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White Paper

The Next Generation Supply Chain:

Designing and Reaping the Benefits of

Your Value Network

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Introduction

This paper explores the limitations of the current supply chain concepts. The fundamental assumption of this paper is that the values which lead to buying decisions by the end consumer are the source of the monetary value which propagates up any supply chain. We call this model the Consumer Driven Value Network.

The seemingly related common terminology "Value Chain" coined by Michael Porter provides the roots to the concepts in this paper. However, the Value Network is a significantly more precise model viewing the businesses involved in a set of supply chains as a members of a business network rather than a simple chain. Also Porter's Value Chain concept has been sullied by idea that "value" can accurately be measured solely in a cash form. The end result of any value delivery process can be measured in dollars, but the value to the customer is most often not financial unless you are in a commodity market. This paper specifically does NOT deal with commodity markets[1] since these are often best met by foreign companies who have much lower manufacturing costs.

By considering only external cash flow in a supply chain, the fundamental driver of business is missed – the end consumers' values which affect their buying habits, which in turn drive the purchases up the supply chain. When the point is reached that the end consumer is no longer aware of any specific supplier's participation in the supply chain, then that supplier's product can quickly become commoditized, leaving them with low pricing as their only means to compete.

The fundamental concept of Value which is referred to in this paper is that which is used in Quality Function Deployment (QFD). Value is most meaningful when viewed from the end customer's perspective. It is not in the scope of this paper to examine the full breadth of QFD, only the idea that end Customer Value (benefit) is delivered by fulfilling the customer's perceived needs.

The Consumer Driven Value Network is a major enabling concept because it focuses business on actions that maximize a business' delivery of *value* to its marketplace. The core concept is, "When a business deliverers defined *value* to the end consumer, it significantly improves its position in the marketplace with higher gross margins and insurance against its replacement in the supply chain."

By focusing on *value delivered* (strongly tied to the end consumer's value drivers), companies can create strategies and tactics which can deliver significantly higher ROI using the same staffing and resources. This paper gives a comparison of the classic supply chain and the Consumer Driven Value Network approach to business. What becomes very apparent is that for

[1] Commodity businesses are modeled effectively by only using "money" as the value currency. Thus commodity vendors primarily compete on price. In today's global economy, companies are using offshore suppliers for their commodity needs. This leaves only sales and distribution as local activities for many commodity suppliers. U.S. companies need to seek differentiation other than price so they can move into a non-commodity Value based business environment through new products and services.

any tier 1 or 2 supplier, the application of the "Consumer Driven Value Network" can more than double the profitability of their existing product lines.

In premium or service driven markets, price is only a fraction of the value delivered to the customer. In this marketplace, the attributes of value affecting the consumer's buying decisions becomes the basis for modeling the market drivers for any given product.

This can all sound very theoretical, but there are excellent examples of Tier 1 and Tier 2 suppliers who are recognized by the end consumer as making significant contribution to the products they buy. The examples include: Dupont Stainmaster and Corian; Intel Inside; THX for the sound on a DVD; and Gore-Tex.

The propagation of the consumer's "value drivers" up through the supply chain creates the Value Network (VN). Just as supply chain operations can be analyzed, the VN can be examined and modeled. Once the VN is understood, strategies and tactics can be created to leverage the company's position in the VN.

An important distinction between the conventional Supply Chain (SC) Model and the Value Network is that the SC is linear and sequential whereas the VN is an interacting set of companies. Understanding and leveraging these interactions allows a company to take a leadership position in the VN even though they are not the OEM with the direct consumer interface. The additional leverage one can gain when properly managing the VN rather than a chain is the source of the new opportunity to improve one's market position.

A very important realization is that the Value Network rarely extends to the roots of the supply chain. Companies outside the VN are by definition commodity providers and as such, experience pressure to consistently lower gross margins and are also at constant risk of being replaced by competitors in the supply chain.

The process of analyzing and improving the VN is the *Value Network Implementation*. A very important key to all of this is the transformation of the existing business to the new business model. Seeding and harvesting the revenues and profit from an improved Value Network only happens if one has explicitly adapted their business to do so. The *Value Network Implementation* first examines the existing Value Network and then designs an improved Value Network and corresponding Business Model to support and capture the financial benefit of the improved VN.

The optimization of the network is a continuous process. As markets mature, and new products are released, today's best VN will not be the optimum Value Network of the future. So a critical part of managing a Value Network, is the constant re-evaluation and refinement of the network and the business' means of participating in it.

One interesting fall-out of applying the Value Network optimization thought-process is that the company's Portfolio Management now has a significant new factor – will the product or service increase their ability to participate in the Value Network rather than just impact the next level customer in the supply chain. This white paper outlines the application of the *Value Network* concepts using a sample business and its supply chain to demonstrate the concepts.

The Sample Business

To give an example of the Consumer Driven Value Network components, a fictitious business named Zapp Quality Battery Elements is used. This conceptual company is a manufacturer of components used in manufacturing batteries: metal sheet, electrode material, insulators, and chemicals. The company also does research in the area of new battery systems. A picture of Zapp Quality Battery Element's immediate supply chain members is shown in Figure 1. Note that this view starts with a supply chain view to contrast it to the Value Network which is to be described later in this text.

