

Virtual Operations

A White Paper

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1. Abstract

This paper discusses Virtual Operations, a concept that will enable companies of all sizes to make their product-related operations more agile and efficient by minimizing fixed opportunity costs through participation in alliances featuring outsourced operations focused on specific market opportunities.

2. Background

In the 1980's many American companies began to focus on the principles espoused by W. Edwards Deming and Joseph Juran, two of the leaders of the quality revolution in Japan that led to the Toyota Production System. This focus often manifested itself in Six Sigma programs and competition for the Malcolm Baldrige National Quality Award. Juran was known as a quality management expert and Deming as a statistical quality control expert, and indeed they were, but the principles that drove their teachings have now proven effective in a far broader range of activities. Virtual Operations evolved from the early teachings of Deming and Juran, with a few new twists along the way.

For most companies embracing the Deming and Juran principles, the aforementioned programs were the beginning of the end of the vertical integration era. One CEO of a major semiconductor company coined the phrase, "from sand to systems", and that was an accurate summation of that dying era of American production. Vertical integration was no longer competitive in the new world environment where flexibility and agility to address markets and react to competition is critical to success, so companies began to adopt new and better ways to do business.

There was much talk about "virtual companies" and "lean strategies" by the early 90's. This focus was the natural result of applying the Juran and Deming management principles on a wider scale. The legacy functional organizations, including purchasing, engineering, legal, and manufacturing, resisted this change, demonstrating the tendency of old cultures to change with great reluctance. Those who embraced the progressive new approaches have now demonstrated many times over that the management principles that Deming and Juran developed are general in nature, and when properly applied to any management problem, they result in success.

This paper deals with how to use these principles to form collaborative, multi-company alliances that allow small and medium sized companies to compete successfully with the largest, most successful companies in the world. It will guide you through an understanding of how to make your company more agile and efficient by applying these principles using Virtual Operations.

3. Introduction

Market opportunities may arise in a company's existing target market, a related market, or a market that is only peripheral to the current business. All of these opportunities will have associated market windows. To take advantage of market opportunities while the market window is open, New Product Development and Introduction must be rapid, timely, and focused, utilizing highly trained and experienced people to be effective. The problem addressed in this paper is the ability of companies of all sizes to respond to rapidly changing and newly emergent markets without adding an inappropriate level of fixed cost in the form of payroll and benefits for workers who are needed periodically.



Figure 1
Target Markets

4. Proposed Solution

a. Introduction of Virtual Operations

Today's international business environment seems, at first glance, to be dominated by huge corporations. In a way it is, but in another way it isn't. Big corporations have the access to markets and capital needed to dominate large mass markets, but they frequently lack the agility, creativity, and efficiency to create new markets, compete effectively in small or interim markets, or to meet the challenges of new competitors. Large corporations, when successful, develop symbiotic relationships with smaller companies and form Enterprise Alliances; Virtual Operations is an Enterprise Alliance. Smaller companies may also form symbiotic relationships with each other to compete effectively in the global marketplace. A collaboration of small and mid-sized companies can compete with the large corporations on the capital front, especially when efficient use of capital is factored in, but they may not be competitive in market access. Therefore, this class of Enterprise Alliance is most competitive in small and midsized markets, in complex markets, in expanding markets, and, most emphatically, in new markets.

Virtual organizations are a very effective way to take advantage of temporary business opportunities or business opportunities that are beyond the capabilities or grasp of the individual companies. Virtual Operations is certainly well suited under this definition, but it transcends the definition in that it may and should be viable beyond a single opportunity by establishing the capability, flexibility, agility, and overhead structure that enables the Alliance to compete in the world marketplace to take advantage of multiple predicted or unpredicted opportunities identified by any member of the Alliance. Marketplace value may be created when a new market is identified, through the development of a new technology or product, and through new alliances. Through agility and efficiency, Virtual Operations allows the Alliance to create value from changing and emerging markets. There is an important distinction to keep in mind here: value is *created*, not added.

