Improving Production Efficiency, Cost Accuracy, and Scalability

Digital Twin of an Organization (DTO) powered by Collaborative Business Planning (CBP)

Business Context

Made with Local is a small energy bar and cookie manufacturer located in Windsor, NS, with major retail customers and online sales across Canada. Operating a food manufacturing environment with multiple production lines and strict hygiene requirements, Made with Local sought to improve production efficiency, output capacity, and cost accuracy to support rapid business growth.

As a fast-growing food manufacturer, Made with Local faced challenges with:

- Limited visibility into labour efficiencies and true resource utilization across product lines
- Unclear product and customer-specific costing across retail channels and online sales
- Process bottlenecks and the impact of product waste and scrap not well quantified
- Production floor data quality insufficient to support operational planning and costing decisions

These constraints created a need for a more integrated, data-driven operational and financial planning capability to support scaling.

Key Problem Statement

Made with Local lacked a unified model to:

- accurately represent the full resource structure for production, packaging, warehousing, and overhead
- develop accurate individual product and customer-specific packaging and handling costs
- identify process bottlenecks and evaluate improvement opportunities with confidence before implementation

CBP-DTO Solution Approach

Made with Local implemented a **Digital Twin of the Organization (DTO)** using **Collaborative Business Planning (CBP)**, supported by the **QualiWare** platform. The DTO modeling scope covered the entire resource structure for the business, including:

- Two separate production/forming lines for bars and cookies with a common blending/mixing process
- Packaging line and warehousing operations covering receiving, inventory, and shipping
- Product changeovers, scrap and rework, hygiene and facility & equipment cleaning
- Senior management, production management, operator labour, facility, equipment, utilities, and BOM

Data sources included “Hub” (Made with Local’s in-house ERP database), labour and equipment efficiency data from interviews and observations, and online sales data from Shopify.

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Key Capabilities Enabled by CBP

- **End-to-End Operational Visibility** Single integrated model of production, packaging, warehousing, and support activities across both bar and cookie lines
- **Granular Product and Customer Costing**
  Accurate individual product costs and specific packaging/handling costs for major national retail customers and direct online sales
- **Labour and Resource Utilization Modeling**
  Quantification of labour efficiencies and overall utilization across all production and support activities
- **Constraint-Based Planning**
  Identification of process bottlenecks and quantification of the impacts of product waste and scrap on capacity and cost
- **Data Quality Awareness**
  Demonstrated the critical importance of production floor data quality for accurate operational planning and costing decisions

Quantified Business Benefits

Operational Efficiency

- Improved visibility into production floor performance and resource utilization
- Identification of process bottlenecks and waste impacts as targets for continuous improvement

Decision Quality

- Accurate, customer-specific cost understanding to support pricing and margin improvement decisions
- Data-driven foundation to evaluate new product lines and future capacity scaling decisions

Return on Investment

The Made with Local COO considers the ROI for this pilot effort to be very positive, citing meaningful improvements in operational insight and costing accuracy as the key outcomes.

Implementation Timeline: ~ 3 months to full facility DTO

Made with Local's DTO implementation was funded through the NGen DTO Adoption Program, supporting Canada's Advanced Manufacturing initiative. The project engaged the company's operational leadership and demonstrated that DTO adoption is accessible and highly valuable even for smaller food manufacturers navigating rapid growth.

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Why CBP for DTO?

- Purpose-built for operational and financial digital twin modeling

  Combines:

  - Value Stream and Activity-Based Planning process modeling
  - Resource planning based on Theory of Constraints (TOC)
  - Simulation of both operational and financial flows, costs and profitability
- Enables practical, executable DTOs — not just conceptual models
- Proven in complex manufacturing and food production environments

Key Benefits of CBP-DTO Modeling

- Clear visibility into true production constraints, labour efficiencies, and available capacity
- Accurate customer-specific cost modeling to improve pricing, margins, and competitiveness
- Stronger foundation for continuous improvement and operational optimization as the business scales
- Improved alignment between operations and finance through an integrated operational and financial model
- Ability to cost new products and evaluate future demand and capacity scaling scenarios

For more information

Assess your organization's opportunity to improve capacity, costing accuracy, and profitability using a DTO powered by CBP.

Visit: *https://cbp-software.com*

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