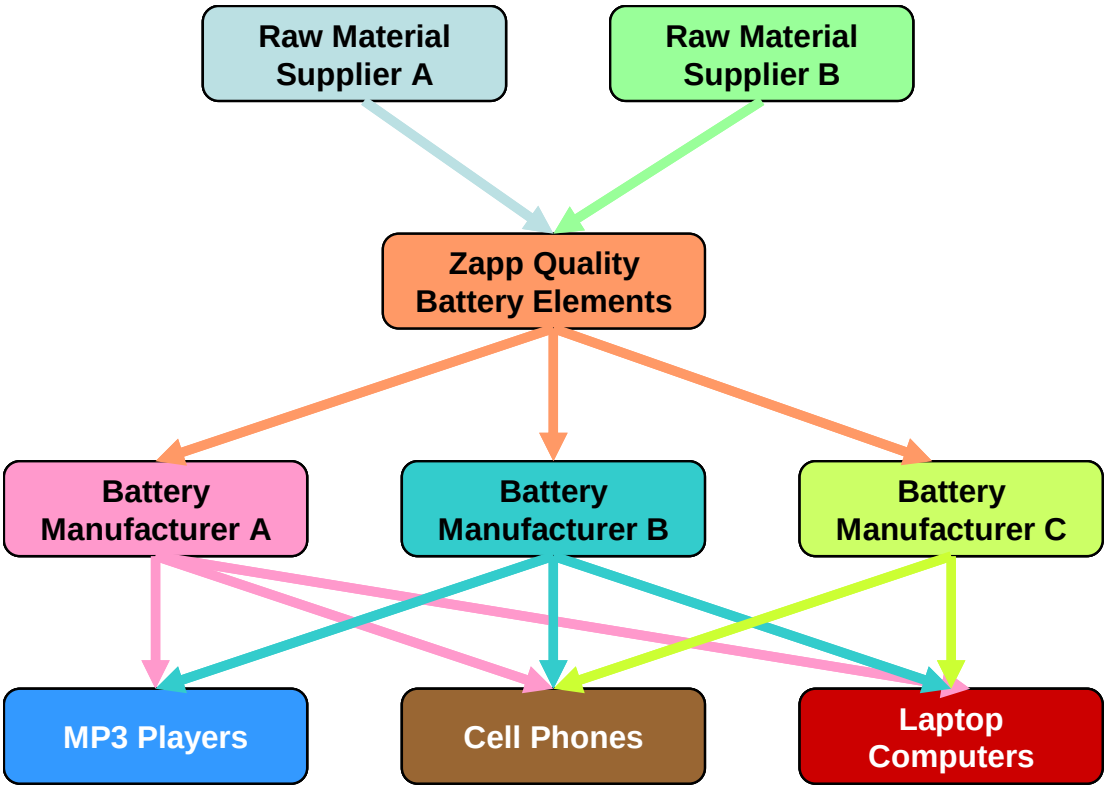

Figure 1: Model of Zapp's Expanded Supply Chain

Zapp is positioned to release a major step forward in battery technology. The question is, "Will they reap the full benefit of the investment they made in developing this new Intellectual Property (IP)?"

This case study examines the difference between the supply chain model and the Consumer Driven Value Network in delivering benefit to Zapp for its investment in leading edge technology.

Zapp's latest success is a new battery system consisting of a new chemistry using rare earth doping of the Li-ion complex. Using this material with a special charging algorithm delivers significant advantages compared to the current Lithium-Ion (Li) -batteries:

- 85% more charge capacity per weight
- One fourth the charge time, e.g. 4 times faster
- Twice the lifetime of a standard Li-Battery
- Uses special charging process which is compatible with the current Li-battery: increases lifetime by about 15% and recharge almost 30% faster
- Can replace standard Li-battery if charged conventionally

The question is how to leverage this new IP to obtain the greatest financial reward for Zapp today and in the future.

The Conventional Approach

The normal way to release a new product into the supply chain is to contact direct customers and attempt to negotiate some type of special sales agreement. For the existing supply chain, these would be specific battery manufacturers (Figure 2).

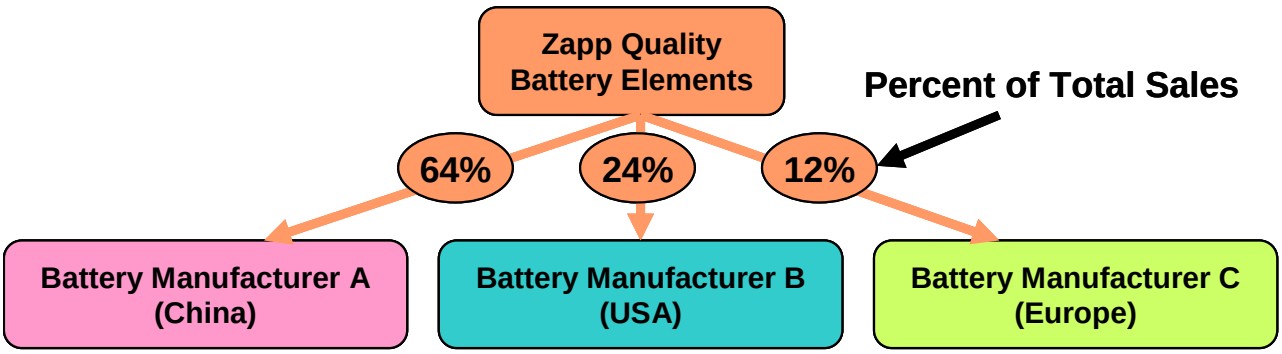

Figure 2: Zapp's Downstream Supply Chain (Customers)

So what does Zapp want to offer to the battery manufacturers? Send marketing and sales people to these customers to tell them the great news. We get them to sign non-disclosure and non-compete documents and proceed to explain the opportunities a superior battery offers:

1. Longer use between charging (more capacity)
2. More user-friendly batteries (faster recharging times)
3. Lighter products (less battery weight required for same power)
4. Longer product life (more discharge cycles, and longer time to battery failure)

The sales team comes home completely frustrated. The potential of this new market was received with reserve at best, and open hostility in one case. Why is this? The impact on the battery market will move it to new levels of performance. Won't it?

