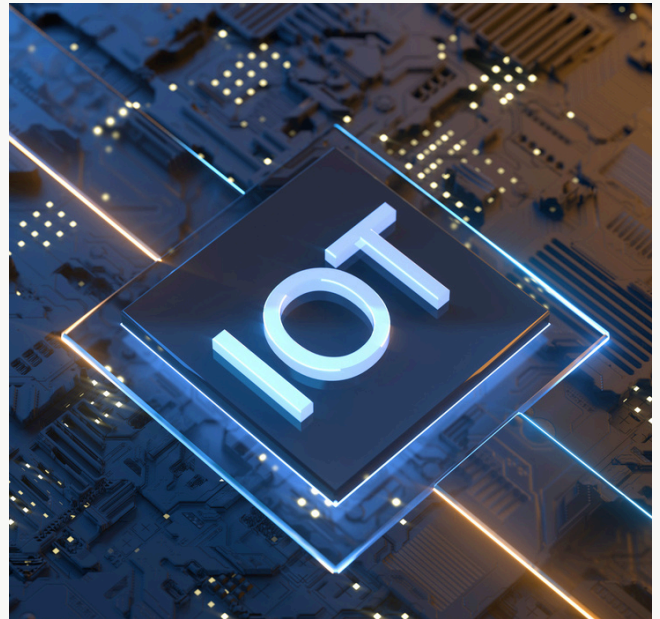




NRB Food Proposal

Transforming
Manufacturing, One Smart
Solution at a Time

- 01 Executive Summary
- 02 The Problem
- 04 Possible Causes
- 05 Proposed Solution
- 06 Impact on Stakeholders
- 07 Qualifications
- 08 Timing and Cost
- 09 About us
- 10 Terms and Conditions



Executive Summary

NRB Food, a medium-sized manufacturer of beef and pork products, has experienced a notable decline in operational efficiency and product output over the past year. The plant consistently fails to meet weekly goals concerning both the quantity of pounds produced and the cost per pound. This decline has been accompanied by frequent disputes among the management team, indicating a deeper issue of misalignment and lack of clear data to guide decision-making processes.

To address these challenges, we propose implementing a comprehensive Industrial Internet of Things (IIoT) solution. This multifaceted technological approach incorporates the latest technologies such as sensing equipment, real-time data analytics, and intelligent automation to generate a well-integrated and highly productive operational architecture.

The proposed solution includes:

1. IIoT sensor deployment for equipment monitoring and quality control
2. A data analytics platform for real-time data processing and predictive maintenance
3. Automated control systems for process automation and dynamic scheduling
4. Enhanced communication protocols for integrated communication and change management
5. Compliance and safety monitoring systems

The implementation of this IIoT solution will significantly impact various stakeholder groups within the plant, including production staff, quality control teams, maintenance crews, plant management, the IT department, and external stakeholders such as suppliers and customers. Strategies to engage and support these groups effectively are outlined in the proposal.

The implementation plan is structured around a 9-month timeline, with a total cost of \$430,000. The plan is divided into six key steps: initiation and planning, technology selection, system design and development, implementation and integration, monitoring and controlling, and evaluation and closure.

By implementing this IIoT solution, NRB Food aims to enhance operational efficiency, improve employee productivity, manage product quality, maintain compliance, and align with business values. The successful execution of this plan will position NRB Food to overcome its current challenges and achieve its production goals.



Description of the Problem

At NRB Food, a notable decline in operational efficiency and product output has been observed over the past year, raising significant concerns regarding the plant's ability to meet its production goals. As a medium-sized manufacturer of beef and pork products located 40 miles outside a major US East Coast city, NRB Food prides itself on its ability to produce approximately 1 million pounds of product each week. However, recent trends indicate a troubling decrease in attainment—the percentage of pounds produced against the expected output for the day.

The plant's key performance indicators have shown consistent failure to meet weekly goals concerning both the quantity of pounds produced and the cost per pound. This decline has been accompanied by frequent disputes among the management team during the 9 AM stand-up meetings, which often devolve into arguments without reaching a resolution. These conflicts are particularly pronounced between Luiz, the Production Manager, and Stacy, the Quality Manager, indicating a deeper issue of misalignment and lack of clear data to guide decision-making processes.



