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SMALL SUSTAINABILITY SUPPLY: HOW SMALL BUSINESS AND LEAN MANUFACTURING CAN CHANGE SUPPLY CHAINS

*Carlos Lopez**

Raw material sustainability might act as a catalyst for green development throughout product creation, because the supply created by these firms would influence technology and demand trends. Sustainability raises key issues in establishing business practices across supply chains. Small businesses might address these issues by initiating green business practices at the beginning of the chain. Corporate action usually directs the supply chain by interpreting the demands and expectations of end consumers. Corporate firms are closer to consumers and understand the nuances of product demand, thus having the background to understand what materials to introduce for market success. For firms further along the supply chain, raw material suppliers can act as trendsetters. This feature will argue that small business can provide versatility in raw material supply and business management that deserves the attention of policy makers and green development strategists.

Firms evaluate new products based on demand predictions, development viability, and fiscal impact.¹ The product idea is proposed, after which the concept and corresponding marketing is fine-tuned. The firm analyzes and develops a proposed product, prior to testing marketability.² During this process, product ideas are judged based on potential success. In developing the concept, firms consider how consumers will react to the product and its presented benefits.³ While this process is more apparent in the corporate-consumer relationship, the raw supplier-corporate dynamic also features this tension.

Additionally, small business practices facilitate supply chain sustainability. When a corporate firm creates a new product, it becomes the consumer for material suppliers. Now, the suppliers must consider the corporate entity as an end consumer. Due to a small scale and managerial flexibility, small businesses approach product development with a more even spread of resources. When a small size supplier considers a new product for corporate firms, it should focus on helping the firm become more sustainable and eco-friendly. This environmentally conscious focus will likely please consumers concerned about the biosphere or anxious for low-involvement participation in sustainability.

Supplementing the above market factors, the Environmental Protection Agency has outlined several approaches to chain sustainability as part of its Lean Practices initiative.⁴ These approaches require firm flexibility and ease of response to demand. The original streamlining model is the Toyota Production System. Beginning in the 1940s, Toyota developed a management philosophy that has since influenced manufacturing and business efficiency in the form of lean manufacturing.⁵ Lean manufacturing focuses on the

elimination of waste in its various manifestations. This waste can either be related to process inconsistencies and overburden, or excessive production. Thus, a manufacturer achieves maximum production potential by constantly striving to reduce these forms of waste.⁶ This attention to detail creates comprehensive quality standards, which aim to benefit the product at every step.

Implementing this mentality, firms most effectively reduce waste by analyzing product design processes and implementation. Special focus should be directed towards processes involving both humans and automation because these processes are prone to inefficiencies.⁷ Automation should be implemented with enhancing human process in mind. Key practices include tailoring output to actual, real time demand, quickly identifying waste, and continuing process improvement.⁸

Waste emerges in the form of production techniques or product design, especially product composition. Firms can identify what materials will be efficient for the end chain product design, minimal costs, process efficiencies, and environmental impact. A small business may address the demands of corporate firms and proceed to exceed the sustainability required by these demands.⁹ As the corporate sustainability climate shifts, small business will have a unique adaptability for addressing these niche needs because they can effectively research and manage quick overhaul.

Thus, small business has a special versatility that accommodates lean manufacturing. The scale of these businesses allows for processes to be streamlined and efficiently analyzed. Managers can more directly interact with employees involved in the targeted processes. This management approach can be used in the generation of any product, but becomes a natural supplement to the production of sustainable and green products. A business does not even have to prioritize environmental efficiency to achieve sustainability, only firm efficiency.¹⁰

Finally, small business also receives special attention from the federal government. The sector is greatly aided by the Small Business Administration.¹¹ The SBA offers grant and loan programs, which provide finance for small business endeavors.¹² The Administration also provides resources for smaller entities dealing with a range of economic considerations, offering guidance for multiple industries.¹³ Additionally, EPA provides documents focused on environmental compliance for small businesses.¹⁴

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Supply chain sustainability will provide many challenges for future manufacturing. The product development and creation processes will be most affected, as firms look to restructure production to meet emerging market trends and corporate ideology. Lean manufacturing and related practices foster a sense of sustainability, from streamlining production flow to rethinking

product composition. Small business will be able to address these expectations and challenges by efficiently incorporating sustainable practices, satisfying emerging corporate sustainability, and utilizing specialized government support. Combined with the attention of policy makers, sustainable supply chains can be built on small business.



ENDNOTES

¹ See generally *Principles of Marketing: New-Product Development and Product Life-Cycle Strategies*, OHIO UNIV. 1, 1-12, (last visited Apr. 9, 2017), www.ohio.edu/people/gupta/MKT202Kotler/Chapter%2009.ppt.

² See generally *id.* at 8-12.

³ See generally *id.*

⁴ See *Lean Manufacturing*, ENVTL. PROTECTION AGENCY, (last visited Apr. 1, 2017) <https://www.epa.gov/lean/lean-manufacturing-and-environment>.

⁵ See *Toyota Production System*, TOYOTA, (Apr. 9, 2017) http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/; see also *Lean Thinking and Methods—Introduction*, ENVTL. PROTECTION AGENCY, (last visited Apr. 1, 2017), <https://www.epa.gov/lean/lean-thinking-and-methods-introduction>.

⁶ See TOYOTA, *supra* note 5.

⁷ See *id.*

⁸ See *id.*

⁹ See, e.g., *Lean—General Motors Corporation*, ENVTL. PROTECTION AGENCY, (last visited Apr. 9, 2017) <https://www.epa.gov/lean/general-motors-corporation>.

¹⁰ See, e.g., *Lean—Goodrich Corporation*, ENVTL. PROTECTION AGENCY, (last visited Apr. 19, 2017) <https://www.epa.gov/lean/goodrich-corporation> (mentioning that Goodrich had not considered environmental factors when it streamlined its manufacturing at Chula Vista, reducing its facility from five buildings to two and doubling output).

¹¹ See *Small Business Act*, 15 U.S.C. §§ 631, 633 (describing the promotion of small business interests as a national concern and empowering the Small Business Administration to oversee the execution of the Act).

¹² See *Loans and Grants*, SMALL BUS. ADMIN., (last visited Apr. 9, 2017) <https://www.sba.gov/loans-grants/see-what-sba-offers>.

¹³ See *Learn about Business Laws*, SMALL BUS. ADMIN., (last visited Apr. 9, 2017) <https://www.sba.gov/starting-business/learn-about-business-laws>; see also *Business Guides By Industry*; SMALL BUS. ADMIN., (last visited Apr. 9, 2017) <https://www.sba.gov/managing-business/business-guides-industry>.

¹⁴ See *Environmental Knowledgebase: How Can a Small Business Owner Get Help Understanding Requirements and Regulations?*, ENVTL. PROTECTION AGENCY, (last visited Apr. 9, 2017) <https://publicaccess.zendesk.com/hc/en-us/articles/211395518-How-can-a-small-business-owner-get-help-understanding-requirements-and-regulations->.

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