion of production facilities.
 - Year 3: Full-scale production and export readiness.
- **Facility:** PED Ilesa with expansions funded through commercialization grants and partnerships.
- **Collaborations:**
 - NASENI development institutes for scaling.
 - Partnerships with SMEs, MAN, and NASSI for adoption.
 - Academic institutions for training and research.

6. Marketing & Sales Strategy

- **Awareness Campaigns:** Workshops, live demonstrations, and SME cluster engagement.
 - **Digital Marketing:** Professional website, SEO, LinkedIn campaigns, webinars.
 - **Partnerships:** Trade associations (MAN, NASSI) and government agencies.
 - **Exhibitions & Trade Fairs:** National and international platforms to showcase innovation.
 - **After-Sales Service:** Nationwide service centres and technical training for operators.
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7. Financial Plan

- **Estimated Budget:** ₦1.5 billion over 3 years.
 - **Funding Requirements:** NASENI grant (₦1.5 billion).
 - **Projected Revenue:** ₦10 billion cumulative sales over 5 years.
 - **ROI:** 396% (\approx 79% per year)
 - **Break-Even Point:** Within 2 years of full commercialization.
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8. Risk Analysis

- **Risks:**
 - Competition from imported machines.
 - Currency fluctuations affecting raw material costs.
 - Regulatory compliance costs.
 - **Mitigation:**
 - Competitive pricing and local support services.
 - Sourcing local materials where possible.
 - Strong environmental management systems.
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9. Implementation Timeline

- **Months 1–6:** Market survey, business plan finalization, partnerships, and initial funding.
 - **Months 7–12:** Industrial prototyping, certification, and pilot production.
 - **Year 1:** Pilot sales, scaling production facilities, and SME training.
 - **Year 2:** Full commercialization, export readiness, and nationwide after-sales support.
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10. Conclusion

The commercialization of the Automated Electrodeposition Machine is a strategic project with high economic and social returns. It will modernize Nigeria's electroplating industry, empower SMEs, create jobs, and conserve foreign exchange. With NASENI's leadership and the right funding support, this innovation can become a flagship model for indigenous technology commercialization and industrial transformation in Nigeria.

References

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