Possible Causes of the Problems

Understanding the root causes of operational inefficiencies at NRB Food is essential to formulating effective solutions. The problems are multifaceted, involving human resources, equipment reliability, and procedural issues. Each contributes to the overall decline in production and quality standards:

Human Resource Limitations:

- *Staffing Shortages*: Despite having seven manufacturing lines capable of handling various orders, the plant consistently operates only 3-4 lines due to a lack of sufficient staff. The competitive job market in the area exacerbates this issue, making it difficult to maintain the workforce needed for optimal production levels.
- *Training and Skill Gaps*: The existing workforce may lack the necessary skills or training to handle the complexities of modern food manufacturing efficiently, particularly in operating advanced machinery and adhering to strict quality control measures.

Operational Coordination Failures:

- *Poor Synchronization Between Teams*: Delays and inefficiencies often occur due to misalignment between the batching and forming teams. If the batching team prepares mixes either too early or late, it leads to either downtime due to waiting or spoilage from overexposure.
- *Ineffective Shift Changeovers*: The cross shift turnover, particularly with the four-day work week and long shifts, may lead to misunderstandings and lags in operations, which are directly related to the beginning and end of producing lines.

**Equipment and Technology Issues:**

- *Worn-out Plant:* Certain machines that are at the plant such as forming and carton machines, often jam or breakdown. This can be said that the tools may be old and not be able to comply with the current machines demands.
- *Lack of Automation and Modernization:* The plant mainly relies on manual processes and they have not fully adapted the latest digital solutions that can automate and optimize production, and in consequence this leads to inefficiencies and error opportunities of human cause.

Quality Control Discrepancies:

- *Inconsistent Standards and Procedures:* There is evident inconsistency in how quality control measures are applied and interpreted between shifts and departments. This inconsistency often leads to conflicts between production and quality teams, particularly in decisions about the usability of batches.
- *Inadequate Data Management:* The lack of precise, real-time data collection and analysis tools prevents the team from making informed decisions. This is particularly problematic in a fast-paced environment where the timing of batch processing is crucial for compliance with safety standards.

Cultural and Communication Barriers:

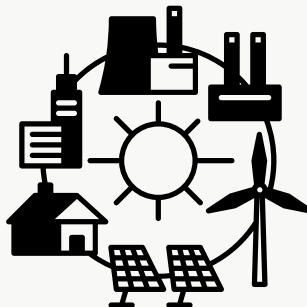
- *Resistance to Change:* There is a potential cultural resistance within the plant towards new processes or technologies, driven by fear of job loss or skepticism towards new methods.
- *Interdepartmental Conflicts:* Ongoing disputes between Luiz and Stacy, representing production and quality management, indicate a deeper issue of poor interdepartmental communication and lack of collaborative problem-solving approaches.

Proposed Solution

One of the key areas where NRB Food needs improvement is problem recognition and underlying solutions. To solve this challenge, a multifaceted technological cure based on Industrial Internet of Things (IIoT) is proposed as a solution. This solution encapsulates a number of components which are tuned to adjust the overall efficiency of production, to enhance the accuracy of data, as well as communication and coordination among departments of the plant. IIoT system to be developed is going to incorporate the latest technologies such as sensing equipment, actual-time data analytics, and intelligent automation to generate a well-integrated and highly productive operational architecture.

IIoT Sensor Deployment:

- *Equipment Monitoring Sensors:* Place sensors on critical equipment , so that their operating status and health condition can be tracked online. These sensors will read tasks performance metrics like speed, temperature and output quality, making it possible to develop prediction maintenance scenarios and, consequently, avoid any unexpected stoppages.
- *Quality Control Sensors:* Integrate sensors in the production line to monitor product quality continuously. These will include weight sensors, metal detectors, and temperature sensors that ensure each product batch complies with safety and quality standards.



**Data Analytics Platform:**

- *Real-Time Data Processing:* Utilize a robust IIoT platform to collect and analyze data from various sensors throughout the plant. This platform will provide actionable insights and visual dashboards to management and floor supervisors, aiding in immediate decision-making.
- *Predictive Analytics for Maintenance:* To build machine learning algorithms and predict equipment failures and repairs that are due. Through the examination of historical and real-time data, the system will notify the maintenance crew of any possible incidents that could occur without having to wait for a breakdown.

Automated Control Systems:

- *Process Automation:* Introduce automated systems to control critical aspects of production, such as mixing ratios, forming speeds, and packaging. Automation will help standardize operations across shifts and reduce the dependency on manual adjustments, minimizing human error.
- *Dynamic Scheduling Tools:* Deploy advanced scheduling software that adjusts production plans in real-time based on various factors such as order volume, equipment status, and workforce availability. This tool will help optimize the use of available lines and staff.

