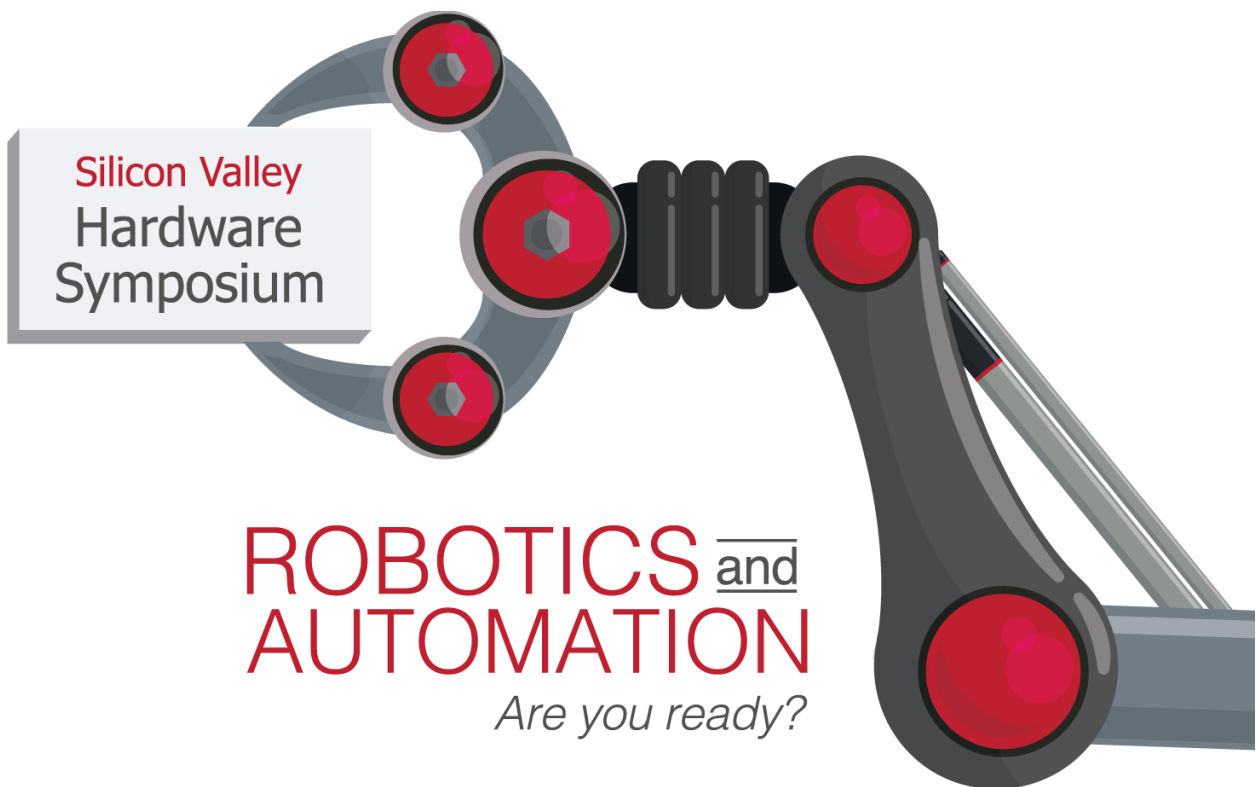


Expert Tips from the 2018 Silicon Valley Hardware Symposium



Silicon Valley Hardware Symposium -- Expert Tips

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Silicon Valley Hardware Symposium -- Expert Tips

About Product Realization Group (PRG)

Product Realization Group is an electronic hardware focused project management firm based in Silicon Valley. Our consortium of seasoned experts can help seamlessly transition your electronic hardware product from concept to scale. We pride ourselves on being your go-to source for prototype design and build, operations and manufacturing insights, and marketing consulting. Visit us at: www.ProductREALIZATIONGroup.com

About the Silicon Valley Hardware Symposium

The SV Hardware Symposium is an annual summit that brings together the best of Silicon Valley's professionals dedicated to the creation of hardware products. Professionals from the areas of product development, user experience, sourcing, engineering, testing, sourcing, manufacturing, and supply chain management come together to keep their fingers on the pulse of the industry, hear from keynote leaders and panelists, and preview breakthrough new products.