Here's what the battery manufacturers understand:

1. Longer use between recharging means that customers may be able to work with a single battery when before they needed a second battery to allow for use between charging opportunities. – Possible Lost Sales
2. Faster recharging time means there is no longer as great of a need for a second battery to charge outside the device. – Possible Lost Sales
3. Less battery weight means less battery sales on a weight basis. The suppliers price their volume contracts using the total weight of delivered batteries. – Less Revenues for a given Sales Volume
4. Longer product life means lower replacement battery sales. – Possible Lost Sales
5. The new materials to make the batteries are going to be more expensive. – Higher Costs
6. The charging technology requires licensing for use in manufacturing. Also the end user of the batteries needs to have this license before they will be a customer for the new batteries. The new charging system requires the OEM to invest in the creation of new charging circuits and chip manufacturing. – Higher Costs
7. There is increased risk that the batteries may not perform as well in the real world as Zapp claims they will. – New Additional Risk
8. There is an increase in perceived liability risk. Their bread and butter product, Li-batteries, suffered a major setback when several vendors experienced battery overheating and risk of fire. A higher power density only exacerbates this risk. – Higher Risk
9. The use will require development projects to develop replacement batteries and the manufacturing lines to make them. – Requires Unplanned Investment
10. The end users of the batteries will not design products to use these batteries with enough volume to warrant the large front end investment in the development and manufacturing facilities. – No Projected Scale-up Savings
11. And the worst issue is that the new batteries will cannibalize their current Li-based products which have been tuned for maximum profitability. Lost Li-based volume will directly reduce the savings in scale currently being experienced. So the new battery will reduce sales AND profitability of the remaining sales. – Lower Sales with Lower Margins
12. The last issue is the need to create and execute a development project which will make a prototype of the new battery using the battery manufacturer's own facilities. To approach their customers, the battery manufacturers need to be able to supply a quantity of prototype samples of the new battery for testing by their customers. This prototype development will be in competition with other product development activities which they are using to meet their existing marketing strategy. – Competes for R&D Funds.

With these concerns in place, two of the battery manufacturers still expressed mild interest.

Contrary to one's understanding of a supply chain, selling better batteries is not the mission of a battery manufacturer. Milking every dollar of profit out of the existing production lines is. So the battery manufacturer is not going to jeopardize very profitable battery sales with a new

product involving risk and requiring an investment in upgraded or new production facilities. Also, by introducing new battery chemistry, their market position is subject to new players in the new technology. Only when their current battery life-cycle is forcibly ended will they be motivated to push the sale of the replacement technology.

This phenomenon of technology causing disruption of the marketplace and the inability of the current manufacturers to adapt is documented in great detail in the book, The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail[2]

The end result is that at each step of the supply chain, there is a technology-push marketing process which meets resistance and is viewed in part as a needless exercise in destroying status quo.

The real surprise to Zapp's sales team is that their China battery manufacturing customer (representing 64% of sales) responds with an ultimatum – if Zapp sells this technology to another battery manufacturer they will put Zapp on their B-list as a supplier. Also they are not interested at this time in doing a development project for new batteries, but are only interested in learning more about the charging circuit for the existing Li-battery use. Creating a slowdown with this customer would have major effect on Zapp's profitability. Due to the volume and import/export issues, Zapp had built a plant in China to meet the demands of this customer. Any reduction in business would be financially very painful to Zapp.

The other two customers express weak commitment to doing a joint development program to modify existing battery configurations to use the new technology. Also they talk about finding an equipment vendor to allow them to put the new charging technique into manufacturing.

At this point Zapp's senior management team is wondering whether R&D is a fool's exercise. They've just delivered a home run and their customers seem to resent the fact that the concept even exists. They are victims of the limitations of the supply chain model. This is a common problem with new technology. Even within one's own company, breakthrough technology sits on the shelf and never makes it to market.

This entire scenario is occurring because none of the players are responding to the end consumer's value perceptions. This is a classic example of a set of local optimizations competing with the true a global one. In fact, none of the thinking and behavior is in tune with the end user market. This is the fundamental flaw in the supply chain driven business models and tactics now used by many companies.

Can anything be rescued from this disaster by using the Consumer Driven Value Network?

[2] Clayton M. Christensen, Harvard Business School Press (1997)

The Consumer Driven Value Network Approach

Phase 0: Designing the Optimum Value Network for the First Market

The Optimum Value Network often differs by market segment. Ideally one would deliver similar benefits for multiple markets, but this is not always possible.

The steps required to design the first Value Network include:

1. Modeling the Existing Value Network
2. Use QFD to define the customer needs
3. Define the Benefits that can be delivered using contributions from Zapp
4. Design the resulting Optimized Value Network

The concept "optimum" Value Network is relative and is a function of which company is trying to achieve a command position in the network, and is also a function of the current marketplace with all of the existing products. In this case it depends upon which end-consumer value-propositions/benefits Zapp is addressing with its products and IP.

The *Value Network Implementation* is the application of the Consumer Driven Value Network to a specific business. It differs from the classic supply chain thought process in three key ways:

1. It starts with the end consumer and propagates value up the supply chain
2. It uses QFD metrics to determine which needs of the end-consumers are being addressed by the company's participation in the VN. The success of delivering the value is determined by the increase in the profit margins, but the margins are only an approximate measure of the delivered value since so many other factors can affect them.
3. Most importantly it is a dynamic proactive rather than reactive concept – the Value Network allows one to create strategies and tactics that then allow the existing products to experience a higher margin.