Enhanced Communication Protocols:

- *Integrated Communication System:* Develop a unified communication platform that connects different departments, facilitating smoother interactions and quicker resolution of issues. This system will include features like instant messaging, issue tracking, and automated alerts.
- *Training and Change Management:* Conduct comprehensive training sessions for all employees on the new technologies and processes. Additionally, implement a change management program to address and mitigate any resistance to new operational methods.



Compliance and Safety Monitoring:

- *Continuous Automated Compliance check:* Enforce food safety standards through sensors and data analytics. The system will automatically record all data required for compliance which in turn will reduce the clerical overload and increasing correctness of the gathered data.
- *Safety Monitoring Systems:* Set up safety monitoring devices for detection of hazardous situations and deviations of safety norms that instantly signal the safety manager and if needed shut off the process.

Alignment with Business Values:

The above solution addresses five dimensions of value in business. It enhances operational efficiency through predictive maintenance, improves employees productivity with automation and management of product quality, which is monitored continuously, and finally it is so as it maintains compliance with the automated documentation and safety checks in place.

012

Years of operations

100+

Happy clients

50+

Staff members

"We take pride in our ability to understand the intricate nuances of each business we work with. By blending our technical expertise with a deep understanding of our client's industries, target audiences, and goals, we create tailored solutions that deliver tangible results. Our dedication to client success is reflected in our track record of helping businesses achieve increased brand visibility, higher conversion rates, and sustained growth."

Richard Sanchez
General Manager



Impact on Stakeholders

The implementation of the IIoT solution at NRB Food will significantly affect various stakeholder groups within the plant. Understanding and managing these impacts is crucial to ensuring a smooth transition and maximizing the benefits of the new technologies. Below, we discuss the primary groups likely to be affected and propose strategies to engage and support them effectively.

Production Staff (Operators and Line Workers):

- *Impact:* The introduction of automation and real-time monitoring systems will change daily routines and responsibilities for production staff. While it may reduce the manual burden, it could also create apprehensions about job security and the need for new skills.
- *Mitigation Strategy:* Implement comprehensive training programs that provide the necessary skills for operating new machinery and systems. Establish clear communication about the role of automation in assisting, not replacing, the workforce. Highlight the benefits of reduced physical strain and the opportunity for upskilling.

Quality Control Team:

- *Impact:* Not just quality managers and analysts but also the rest of the team will have full control of the data, which will ease the compliance process. The paradigm shift from the application of manual controls towards automatic observations and datadriven management decision-making could probably necessitate a major adaption of the works processes.
- *Mitigation Strategy:* Offer a course on reading data from the new system and a way to incorporate it into the quality control processes. Get the quality team involved in designing and deployment of the analytics platform thereby a platform that is in tune with their needs can be rolled out.

**Maintenance Crew:**

- *Impact:* Jointly with IIoT-enabled predictive maintenance provides opportunity for maintenance staff to operate in a more proactive mode, not reactive. Such transition can bridge the job satisfaction but at the same time require more expertise and familiarity with the data analysis techniques.
- *Mitigation Strategy:* Provide training centered on knowledge of preventative maintenance, data analysis, and fault finding for the new machines. Such partnerships could provide for equipment provision and for the specially designed training or certification programs to be held.

Plant Management and Supervisors:

- *Impact:* Managers will get the full end-to-end visual control system, helping them to make informed and timely decisions, and that too in real time. One of the challenges will be to adjust to a culture that is driven by data and to possibly manage changes in the organization of the team and the dynamics of communication between team members.
- *Mitigation Strategy:* Management should be involved from the beginning of the process by giving them plannings and decision-making roles. Create leadership training that focuses on change management, identifying competitive technology edge, and embedding a culture for continuous improvement.

IT Department:

- *Impact:* The IT department will play a critical role in integrating new technologies with existing systems, ensuring data security, and managing the increased data flow. This will increase their workload and require advanced knowledge in network security and data management.
- *Mitigation Strategy:* Strengthen the IT department with additional resources and training in the specific technologies being deployed. Ensure they have direct access to vendors and consultants for expert support. Implement regular updates and security protocols to protect sensitive data.

External Stakeholders (Suppliers and Customers):

- *Impact:* Suppliers will need to align with the new production schedules and possibly adapt to new quality requirements. Customers will benefit from higher consistency in product quality and potentially faster order fulfillment.
- *Mitigation Strategy:* Maintain open lines of communication with suppliers about any changes in production processes that might affect them. For customers, market the improvements in product quality and reliability as direct benefits to them, potentially enhancing customer satisfaction and loyalty.





Qualifications

Our team at Excelsior Technologies are uniquely qualified to implement the proposed IIoT solution for NRB Food. With a proven track record of successful industrial technology deployments, we bring a wealth of experience and expertise to ensure the project's success.