Traditional organizations tend to create strategies, procedures, and bureaucracies whose purpose is to protect themselves from the uncertainties of a changing, competitive marketplace. This effort makes the organizations more static and less agile; more permanent and less competitive. The use of virtual Operations creates a new reality, an organization that is more flexible, able to add or subtract capabilities easily and quickly to react to the latest opportunities, and to do so without adding or maintaining fixed cost that makes the Alliance less competitive. An Enterprise Alliance is a creature of action rather than a creature of structure. It seems a bit ethereal, and it changes too easily and quickly to be considered permanent.

b. Application of Virtual Operations

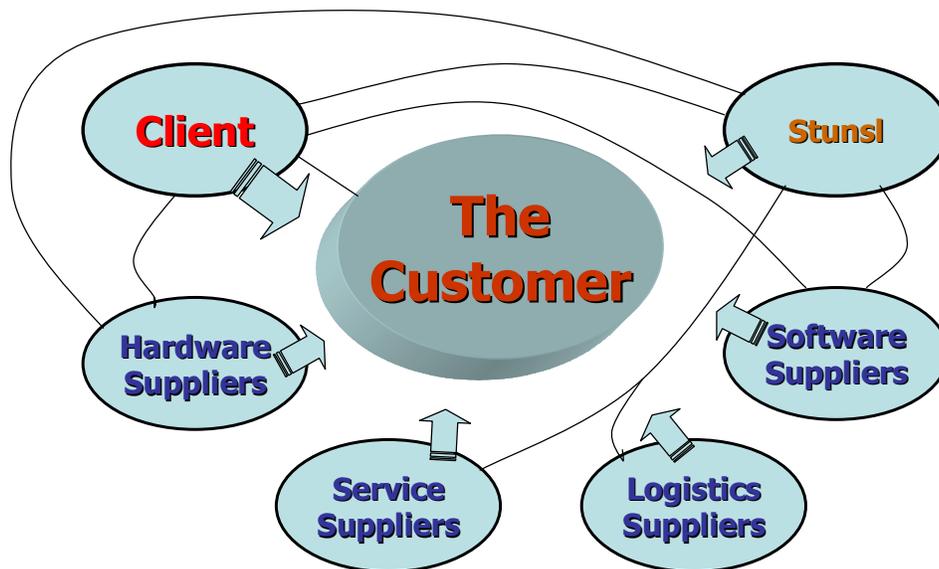
The Virtual Operation

Virtual Operations is a non-traditional form of outsourcing, with a single agent, the Operations Agent, responsible to the Client Company for all operations specific to the product(s) or project(s) under management. This agent identifies, qualifies, and manages the value chain and the processes that combine competencies and resources for the period needed to realize the value of a business opportunity. The virtual enterprise must provide operations at least as price competitive as those in a traditional enterprise. Typically the Virtual Operations are much more agile, efficient, and cost effective than their traditional counterparts due to the implementation of industry proven Best Known Methods (BKMS) and processes derived from the Deming and Juran approach.

The Enterprise of which Virtual Operations is an integral part may look something like Figure 2 below.

Client Confidential

V-Ops Collaboration



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Figure 2

As Figure 2 indicates, the Enterprise of which Virtual Operations is a part, has certain characteristics, especially with respect to the *customer*. To summarize,

- The driving force for the business initiative is to meet *customer* demand.
- There is the potential for n wins inside the collaboration, where n is the number of participating organizations.
- Wins must benefit all participants, although it may be to varying degrees.
- The imperative is to optimize customer value.

Business and Relationship Strategies

Below is a list of the primary business and relationship strategies that are important to this kind of virtual organization:

- Create and maintain lasting partnerships where benefits ebb and flow between the different participants.
- Understand the cause and effect of business activities.
 - No single factor (like price) has an overriding impact.
 - Manage demand forecast.
 - Receive and give real time feedback.
 - Avoid historical averaging and weighting where possible.
 - Provide point-of-sale and production data to all partners.
- Enhance business processes and strategic development.
- Optimize value for the entire community.
 - What works best is to optimize customer value and therefore provide the best business result for each partner.

Cultural Attributes

Since it is a virtual organization, there are five cultural attributes that are commonly considered important. They are: **Competency, Communications, Commitment, Concurrency, and Collaboration.**

Here are some measures that are important for success.