It is critical that one understands that the VN we describe here is NOT the "value chain" one may find in the literature where value is tracked across process operations inside a business.[3]

So let's examine Zapp's core competencies related to this invention and new battery products:

- Powerful new battery technology using the Zapp Rare Earth modified Li-ion technology.
- A patented set of processes for the manufacture of the battery components for the new battery technology.
- A patent protected charging technique which gives the new batteries their edge, and improves the charging of current Li-ion batteries.

[3] In contrast to the powerful external VN concept based on the supply chain, the internal concept of value chain describing the addition of value at discrete points within a business operation is bogus. Although some kind of value is imparted at each step in a revenue process, the only cash event is at the very last step – the sale.

- A proven ability to supply battery components in three global markets: North America, China and Europe.

Before these core competencies may be applied to a Value Network, the existing network for the standard Li-battery needs to be understood. At this point the current members of the extended supply network and any strategic partnering which may be in place are documented. The proposed new technology's impact on the existing Value Network is documented. With that contrast in place, one looks at strategies that can be applied to transform to the new Network in a manner which puts ZAPP in a "Value Network Captain" market position.

The current extended supply network of businesses in Zapp's battery supply chain is shown in Figure 3. Note that the end consumers are not typically part of a supply chain. However, they are an integral part of a Value Network.

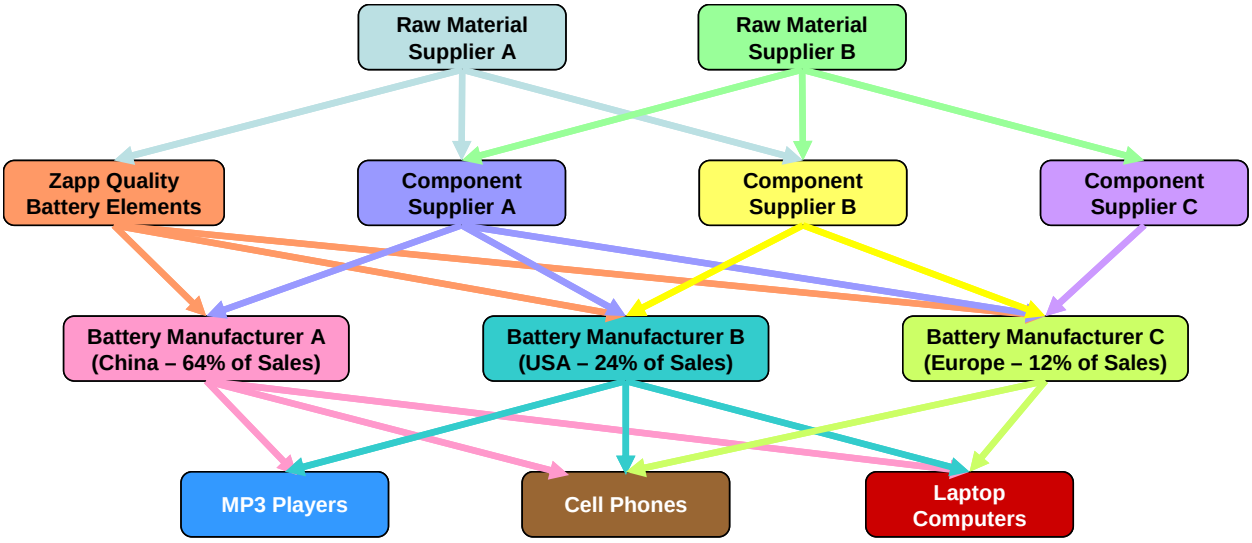

Figure 3: Current Supply Network

The supply network puts upstream vendors at the mercy of their immediate downstream customers. This creates a commodity relationship which may be mitigated by quality service such as on time delivery, short lead times, higher quality for a given price point, and products tailored for ease of manufacturing by the downstream customers. For example the battery-case foil may be delivered in precut rolls with a format that fits the jigs of the battery manufacturer's manufacturing line.

Offering your down stream customer better product features in a commodity marketplace provides no long term market advantage. As soon as your competitor copies your "feature" you then find yourself offering more product value for the old price.

Regardless, the current sales environment for Zapp is one primarily dictated by price. Unless their competitors fail to deliver acceptable quality or fail to deliver on a timely basis, price

dominates all sales negotiations. This business position is a result of being a victim of the supply chain rather than being a dynamic contributor to a Value Network!

The existing *Value Network* for the battery products looks like this:

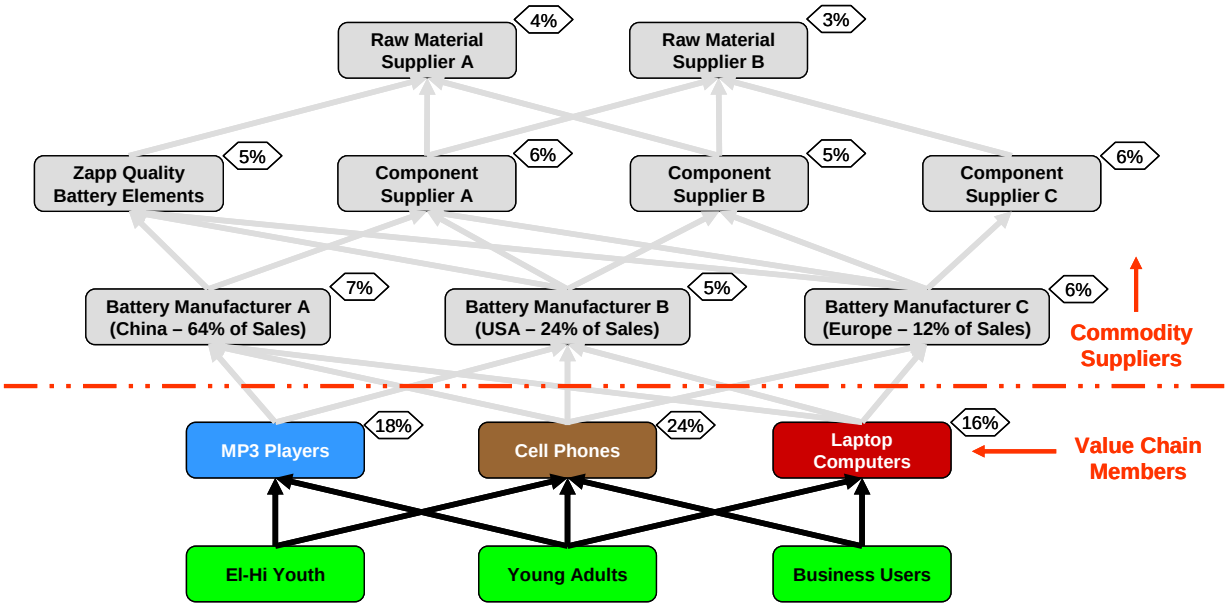

Figure 4: Original Value Network

Note that this "Li-Battery Value Network" contains additional information:

- The arrows have reversed. The concern is now about the flow of perceived end user values up the Value Network. This is the same fundamental principle that underlies the Lean manufacturing process. The end deliverable defines the actions of the upstream processes - in this case the upstream suppliers.
- The <gross margins> are included for each member of the chain. These do not depict the actual flow of value, but the result of the value contribution.
- The end consumers are part of the Value Network.

The first key piece of information is that the current consumer's value driver's related to battery life are not vendor specific. Thus the Value Network does not extend beyond the electronics manufacturers who put the batteries in their devices. The OEM's have intentionally set up their market for this so that they can exert commodity pricing on their battery suppliers.

With the new IP from Zapp the Value Network can be redefined to:

- Capture the end consumer's value drivers used in their buying decisions
- Create a new brand-awareness with end consumers. Create and promote logos such as "Zapp Power" and "REal Zapp Power" (the RE in REal stands for Rare Earth to signify the new additives for the new batteries based on the old Li-ion structure)
- Significantly increase Zapp related advertising and marketing to end consumers

- Increase Zapp's sales of existing products
- Create new revenue streams with new products and licensing
- Increase Zapp's overall gross margin

At this point Zapp is ready to create the new Value Network strategy.

When a survey is made of the market place (cell phones, MP3 players and laptop computers) the following battery value drivers are discovered:

1. Cell phones are moving to smart phones and the power is needed for a much higher usage level. Battery capacity is more important than ever.
2. Apple iPod dominates the MP3 player market, but has major battery issues limiting the life of their products. There is strong consumer resentment against this product life design flaw (or is it intentional). This is a major vulnerability on Apple's part.
3. Laptop manufacturers have had problems with battery quality (fires), lifetime (laptops have a lifetime about 2X that of the batteries) and battery weight. Consumers want longer times between recharge, and smaller lighter units. Netbook PC's are an example of the new market direction.
4. Across the board, everyone wants lighter products without sacrificing battery capacity. The smaller the device, the higher percentage the battery is by weight.
5. There is a major frustration by the users of all of these products that when a device is replaced, the chargers and batteries become scrap. These are costly items.
6. Businesses would love to be able to standardize the battery replacement and AC/DC chargers used by their staff.
7. OEM's don't like the expense of keeping a stock of custom batteries. They in turn resent the damage to their brand image resulting from replacement batteries taking weeks to be found, often at premium pricing.

The above survey is not an in-depth QFD analysis, but one of overall market trends. This is sufficient for creating the initial strategies and determining which specific end use market to first address.

Zapp's key strategies are:

1. Demand that REal Zapp batteries be manufactured in a limited number of configurations. This protects the consumers since it means that the batteries in their devices will be standardized. This allows replacement purchase from many different sources instead of being custom. The batteries must not be in standard AA or AAA configurations so that people won't use them incorrectly or put the wrong batteries in Zapp compatible equipment. Standardized batteries allow for standardized charging units and de facto force the manufacturers to standardize.
2. Control the license of the charging method so that it can be used extensively in negotiations. An overall licensing plan must be in place at the very beginning so that the proper clauses are in the early agreements which allow the later agreements to still offer special considerations. It is very powerful to have your legal department participate in a proactive manner within the Value Network rather than in litigation after the fact.

3. Create an end consumer brand using the existing marketing and advertising dollars of the OEM's. The idea is that the “license to use the charging technology” is what is bartered to be included in the OEM's advertising. The key brand attributes should be: quality, dependability, high power, interchangeability (standard batteries), ease of use (standard charging devices).
4. Address one product area at a time in a predetermined timed sequence to allow for ramp-up of production on everyone's part. This is critical, because the new REal Zapp brand is very vulnerable to poor supply creating unmet demand.
5. Execute the QFD for the chosen market segment (e.g. cell phones) and determine which needs can be addressed by Zapp products, and technologies (e.g. unique IP).
6. First select an OEM to create a perceived need on the OEM’s part to have the ability to deliver Zapp’s Value Proposition to their customers.
7. Go with this OEM to a battery manufacturer to enhance the negotiations. Zapp's leverage on the negotiations is its ability to control – at will – the pricing of the patented battery component materials and the license for charging process. It can also offer to assist in the development of the manufacturing process for the new batteries.
8. Once demand reaches a certain level, license other battery component suppliers to be the second source for the special materials. The Zapp logo branding will be used to control black market suppliers. If anyone uses non-certified materials, they lose the right to use the Zapp logo. This can be a much more powerful protection of IP than trying to prove patent infringement.