Key qualifications include:

1. Extensive IIoT Experience

- Our team has successfully implemented IIoT solutions in various industries, including food manufacturing, automotive, and aerospace.
- We have a deep understanding of the unique challenges and requirements of integrating IIoT technologies in production environments.

2. Certified Professionals

- Our team consists of certified professionals in IIoT technologies, data analytics, and automation systems.
- We have certified Project Management Professionals (PMP) who will oversee the implementation process and ensure timely delivery.

3. Strong Vendor Partnerships

- We have established partnerships with leading IIoT technology vendors, ensuring access to the latest and most reliable solutions.
- Our vendor partnerships allow us to provide competitive pricing and expedited technology acquisition.



4. Customized Solutions

We understand that each manufacturing plant is unique, and we specialize in developing customized IIoT solutions tailored to specific needs.

- Our team works closely with clients to understand their processes, challenges, and goals to design and implement solutions that deliver maximum value.

5. Comprehensive Training and Support

- We believe in empowering our clients' workforce to fully leverage the benefits of IIoT technologies.
- Our team provides comprehensive training programs for all stakeholders, ensuring a smooth transition and adoption of new systems.
- We offer ongoing support and maintenance services to ensure the long-term success and reliability of the implemented solutions.

6. Proven Results

- Our past IIoT projects have consistently delivered measurable improvements in operational efficiency, product quality, and cost reduction.
- We have helped clients achieve up to 30% increase in overall equipment effectiveness (OEE) and 20% reduction in unplanned downtime.

By combining our technical expertise, industry experience, and customer-centric approach, Excelsior Technologies is well-positioned to deliver a successful IIoT implementation for NRB Food. We are committed to working closely with NRB Food's team to overcome current challenges and achieve the desired outcomes of enhanced efficiency, product quality, and compliance.



Implementation Plan, Costs, and Timeline

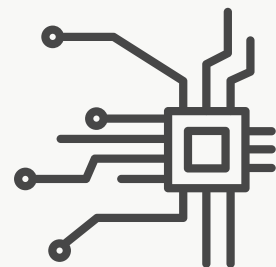
The implementation of the IIoT system at NRB Food is structured around a strategic framework that spans six key steps, ensuring a systematic and effective deployment. Each step includes specific activities designed to meet the outlined objectives within a 9 month period. The cost for the proposal total is \$430,000.

Initiation and Planning (Month 1-2) \$35,000

- *Project Management:* Define clear goals for the IIoT implementation, including efficiency improvements, cost reduction, and enhanced quality control. - \$20,000
- *Stakeholder Engagement:* Conduct meetings with all affected groups to discuss the benefits and changes the IIoT system will bring. - \$5,000
- *Resource Allocation:* Assign project managers and form cross-functional implementation teams comprising members from IT, production, maintenance, and quality control. -\$10,000

Technology Selection (Month 2-3) \$145,000

- *Vendor Evaluation:* Identify and evaluate potential vendors for IIoT sensors, analytics platforms, and automation technology. -\$15,000
- *Pilot Testing:* Select a single production line to test the integration of IIoT sensors and the data analytics platform. -\$30,000
- *Technology Acquisition:* Finalize procurement of the IIoT hardware and software solutions based on the results of the pilot tests. -\$100,000



**System Design and Development (Month 3-4) \$65,000**

- *System Architecture Design:* Collaborate with IT and selected vendors to design the IIoT infrastructure that integrates seamlessly with existing systems. -\$25,000
- *Customization and Configuration:* Customize the software platforms to fit specific operational needs and ensure user-friendliness for staff at various levels. -\$40,000

Implementation and Integration (Month 4-6) \$105,000

- *System Installation:* To start the IIoT devices and sensor installation at all the plant. -\$50,000
- *Integration Testing:* Perform rigorous testing to be certain that all components within the IIoT network are successfully integrated with the company's current procedures and infrastructures. -\$25,000
- *Employee Training:* Launch the training programs for all the participants that will encompass the ability of operating the systems and interpreting the data they provide. -\$30,000

Monitoring and Controlling (Month 6-7) \$35,000

- *Performance Monitoring:* Make use of the analytics platform to measure the system's performance across the areas of production efficiency and product quality. -\$15,000
- *Issue Resolution:* Immediately fix as well as handle any technical issues and user concerns that will arise to avoid disruptions in the production process. -\$10,000
- *Adjustments and Optimizations:* Adjust system settings in line with optimal performance and user comfort levels by tweaking the configurations appropriately. -\$10,000

Evaluation and Closure (Month 7-9) \$45,000

- *Impact Assessment:* Evaluate the system's impact against the initial objectives set during the planning phase. -\$20,000
- *Feedback Collection:* Gather feedback from all stakeholders to assess satisfaction and identify areas for further improvement. -\$10,000
- *Final Reporting:* Compile a final report detailing the implementation process, outcomes, and recommendations for future phases or additional functionalities. -\$15,000

Timeline Visualization: A Gantt chart will be used to visualize the timeline, assigning specific dates to all major activities and milestones. This chart will be regularly updated and shared with stakeholders to keep everyone informed of the project's progress.





