Nate Barber, P.E.

Continuous Improvement Consultant & Lean-Six Sigma Expert

San Antonio, TX | 210-837-3902 | nate.barber@opgrade.com | linkedin.com/in/n8barber | n8barber.com

Summary

Significant achievements directing projects and consulting as **Opgrade LLC** with clients around the globe and delivering exceptional business results by fostering cultures of continuous improvement and operational excellence. Utilizing Lean and Six Sigma strategies and tools, continuously improved products, processes, productivity and services while controlling costs.

Leverages Kaizen leadership style to reduce costs and increase revenues, while providing 3x–5x ROI for clients in diverse industries, including heavy manufacturing, software, chemicals, energy, food and drugs, paper, and others. Blends engineering background with excellent interpersonal skills to promote, expedite and maximize team performance while forging consensus from the C-suite to the shop floor. Can contribute immediately by:

- ❒ **Instilling and maintaining a culture of collaboration and operational excellence**
- ❒ **Managing programs and projects from strategic design through to tactical implementation**
- ❒ **Optimizing asset productivity to generate returns of 100:1**
- ❒ **Empowering teams to see and fix their own problems**
- ❒ **Removing time and material wastes to improve both quality and margins**
- ❒ **Crafting standardized, documented processes that replace problems with Best Practices**
- ❒ **Providing vision, gaining buy-in and creating alignment for automated digital processes**

Expertise

Continuous Improvement (CI) | Hoshin-Kanri Strategic Planning | Lean Manufacturing | Program & Project Management
Business Intelligence (BI) Dashboards | Kaizen Facilitation| Six Sigma | Agile | Process Optimization | Operational Excellence
Change Management | Process Mapping | Quality | Cost of Poor Quality (COPQ) | KPIs | ROI | Cash Conversion Cycle (3C)

Education

MBA Business Administration and Finance, University of Texas at San Antonio, recipient of the Drymala Leadership Award
DUAL BSE Mechanical Engineering and Chemical Engineering, cum laude, University of Michigan
Transactional Lean Six Sigma Black Belt and Licensed **Professional Engineer** in Texas

Experience

Founder, Opgrade LLC, Oct 2012 - Present. Provider of continuous improvement consulting to firms as varied as Valero, Clarcor, Fluor, Igloo and more. Founded Opgrade in 2012. As a Lean consultant, specializes in helping companies foster cultures of continuous improvement and operational excellence. As a Transactional Lean-Six Sigma expert, focuses on integrating back-office data with front-line operations.

The Opgrade Strategy: Opgrade provides its clients a structured approach to continuous improvement which teaches the concepts of Continuous Improvement (including Lean, Six-Sigma and Agile) to 12-16 client-selected Improvement Leaders. Opgrade demonstrates several successful improvement events (kaizens and discovery events), then coaches the client's Improvement Leaders to take charge of their own improvement events, empowering them to see and fix their own problems. Selected engagements and results include:

- **Enabled clients to control and track CI progress.** Developed an easy-to-deploy tool to identify, prioritize, and track the progress of Continuous Improvement (CI) efforts across multiple sites. The online Project Portfolio tool is based on Microsoft's Project Web App and enables teams to ensure the improvements they implement are sustainable and profitable across the enterprise.
- **Cut cost of poor quality for vitamin and supplement producer, generating $5.1M annual savings**. Created roadmap of improvements needed to reduce overall waste by 50%. Facilitated 5-day Discovery Event with large (20+ person) cross-functional client team. Guided client on application of Opgrade strategy, creating project plan and timeline (Gantt chart) for implementation of each initiative to deliver annualized COPQ savings within 24 months.
- **Tightened control, boosted efficiency.** Synthetic paper manufacturer lacked standard method for locating or storing consumables, resulting in excessive time to retrieve and track inventory as well as lower machine efficiencies, excess material handling, and difficulty viewing available stock. Facilitated 5-day kaizen event. Cut inventory update route by 71%, material handler route by 41%. Trimmed space needed for consumables by 23%.
- **Avoided needless expense.** Sasol needed to determine if its storm water system was adequate or if additional investment was required. Used Opcast, Opgrade's proprietary capital allocation decision tool that combines linear programming (LP) flow solving with failure frequency distributions to evaluate overall effectiveness of the storm water system for various storm cases. Definitively showed system is sufficient.