The strategy of limiting the variety of possible new batteries to only a few configurations will leverage volume production for the battery manufacturers. This strategy is only possible if it is exercised at the original release since new products need to be designed to take advantage of the battery features. Once a set of products exist using the set configurations, there will be major reluctance to change to different battery sizes. Battery manufacturers have used custom sizing to create a competitive edge to the detriment of both the end consumer, while damaging their own scale-up savings.

The hidden and often not recognized second leg of the Value Network Design is the need to change Zapp's current business model to a Value Network Business Model supporting the new Value Network. This is discussed in the section "The New Value Network Business Model" below. The business must be transformed so that Zapp can execute the success of the new Consumer Driven Value Network.

The integration of the new Value Network and the requisite associated Business Model constitutes the new Business Proposition for the business. This is the statement of the goal developed by the Consumer Driven Value Network strategy. The next steps consist of the execution of the Value Network Design to implement the internal and external changes required to make the Value Network operate properly.

Phase 1: The Cell Phone

It is decided that the first OEM's to approach are the cell phone suppliers. This has several major advantages. The market is dominated by a few large cell phone companies making it possible to capture a significant share of the market (as measured in Zapp's sales) while only dealing with one cell phone manufacturer. Also the batteries are small format batteries and put lower demand upon the capacity build-up of Zapp's battery components.

The QFD analysis for the Cell Phone market shows that the dominant consumer need is longer talk/play/internet time. Many customers are using their phones more than 3 hours per day. It is clear that more battery capacity for a given weight is extremely important to this market. Also the fast recharge allows even a few minutes of charging to boost the use time significantly.

What Zapp is selling is exclusive access to a battery technology which offers 85% more capacity per unit weight, and a 4X faster charge time. Combined with an exclusivity to these product features the proposition to any OEM is quite strong. Can one allow their competitor gain exclusive access to these market leading features for the next 24 months!

Strategies to Work with Cell Phone Manufacturers:

1. Select a single Cell Phone manufacture. Create agreement to extend a free license to the charging IP (for a limited time) in exchange for including the "REal Zapp Power" brand and logo in the marketing of their phones which use the technology.
2. Agree to join the cell phone manufacturer in a joint negotiation with battery vendors to get special battery designs for lighter phones with longer times between recharging.
3. Create a strategic alliance with a chip manufacturer to create the charging control chip that will be a universal control circuit for all applications. Use the IP license to control to whom they can sell the solution. Remember that the solution can be used for standard Li-batteries to improve their performance by 15%. Use this chip manufacturer to collect and manage licensing fees. No one will be using the IP without these chips.
4. Initially work with a single major battery supplier.
5. After 6 months, allow the other phone manufacturers to use the new charging system with existing Li-batteries manufactured with Zapp components but require that the phone has the "Zapp" logo on the product.

Battery Manufacturer first cycle:

1. Initially approach Zapp's largest battery manufacturing customer to offer them first access to this new market. Note that this is an increase in market initially and not a cannibalization of existing products. The joint relationship of Zapp and the OEM give the team a strong voice in negotiation to leverage their existing relationships with the battery manufacturer.
2. Insist that battery and charger standardization be used for Zapp branded products. Create the initial standardization team with Zapp, the cell phone manufacturer and the battery manufacturer.

3. Use the cell phone OEM to get the battery manufacturer's to take an active role in the development of the new batteries. The OEM's can guarantee volume which makes the decision for the battery manufacturer to participate much easier. Zapp can guarantee vendor commitment in the delivery of development materials.
4. The control chip manufacturer is used to support the manufacturing equipment suppliers who will make the charging stations. The licensing of the chip makes it impossible for the other battery manufacturers to access the charging technology without Zapp's participation.
5. Qualify the battery products by using a Zapp logo control system. One needs to meet Zapp's standards to use the Zapp logo. Part of the certification process is the use of Zapp battery components. Tie the purchase of the REal battery components with guarantees of volume buying of Zapp's Li-ion battery components. At this phase the goal is to eliminate the threat of commodity vendor replacement. Later pricing margins will be addressed.

The Apple iPhone is ignored, since it only offers sale of batteries sealed in the phone, and will exclude the markets for replacement batteries and external chargers. Nokia makes the best offer and becomes the first OEM user. After 6 months the initial phones with REap Zapp Power should hit the market with the associated advertising.

It is possible that OEM's in completely different markets will approach Zapp with major battery issues they are willing to pay to have solved. If the offer is right, the rest of the plan stated here could need to be completely re-examined. Let's say the hybrid automobile manufacturers become interested. This would not be as much as a game changing issue because they can be added to this plan with little change. Since it is likely that they will have a lead time which will not require production quantities for at least 2 years they can be dealt with in parallel. These types of offers are likely, and contingency plans should be in place.

Phase 2: The MP3 Players

The consumer feedback shows that as a group the MP3 players companies compete with the Apple's iPod. Most MP3 player outperform the iPods in length of time between recharges. Also, Apple has made it impossible for iPod users to change their own batteries. Clearly the Apple products would benefit most from this new offering.