The "5 Tips" Series is a collection of accessible wisdom created from subject matter experts at the recent SV Hardware Symposium. The decades of knowledge, lessons learned, pain experienced, and success achieved from experts are being shared here.

5 tips for Funding

Brought to you by: Event Horizon Ventures

TIP #1: Play downhill.

Figure out how to build and pitch your business such that every year demand for your product is greater.

TIP #2: Cultivate multiple options.

You should never be in a situation where you raise money or die. When that happens you are usually going to die. Venture, PE, family offices, random international money, going profitable, grants...have plan B, plan C, and plan D.

TIP #3 : Emulate the Honey Badger.

The Honey Badger don't care. The Honey badger will work with whoever and doesn't take it amiss if a particular VC falls through. Aim to be quietly confident, and communicate that. This is a vastly more effective fundraising strategy than being an asshole.

TIP #4: Remember fundraising is a process.

So do your planning in advance, figure out who your best prospects are, ask questions and ask for advice. It's a marathon, not a sprint. Expect it to take six months.

TIP #5: Always ask yourself what can I do to make my business the best investment this investor will ever see.

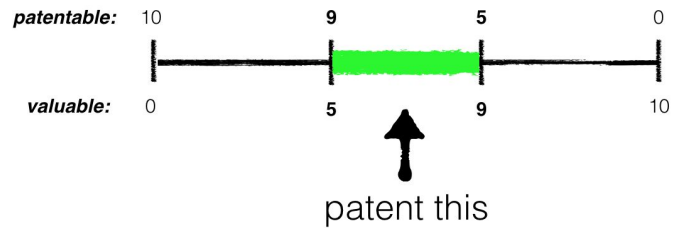
Be audacious. Who's the best advisor in your sector? What's the best reference customer? Who would you kill to have on your team? If you don't ask them, you'll never know.

5 Tips for IP Protection

Brought to you by: Run8 Patent Group (r8pg.com)

TIP #1: Patent technologies that balance value and patentability.

The more valuable a technology is to your company or to your space, the less patentable it probably is. So identify technologies that strike the right balance between patentability and value. Patent applications that capture lower-value / higher-patentability concepts are often granted quickly and are helpful in the short- and mid-terms for fundraising and managing partnerships. Patent applications that capture higher-value / lower-patentability concepts require more resources to push through, but they build significant long-term value, especially for exits.

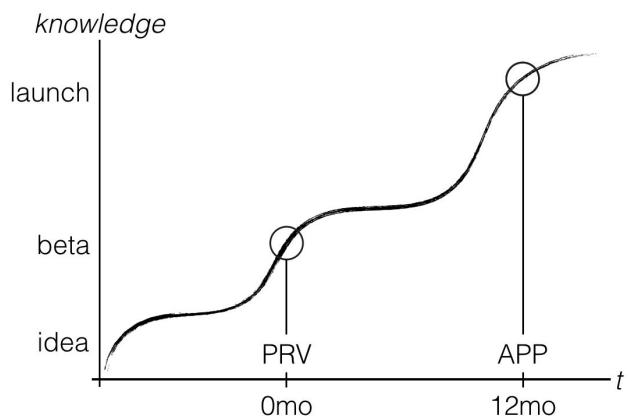


TIP #2: Start with an IP budget.

IP budgets of 1-3% of overall budget are common among tech startups. Once you settle on 18-month operating and IP budgets, use average costs of \$4k for provisional applications (PRVs) and \$14k for non-provisional applications (APPs) to gauge the number of provisional and non-provisional applications you can afford in this time period. Then filter your list of 100+ patent ideas down to the most important handful that you can afford. Now reference your Gantt chart to determine when these few concepts will be prototyped, and set calendar reminders to follow up on patent applications on these concepts accordingly. This is systematic, repeatable patent strategy.

TIP #3 : Patent prototypes, not ideas.

Filing patent applications at the idea phase rarely results in success. Instead, be patient, build prototypes, test your assumptions, and get feedback from potential users. Once you understand what your customers care about and how your technology solves their problems, go raise some capital, and then allocate 1-3% of that capital to file a patent application on your core technology that solves fundamental needs.



5 tips for Go-to-Market

Brought to you by: Beth Rogozinski Transmedia SF beth@transmediasf.org

TIP #1: Go-to-Market Planning Begins at the Beginning

Don't wait to start your Go-to-Market planning and testing. This is an essential element of your business, and it is critically tied to your product and road map and your business strategy. The best GTM plan starts with an amazing, well tested and already in-demand product.

