



Network Engineering

Whose Core Competency?

Background

In the 1970's, product companies deemed their manufacturing operations to be essential to their success. When the concept of outsourced manufacturing emerged, companies swore they would never entrust this critical component of their business to another company.

But the economic recession of the 1970's forced companies to think the unthinkable, and do what many thought was undoable.... rely on contract manufacturing firms to produce their products at the same levels of quality and at the same or lower costs.

Today, over 80% of the product manufacturers in the US outsource part or all of their manufacturing functions to outsourced providers. And in the process, they have shed significant capital and operational expenses from their balance sheet, while getting constant improvements in quality and performance. What at one time was considered a 'core competency' is today outsourced to those who specialize in high quality/low cost manufacturing.

Equipment Vendor Core Competencies

Today, network engineering is where manufacturing was in the 1970's. Sometime in the haze of the 1990's telecommunications boom, equipment manufacturers began to believe that they could drive incremental revenue by delivering services. Deemed by network equipment manufacturers to be a critical element of the design and installation of their products, these companies built sizeable engineering organizations to execute this function.

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And then the industry turned upside down. The steep drop in market capitalization of industry monoliths and new players alike has driven layoffs, reorganizations and some serious soul searching. Yet the net result of these restructurings has been smaller versions of the company, with the same diluted focus of effort which drove past. While some of those companies have engaged professional services firms to augment their internal engineering capabilities, the majority of engineering activities are managed and executed by internal engineering groups.

Attempting to maintain this type of structure flies in the face of sound financial management. The economics of a capital equipment vendor and a services firm are vastly different. The metrics associated with efficiencies are vastly different. Even in the event of another telecom boom, this dual financial structure will hamper growth and profitability.

The reality is the telecommunications industry of the 21st century is already vastly different. Like the automotive industry of the 1970's and early 80's, telecommunications equipment manufacturers have begun to refocus their efforts solely on those functions which drive the greatest return on investment, and divest themselves of those areas which cannot pass the acid test of a return on investment analysis. To be competitive, telecommunications equipment vendors are reducing their focus to four key competencies:

“To gain the most out of this strategy, vendors must make a clear distinction between outsourcing and out-tasking.”

- ◆ Sales and Marketing.
- ◆ Supply chain management
- ◆ Customer Relationship Management
- ◆ Research and Development

Some telecom equipment vendors need have begun to distance themselves from any emotional attachment to non-core competencies, pushing these functions outside of the boundaries of their own organizations. Relative to the network engineering process, the key question is

does the investment in maintaining network engineering organizations measure up to investing in improving customer demand or building systems which create a pull from the market? For most, if not all equipment vendors, the answer is no.

Who should handle the network engineering function?

Telecommunications vendors have looked to leverage the efficiencies and innovations of professional services firms to compliment their product offerings. Outsourcing their network engineering functions will enable the telecommunications vendors to offer a complete portfolio of “solutions” while still maintaining a laser focus on their own core competencies. This strategy appears to offer the greatest return to investors, the company and the industry.

To gain the most from this strategy, the vendors must make a clear distinction between outsourcing and out-tasking. Most of the companies out-task network engineering – that is, the vendors parse the work and hand out “pieces” to be completed by outside firms. This is a mistake. The infrastructures, supporting systems (and, invariably, costs) are still

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carried by the vendor in this model. As a result, the engaged professional service firms have no incentive to build efficiencies into their own processes. The net result is stagnation with little to no recurring savings.

Outsourcing, on the other hand, focuses only on the inputs and outputs, not the processes in between. This frees the professional services firm to do what they do best – leverage their human capital and innovation to minimize their own costs, the savings from which can be passed to the vendor. It also eliminates the need for the vendor to carry systems and organizational structure, and to better align costs with revenue capture.