- Place trust over suspicion. All participants must trust other stakeholders. Since customer satisfaction is the desired end result, the result that will make all participants successful, they want the same results that you do. *Your partners are not your competitors, even though they represent different companies. Communication builds trust, which in turn builds more communication.*
- Emphasize knowledge sharing and ban secrecy.
- Reinforce commitment to the end product and customer satisfaction over "doing my job."
- Make sure all participants understand that the job is not finished until everyone's work is done.
- Base recognition and rewards on the results that the enterprise produces, not on the activity level of any organization member. Every piece of the system must work for results to be achieved.
- Emphasize process over personality.
- Practice continuous improvement. Make improvements by making *process* improvements. Process failures must be analyzed and corrected without placing blame on individuals or organizations. *Individuals and organizations must be able to take responsibility without taking blame.*

Virtual Operations Capabilities

The Virtual Operations offering should include, as a minimum, the functions listed below:

- Production
 - Tooling Analysis
 - Sourcing
 - Supplier Management
 - Quality
 - Continuous Improvement
- Distribution
 - Logistics
 - Lead Time
 - Inventory Effects
- Purchasing
 - Contracts
 - Agreements
 - Relationship Management
- Inventory Control
- Storage
- Logistics

Operations Agent Toolbox

The Operations Agent should practice progressive management and have a capability toolbox similar to the one below.

- Project Management
 - Plan
 - Organize
 - Manage
 - Critical Path Scheduling
- Lean Processes
 - Design for Manufacturability
 - Design for Cost
 - Just-in-time
- Theory of Constraints
 - Articulate
 - Identify
 - Exploit
- Production
 - Tooling Analysis
 - Sourcing
 - Supplier Management
 - Quality
 - Continuous Improvement
- Distribution
 - Logistics
 - Lead Time
 - Inventory Effects

Timing

Early involvement of the Operations Agent and recruitment of key collaborators contribute to the success of the Enterprise. The effective use of Concurrent Engineering, Design for Manufacturability, and Design for Cost are reliant on early involvement. Late design changes can sabotage an otherwise successful product introduction in two ways. The first problem with late design changes is that they almost invariably delay the introduction of the product, and the second problem is that they result in changes after product introduction which are enormously more expensive than early changes. Both of these problems not only increase development cost substantially, they also result in lost market share through late introduction, rework, reduced quality, production process revisions, and recalls. Figure 3 shows the relationship between traditional development and early involvement.

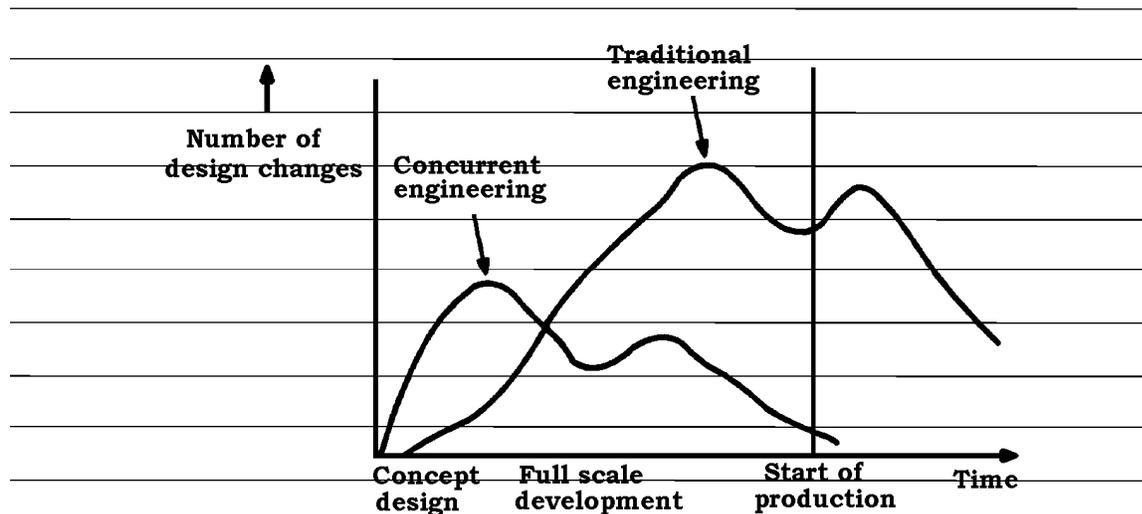


Figure 3

Operations Agent Staff

The most important success factor in successfully executing a Virtual Operations project is the experience, expertise, and attitude of the Operations Agent Staff. The Agent should have available highly qualified staff with expertise in the following fields:

- Project Management
- Sourcing & Manufacturing Strategy
- Supply Chain Management
- Supplier Quality Assessment
- Statistical Process Control
- Lean Manufacturing Implementation
- Sales & Operational Planning Processes
- ISO Certification

5. Conclusion

Virtual Operations is most valuable when the Client forms a long term relationship with the Operations Agent and, through the Agent, a group of suppliers who are valuable in a variety of enterprises that the Client may encounter. The structure and participation of the collaboration may vary depending on the product, the project, or the customer, but the virtual organization itself remains available for quick response when an opportunity is identified. The size of the Client's Operations staff may be reduced to a few qualified individuals who fully understand and embrace the Virtual Operations concept. The remainder of the operational expenditures is related to variable cost activities that are incurred only as needed. New product introduction and production becomes a much more efficient and agile effort to the benefit of all concerned.

Appendices

Appendix A – Author

Charles W. Doty was born in Oklahoma but has lived in Texas since moving to Dallas in 1969 to help Texas Instruments introduce TI handheld calculators to the consumer market. The first calculator he designed was the TI-2550, (\$159.95) and the last was the TI-1000 (\$9.95). Other efforts that he participated in at TI include Loran-C Navigators, GPS Surveyors & Navigators, the TI Home Computer, DLP video and printer products, and, during the cold war, stealth cruise missiles. During the 1980's and early 1990's he served on the steering team that led the Texas Instruments Defense Systems & Electronics Group to improve quality through a team-based approach, which resulted in that organization winning the Malcolm Baldrige National Quality Award in 1992. His management specialty became lean strategies as applied to multi-company collaboration, including supply chains and outsourced production.

Since leaving Texas Instruments Charles has been involved with mass transit communications and lighting systems, digital film processors, cell phone RF front-ends and antennas, and urban redevelopment. He served as Vice President of Operations at two Austin start-ups, Applied Science Fiction (ASF) and GigaCircuits, and has prepared and given start-up presentations to several tier-one venture capitalist firms in Austin and Silicone Valley.

He is currently President of BlueShift Consulting in Austin, Texas. BlueShift Consulting focuses on guiding clients through critical Business Transitions necessary for growth. Our clients include start-ups, turnarounds, and progressive companies of all kinds. He is a member of the Gerson Lehrman Group Technology Council and the Austin Downtown Rotary Club

Charles has a BS in engineering from Texas Tech University and an MBA from the University of Dallas.

Appendix B – Stunsl



BlueShift Consulting, <http://www.blueshiftconsulting.com>, offers a program called Virtual Operations. With this program we set up and/or manage long-term relationships with an alliance of suppliers related to our client's markets and products. In effect we become a focused virtual operations organization with NPI capabilities. This focused approach moves expenses from the client's fixed cost column to the variable cost column and, by operating only when and to the extent needed, reduces overall cost to the company while adding the agility to react rapidly to market opportunities. We identify and assess suppliers that are fully capable of executing to the client's requirements and desires. Our services include supply chain management, new product introduction, supplier development, lean manufacturing implementation, sourcing and manufacturing strategy, value engineering, enterprise resource planning, standardized supplier quality assessment, statistical process control, and ISO certification.

The BlueShift Leadership Team consists of Senior Consultants who have served at the corporate executive level at Fortune 100 companies and start-ups, and we have experience in the temporary emplacement of contract operations executives during transition periods. We also manage Virtual Operations projects from our offices in Austin, TX utilizing web-based meetings and other electronic communications as well as periodic client visits. We have experience with clients in Europe and the Far East. .

If you have an interest, please contact me for further discussion concerning how we may be able to contribute to your success. Contact Charles W. Doty at cdoty@blueshiftconsulting.com or call 512.694.3189.