- **Streamlined order entry by 85%.** Client's order entry process was plagued by excessive paperwork and logistical obstacles. Facilitated a 5-day kaizen event that included activities such as 5S (with audit scorecard) and spaghetti mapping. Piloted the automation of the order validation process and other improvements. Cut time spent in the manual distribution of paper information by 85% and eliminated 8.4 miles of walking per week, or 438 miles per year.
- **Cut changeover time in half.** Slow die tip changeovers caused capacity constraint and loss of business at an N95 filter fabric manufacturing company. Developed and executed actionable tasks including improved shutdown procedures, a 5S audit scorecard, skills matrix, and more. Cut the changeover time from an average of 8 hours to less than 4 hours. Enabled shorter production runs, reduced annual changeover costs $12K and increased annual profit margin by more than $15K.
- **Drove EBITDA for a steel company by cutting inventory waste**. Developed and documented an Enterprise Swimlane Map that identified sources of inventory variation. Used an Opportunity Benefit vs. Effort chart (aka Size of Prize vs Ease of Seize) to select the tasks that delivered the biggest bang for the buck. Enabled the client to know which projects to implement and how to implement them in order to reduce their inventory waste by half.
- **Improved customer service, accelerated cash flow.** Enabled software company to deliver software faster, more consistently and more reliably. Deployed Lean Agile using Atlassian's project management software suite. Cut invoicing time by more than 80% and reduced customer service response time by more than 95%.
- **Slashed response time and labor.** It previously took more than 35 hours for a paper manufacturer to reply to customers' inquiries about whether their order would be shipped on time. Facilitated a 5-day kaizen event. Developed and implemented tasks that cut response time by 98% (from 35.6 hours per order to under 0.5 hours per order) and the total labor required by 73% (from 565 hours per year to 154 hours per year).
- **Optimized order-to-cash conversion cycle (3C).** Led client's team through a 5-day Hoshin Kanri strategy workshop at their industrial products facility to identify opportunities to reduce waste and improve profitability. Populated RACI (who is Responsible, Accountable, Consulted and/or Informed) grid for each action and each opportunity and displayed everything in a single X-Matrix Strategic Plan. Improved profitability $792K over 13 projects and kaizens.
- **Streamlined production planning.** Performed production planning calculations for an engineered composites client using an Excel Spreadsheet with numerous inputs. To improve schedule usability, automatically incorporated Demand Consensus spreadsheet data as well as expected planned future downtime for predictive capacity visibility. Minimized the time for production planning calculations. Significantly reduced data-entry and other user errors.

Vice-President, Barber & Barber Associates, Inc., Mar 2005 - Oct 2012. Accountable for all specialty engineering projects and staff as well as marketing and information technology. In 2012, founded Opgrade by purchasing several of Barber & Barber's assets to help parents retire.

- **Gained a competitive edge.** In absence of any off-the-shelf solutions, developed Opcast, a system for owners of complex process systems with intermediate storage (tanks) to calculate the system's mechanical availability using actual operational rules and dynamic mass balances within a process flow diagram (PFD). Opcast combines the best features of other tools (such as RAM, DES, and LP models) into one comprehensive package enabling process owners to evaluate the costs and benefits of investing in different equipment and storage capacities.
- **Performed a feasibility RAM (Reliability, Availability, Maintainability) study, optimizing ROI**. Needed to determine the projected production levels of a gas-to-liquids facility. Identified several strategies to significantly improve the mechanical availability. Using Opcast, optimized the ROI of equipment and storage tank capacities.
- **Conducted a risk management study for liquefaction expansion project**. Led the Dominion Cove Point LNG LP project to construct liquefaction facilities which provided a bi-directional service of import and export of LNG at its terminal. Corroborated the economic justification of this Project. Calculated the projected plant mechanical availability and also ran sensitivities on the baseline model to quantify potential availability gains.

Process Engineer, Fluor Corporation, Jun 2001 - Feb 2005. Produced solutions for Engineering, Procurement & Construction (EPC) projects ranging from $50M to $1B in the Oil, Gas, Power & Chemical Industries.

- **Performed a RAM analysis** on the Detailed Engineering Design that predicted the On Stream Factor (OSF) of the 190,000 BPSD grassroots upgrader by developing a stochastic model of the entire upgrader using RAMP, a RAM simulation tool.
- **Selected to serve as the facilitator of Fluor's annual Global Town Hall Meeting** in which the executive leadership team (including the CEO) gave remarks about the company's current initiatives and results. 300+ employees attended locally and 5,000+ employees listened to the live audio broadcast from around the world.
- **Performed a RAM analysis** on an Integrated Gasification Combined Cycle (IGCC) power plant to assure the financial backers that the proposed power plant's mechanical availability would be sufficient to keep the plant running to meet the project's performance guarantees.

Professional and Personal

Despite his involvement in all of the activities described above, Nate still makes time to effectively manage his family team. Along with his wife Marisa, they enjoy raising their four sons (Thomas, Samuel, Joseph, and Philip) and a little girl (Grace), ranging in ages from 13 to 2 years old.

Publications:

- Maximize Return on Capital by Using a Reliability Flow Solver
- Designing Stormwater Systems that Optimize ROI and Minimize Risk
- Tools to Reduce Uncertainty and Improve Risk Management
- Top 5: Reasons to Get Your P.E. as a Chemical Engineer

Patents:

- Methods and apparatus for mixing and distributing fluids (USPTO #7,281,702)

Community Activities (past and present): :

- BSA Southern Region Area 3 Leadership Chairman, Troop 285 Committee Member, and Eagle Scout since 1996
- Campaign Manager. Ran a congressional campaign office during the 2010 Texas Primary and helped devise general election strategies
- Web Developer. Volunteered to increase the online presence of the San Antonio Clean Technology Forum through web and social media
- Men's Ministry Leader. Helped shape the vision for the Men's Ministry, with a focus on connecting with the men of the church
- HOA Board Member & Treasurer. Responsible for the HOA's common elements, including both operations management and business affairs. As Treasurer, oversaw the HOA management company and financials.

Hobbies & Sports:

- Home improvement
- Mountain biking and road cycling
- Two Half Ironman triathlons (70.3 mile) and several Olympic and Sprint distance triathlons
- One full marathon and numerous half-marathons