However, Apple appears to be successful in the market even with their poor battery issues and may not be motivated to deal. The MP3 player community may decide to work together here because Apple has created a very polarized environment. So the question is which group will make the best overall deal. Remember we have created the chip for the charging circuit during the Phone rollout so this is one barrier eliminated for the MP3 designers.

The QFD analysis for the MP3 market determines that the number of recharge cycles, and recharge speed are the primary consumer needs in this market segment. The problem is that most existing batteries last long enough, but once the battery is drained it takes too long to recharge. Also product life for the sealed units is mostly a function of battery life rather than breakdown of any other component.

MP3 Players Strategy:

1. Leverage Apple's poor iPod battery life by creating a bidding war between the MP3 providers and Apple. The end result will be that either Apple will participate or possibly attempt to acquire the IP. Apple's history with vendors needs to be examined. If Apple insists on access to the technology in all of their products, our next step marketing plan for laptops could be compromised. Also, it may be easier to control a group of MP3 OEM's by threatening to drop contentious members, rather than try to control a single major corporation like Apple.
2. Allow the winner to use the charging license in exchange for ongoing advertising of the Zapp brand.
3. Agree to intercede with the battery manufacturers to get new battery configurations.

Battery Manufacturer second cycle:

1. Approach Zapp's #2 and #3 customers to get them engaged in the development of new REal Zapp batteries.
2. Add the new battery manufacturers and the MP3 player manufacturers to the standardization committee.
3. Ensure that the access to the battery charging IP contains the right to qualify the battery products by using a Zapp logo control system. One needs to meet Zapp's standards to use the Zapp logo.

It turns out that Apple could not agree to the IP controls required for the Value Network strategy and were eliminated from the bidding – MP3 players win. After another 6 months, the capacity to manufacture Zapp REal batteries has grown so that new customers can be added. Some batteries have been in use for 12 months. There is no doubt that improvements have been made at all levels of the manufacturing process starting with Zapp's components. The risk for making larger batteries is now significantly lowered.

Phase 3: Laptops & Netbooks

There is no strategic value to go with one brand of laptop since this is a highly fractionated end market with major sharing of motherboard manufacturers. So the decision is to approach the laptop manufacturers as a group and to use a standardization committee to create the definition of the batteries to be used.

The QFD analysis of this market is the use time between charging. Also there are a disturbing number of times that laptops are connected to AC power for extended lengths of time. When these units then run battery power they experience a major degradation in battery capacity. The need is for a battery and charging circuit that has higher capacity, and longer reliable lifetime when in a constant charging environment. The new charging circuit eliminates the extended charging symptoms.

Laptop Manufacturer Strategies:

1. The plan is to approach this group last with a different strategy. The concept is to use a Standards Organization led by Zapp to address their product needs as a group. This is a common tool of this industry, and in this case doesn't have competing technology to confuse the issues (only one battery source – Zapp only instead of something like Beta vs VHS).
2. Battery power for this group is critical. They will be deciding how much of the improved capacity will be used to increase usage time and how much will be used to lower weight.
3. Offer free IP use if they put the Zapp Power logo on their product and in their advertising. Insist that the REal Zapp Power label is located beside the "Intel Inside" logo if present.
4. The chip supplier needs to work with the motherboard manufacturers for both the main and the backup batteries. Imagine a computer where the PROM memory backup battery never dies over a 7 plus year lifetime.
5. An interesting low cost option would be to offer the same computer with the new Zapp charging circuit and a conventional Li-Ion battery labeled and certified to be a Zapp Li-Power battery in the new "standard" size. The low cost Li-ion solution will have 15% better specifications than regular Li batteries because of the charging circuit, and the manufacturers warranty will require use of Zapp labeled batteries only - the warning within the warranty could say that there is risk of overheating and possibly fire if non-qualified batteries are used.
6. The consumer who purchased one of the low cost units could easily upgrade by doing nothing more than removing the original Zapp Li-Power battery and inserting the new Zapp REal Power battery to significantly increase their battery life. In fact, one can easily exchange the Zapp Li and Zapp REal Power battery at will with no detriment to the computer.

Battery Manufacturer third cycle:

1. Approach all three Zapp battery manufacturers with the Laptop Standards committee.
2. Offer to allow the Zapp logo on Li-Batteries which are in the same configuration as the REal Zapp batteries. This requires that Zapp Li-ion components must be used for these batteries. Now Zapp has the ability to charge higher margins on their existing products.
3. Create a bidding process which includes Zapp pricing of the battery components. Zapp's leverage is to control the use of the "Zapp Power" logos which by now are becoming a quality brand associated with long reliable battery life.

The final picture of the proposed new Value Network is shown below:

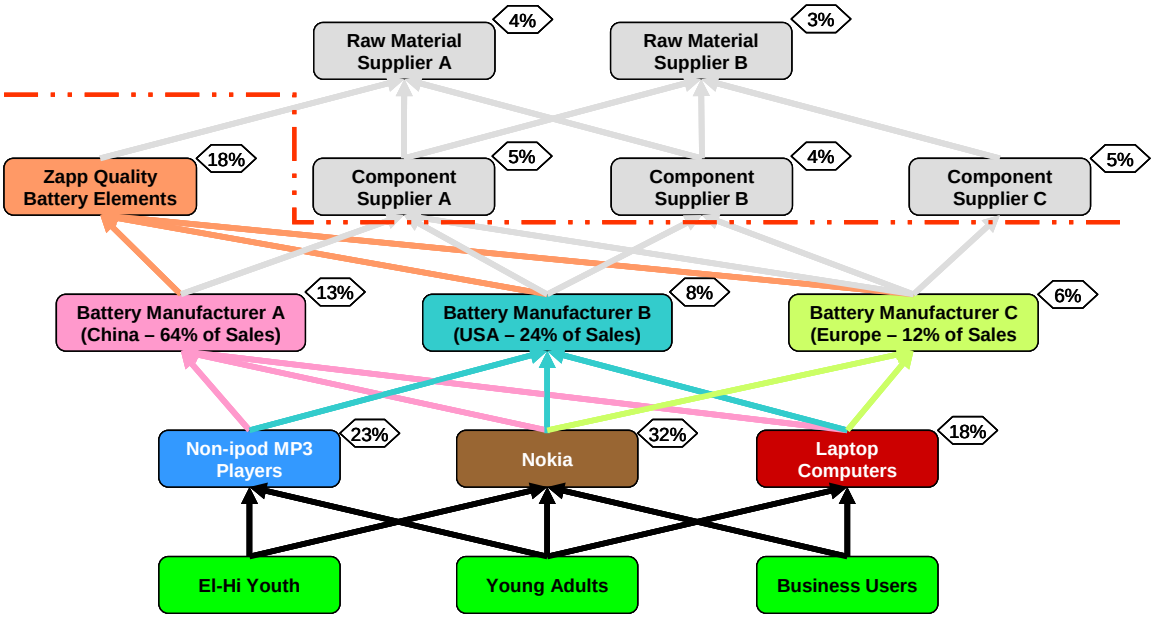

Figure 5: The Proposed Optimized Value Network

The proposed optimized Value Network has moved the Value Network up to Zapp's tier-2 level and has significantly increased its revenue through increases in existing product with higher margins, and creation of new products with high margins. Zapp is reinforcing the VN with its internal and licensed IP. So the VN concept delivers a major improvement over the classic supply chain view of the marketplace.

The Value Network Implementation has used the new IP and key business alliances to create the new VN. The alliance that is easy to miss but very important is the chip supplier who puts the charging process into a digital circuit. This partner participates at every level of the Value Network and helps control and regulate the use of the IP.

The New Value Network Business Model

None of the new market opportunities will ever happen if Zapp does not make immediate major changes to its existing business model. The need is trivially obvious, but the transformation must follow its own rigorous process. The required changes span the entire company, and to fail to put this in place is to destroy all of the potential that could be derived from the new Value Network. The areas involved include:

1. New HR metrics to support the risk of change from executives on down
2. The Value Network management team needs a home and a seat on the Executive Management Team
3. Marketing – Logo and Branding use require new processes and policies
4. Legal – contracts for IP and Logo usage
5. Sales – New product lines and pricing structures
6. Portfolio Planning – the priority goes to projects supporting the new Consumer Driven Value Network
7. New Infrastructure and product development projects – funding and resource commitment are Value Network driven
8. Manufacturing – New products with new batch sizes differ by country of origin
9. Procurement – new raw materials require new contracts
10. Distribution – Packaging, export, and logistics have all changed. The roll-out plan includes information of shipping capacity scale-up over time, and can be used to negotiate better rates.

Creating the plan to deliver the new Value Network Business Model must be done in parallel to the VN roll-out. Critical timing must be executed, or you will have customers receiving empty promises.

The need for a new Value Network Business Model is not unique to just Zapp. In fact to some extent, every member of the new Value Network has some level of change required to leverage their participation in the VN. So what exists is a two pronged approach. New business models within Zapp, and a new Value Network external to Zapp. Orchestrating the two pieces of this network can only be accomplished by direct participation of the executives of Zapp.

Although there is a lot of legwork to delegate, there is still a considerable need for the executive team to be both the strategic AND tactical leaders in the new Consumer Driven Value Network. Part of the Value Network Design is the clear definition of the limited but critical tactical roles for the executive team.

One additional consideration: While Zapp becomes the thought leader in the new Value Network Design and Operation, their strategic partner management teams are almost guaranteed to lag Zapp in the critical understanding of how to effectively participate in a Value Network. It is important that Zapp take the lead in pushing out their VN management skills to their partners to strengthen the network.

Conclusion

Once the *Value Network Implementation* has been executed, the last phase is to enjoy the benefits by participating in the new Value Network. This is the final step in the Value Delivery Implementation. At this point, Zapp's new business model is tuned to maximize its business participation in this new VN.

A second important consideration is to continually review and adapt the Value Network to new business value drivers as the markets evolve and mature. This last step is critical, since the product mix and the potential gross margins have changed and will continue to do so. A constant evaluation and tuning of the new business model can help create the maximum leverage of the Value Network. Again to fail to do this step will result in the loss of stature in the Value Network and the possible disconnect from the consumers value drivers.

It is interesting to note that in the classic supply chain, the competitors and the OEM customers of the battery manufacturers decide the end of the product life-cycle, not the up-stream suppliers. However when Zapp approaches marketing its new IP in a VN manner, Zapp is now controlling the speed with which the old Li-ion technology will be replaced.

There is no doubt that the VN strategy offers many opportunities to improve one's position in the classic supply chain. This example is very simplistic and ignores many of the pitfalls which would be encountered in executing this type of strategy. The message is that without the VN concept it is almost impossible to push a business advantage or improvement for a supplier company attempting to release a new technology product.

The Value Network Implementation includes the tactical execution of the above strategy. The details of how to create the view of the existing VN and the methods used to create the optimized VN were not covered. These exist as robust management technologies which can be taught as part of their first use within a company.