Some insight into the benefits of outsourcing network engineering services can be derived by modeling the relationships between the key factors used to rate network engineering services. These factors are:

- ◆ Cost – total cost to deliver the service
- ◆ Efficiency – the hours required to deliver the engineering product to the customer
- ◆ Quality – the number of defects per product
- ◆ Seamlessness – the perception of the Client and the Client's customer as to the synthesis of product delivery and engineering

Rating these attributes on a scale from 1 to 5 delivers a view of what the optimal mix of looks like. In Figure 1, the black pyramid shape represents the optimal mapping of these characteristics – a low cost, high quality, seamless and efficient service.

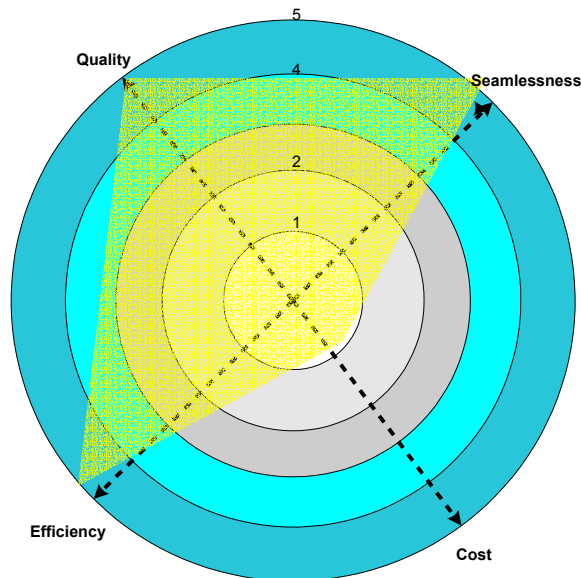


Figure 1 - Optimal Model

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Mapping two of the primary modes of operation for equipment vendors result in a much different shape.

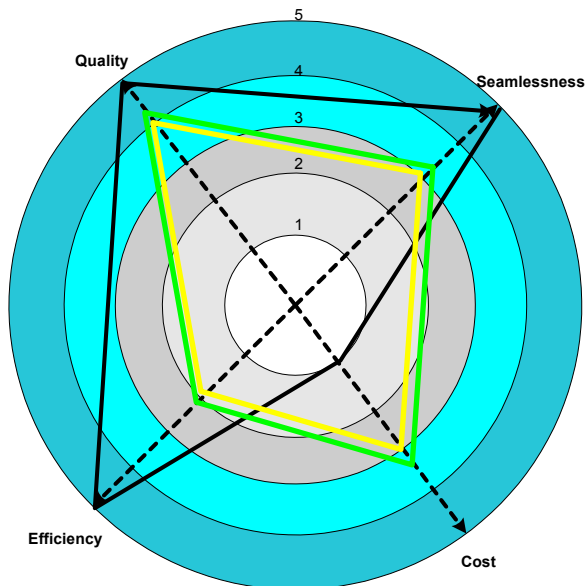


Figure 2 - Current Operating Model

The yellow “diamond” shape represents those vendors who maintain their own internal network engineering capabilities. Aside from diluting the core competencies of the company, the model strays far from the optimal shape for the services.

There are three reasons for this distortion:

1. From a cost perspective, the services have to share in the overall GS&A burdening carried by the company, driving up the cost dramatically.
2. Based on interviews with the customers of these companies, the services lack the quality and efficiency which the customer should expect. The primary reason rests in the focus – systems, processes and training associated with these services revolve around specific equipment, rather than networks.
3. Finally, creating a separate entity to support the network engineering function actually decreases the seamlessness of the service. Internal issues, and product rather than network driven engineering rules create friction which the customer ultimately has to deal with.

The green diamond represents the vendors who “out task” rather than outsource. “Out-tasking” decreases the overall seamlessness beyond maintaining a wholly internal capability, since now tasks flow not only beyond internal organizational boundaries, but external organizational boundaries as well. Only moderate cost savings are achieved, as the vendor still maintains the internal systems and staffing necessary to coordinate, check and deliver these services. These are the same factors which decrease the efficiency of the service. There is a small incremental gain in quality, as the firms who support the out-task work are generally experienced network engineers who understand individual and collective engineering standards commonly used in the industry.