About Us

Founded in 2010, Excelsior Technologies is a leading provider of Industrial Internet of Things (IIoT) solutions for the manufacturing industry. With a team of highly skilled professionals and a passion for innovation, we have been at the forefront of the digital transformation revolution, helping businesses optimize their operations and achieve sustainable growth.

At Excelsior Technologies, we believe that the key to success in today's competitive manufacturing landscape lies in harnessing the power of data and advanced technologies. Our mission is to empower manufacturers with the tools and insights they need to streamline processes, improve quality, and drive operational excellence. Over the past decade, we have successfully implemented IIoT solutions for a diverse range of clients, from small-scale production facilities to large multinational corporations. Our portfolio spans various industries, including food and beverage, automotive, aerospace, and pharmaceuticals. We take pride in our ability to deliver customized solutions that address the unique challenges and goals of each client. Our team comprises certified experts in IIoT technologies, data analytics, automation systems, and project management. We foster a culture of continuous learning and innovation, ensuring that we stay at the cutting edge of the latest technological advancements. Our collaborations with leading technology vendors and research institutions keep us at the forefront of the industry.



Samira Hadid

CEO



Lars Peeters

Engineering



Morgan Maxwell

IT



Olivia Wilson

Accounting



Terms And Conditions

1. **Scope of Services** 1.1 Excelsior Technologies agrees to provide the services outlined in the proposal document, including the design, implementation, and support of the Industrial Internet of Things (IIoT) solution for NRB Food. 1.2 Any additional services or modifications to the agreed-upon scope will be subject to separate negotiations and agreements.
2. **Payment Terms** 2.1 NRB Food agrees to pay Excelsior Technologies the total sum of \$430,000 for the services provided, as outlined in the implementation plan and cost breakdown. 2.2 A 30% upfront payment is required upon signing the contract, with the remaining balance to be paid in installments based on project milestones. 2.3 All payments are to be made within 30 days of invoice receipt.
3. **Intellectual Property** 3.1 All intellectual property rights related to the IIoT solution, including software, hardware, and customizations, will remain the property of Excelsior Technologies. 3.2 NRB Food is granted a non-exclusive, non-transferable license to use the IIoT solution for its internal business purposes.
4. **Confidentiality** 4.1 Both parties agree to maintain the confidentiality of any proprietary information shared during the course of the project. 4.2 Confidential information shall not be disclosed to third parties without prior written consent from the other party.
5. **Warranties and Liabilities** 5.1 Excelsior Technologies warrants that the IIoT solution will perform in accordance with the specifications outlined in the proposal. 5.2 Excelsior Technologies shall not be held liable for any indirect, incidental, or consequential damages arising from the use of the IIoT solution.
6. **Project Timeline** 6.1 The project will be executed according to the 9-month timeline provided in the implementation plan. 6.2 Any delays caused by NRB Food, such as providing necessary information or access, may result in adjustments to the project timeline.
7. **Termination** 7.1 Either party may terminate the agreement with a 30-day written notice if the other party breaches any material term of the agreement and fails to cure the breach within the notice period. 7.2 In the event of termination, NRB Food shall pay Excelsior Technologies for all services performed up to the date of termination.
8. **Governing Law** 8.1 This agreement shall be governed by and construed in accordance with the laws of [State/Province].
9. **Entire Agreement** 9.1 This document, along with the proposal, constitutes the entire agreement between Excelsior Technologies and NRB Food concerning the IIoT solution project. 9.2 Any changes or modifications to the agreement must be made in writing and signed by both parties.

10.

By signing below, both parties acknowledge that they have read, understood, and agree to be bound by the terms and conditions outlined in this document.

Excelsior Technologies

Signature: _____

Name: _____

Title: _____

Date: _____

NRB Food Authorized

Authorized Signature: _____

Name: _____

Title: _____


Date: _____



Excelsior Technologies

Transforming Manufacturing,
One Smart Solution at a Time

 www.davidbjolley.com

 123-456-7890

 dj@davidbjolley.com