Figure 3 shows the same attributes for out-sourcing, resulting in a shape more in line with the optimal model.

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"Structure," as much as macro factors such as industry and sector, will determine success in the Information Age. Winners will be those companies that focus on their "core competency" or facilitate others to do so. Transformers are moving from bureaucratic, vertically/horizontally integrated organizations where non-core operations are divested and horizontal support functions are outsourced.

Edward Kerschner, Chief Global Strategist for UBS Warburg.

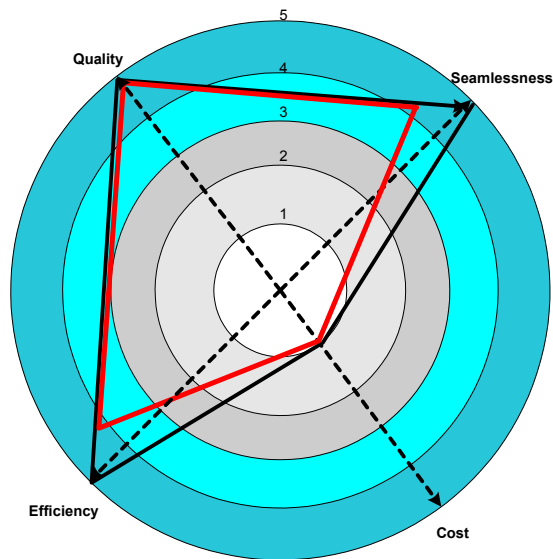


Figure 3 - The Professional Services Firm Model

Foremost, outsourcing results in far lower costs. Also, the equipment vendor can reap improvements in seamlessness, quality and efficiency by incenting the supporting professional services firm to hit key metrics.

The challenge of the professional services firms is to exceed the results achieved by outsourcing manufacturing operations. Is this possible? Consider the following statistics:

- ◆ 30% improvement in the cycle time to deliver network engineering services.
- ◆ 50% reduction in costs to deliver network engineering services.
- ◆ Increased quality and customer satisfaction.

These types of dramatic improvements are not only possible – they are proven. Achieving these goals, however, predicated a partner style of relationship between the equipment vendor and the professional services firm. The equipment vendor needs to allow the services firm the leeway to do what they do best – deliver cost effective services. The services firm also has a substantive responsibility in this relationship. Foremost is the drive to build a strong foundation of trust between the two parties. While the equipment vendor has some role to play in this, the overall responsibility needs to lie with the services firm. Trust is built based on delivering on time, in admitting errors and correcting them at no cost, in protecting the intellectual property of the Client and in the ability to balance the needs of the Client and the Client's customers.

Second, the services firm needs to have proven, repeatable methodologies, and be willing to share efficiencies gained with their Clients.

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And finally, the services firms need to be flexible in their work force model, not saddling their Client (the equipment vendor) with costs which do not equate to productivity.

Conclusions

It appears that to survive in this new network economy, telecommunications equipment vendors will increasingly engage professional services partners who can guarantee outcomes like those listed above. Several equipment vendors who have successfully migrated network engineering to an outsourced function have stated that the time spent building the relationship between the companies involved was instrumental in ensuring they were able to maximize the benefits of the outsourcing model. Their results prove that if managed correctly, the outsourcing relationship between an equipment vendor and a professional services firm can become a classic win-win situation. While no longer internally vertically integrated, these telecom equipment vendors have “virtually” vertically integrated their companies by harvesting the power of the internet, and making the professional services firm a key stakeholder in their enterprise resource planning model. If effectively executed, outsourcing the network engineering function to a competent professional services firm has proven to be a key contributor in creating the focus necessary to win in the network economy.

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About Glow Networks

Glow Networks is a research, consulting and engineering firm in the business of delivering financial value to their telecommunications Clients. The Glow Networks Research Series is designed to highlight key trends within the telecommunications industry to prepare the players to compete in tomorrow's market.



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