TIP #2: Focus on the benefits of what you are providing - and consider the "Feel, Think and Do" principles.

No one wants to actually buy a vacuum cleaner - what they want is a clean floor and the identity as a clean and neat person. What are you selling that your customers truly want to buy/invest in? Consider with all of your messaging and marketing, "How do I want my customers to **feel** about the products and services I provide? What do I want them to **think** about the product and services I provide? What's the very next step that I want them to take (what's your **Call to Action**) via this messaging campaign? (Note that the next step is not always "buy" - it could be get more info, try, advocate, upgrade, etc.)

TIP #3: Map out the acquisition process and your users' experience with every touch point.

Consider all of the ways your customers will find out about your product and services and what steps it will take to get them to become not only a customer, but an advocate. Map out various paths, from tech reporters/reviews, to social media mentions, to final purchase. What are the stumbling blocks or moments when they might abandon the process and why? Try to remove any hindrances and better understand what makes your leads convert to become your special customers.

TIP #4 : Know Your Distribution/Channel Strategy

Often with hardware, you need to sell to and through a channel partner before reaching your end customer. Ergo, you need to consider the needs and desires of these channel partners as well. Ideally, you'll craft a push-pull marketing campaign that draws end users to your channel partner, and your channel partner will also promote your product and services.

TIP #5: Focus on your target psychographic - and show them love.

The best products in the world focus on a core market segment and do not try to be all things to all people. Think Apple, Nike, Playstation and the tight targets these hugely successful companies focused their original products on. The process of creating your psychographic targets is well worth the effort and helps to shape product features and road maps, business and go-to-market strategy, as well as service and community support structures.

5 tips for Finance

Brought to you by: Keating Consulting www.keatingconsulting.com and mike@cfo-coo.com

TIP #1: Don't run out of cash

Plan your cash burn based on various scenarios. Add some buffer for product development delays, for example, the extra DVT build, revenue starts a quarter later, and the like.

TIP #2: Develop and maintain financial projections

It's easy to focus on the projections when fundraising, and then put these aside as you focus on execution. However, updating the key drivers of the financial forecast with monthly results and learnings from engineering, sales and support functions tells you if a key financial metric and the underlying business activity or assumption have shifted.

TIP #3 : Develop banking and other financing relationships, *particularly with hardware businesses*

Equity investors are not going to fund everything on the balance sheet such as inventory and receivables, or ongoing capex (toolsets, manufacturing jigs and test equipment). Just as you maintain contact with investors, keep an assortment of banks, asset-based lenders or leasing and other financing companies ready to help fund some of the working capital and capital expense buildup as revenue starts to ramp.

TIP #4: Build out the team in a cost-effective manner

The funding requirements for a hardware business can be significant along several fronts-- product development, marketing and sales, working capital. Try to keep a balance among these resources. In building out your cross-functional team, consider heavy use of contractors, consultants, and part-time positions to provide the flexibility to reallocate resources.

TIP #5: Consider the right set of cost-effective tools

As a startup, you probably cannot afford to implement an ERP system. More importantly, you don't have the bench strength to maintain it. However, key tools such as an accounting system that can handle basic inventory tracking, SaaS tools for managing the marketing funnel and driving conversion into sales, and desktop or online software to manage demand and supply will help drive key business processes and provide timely feedback.

5 tips for Technical Program Management

Brought to you by: Jay Feldis at Product Realization Group, jfeldis@prgnpi.com

TIP #1: Define your product clearly

Great ideas may start on the back of a cocktail napkin, but one of the major causes of project delays and cost overruns is the lack of clearly defined product requirements. Take the time to write detailed product requirements before investing in engineering development.

TIP #2: To Fail to Plan is to Plan to Fail

Once product requirements are defined, create a detailed plan and a schedule with frequent milestones. Identify the critical path to completion and track it weekly. If critical milestones slip, you have early warning that you may be late. Take early action to adapt and avoid delays. It can be very difficult and expensive to accelerate hardware development later.

TIP #3 : Test Early and Often

“Bugs” in a hardware design can take weeks or months to correct. It is essential to construct tests to find weaknesses in key designs, materials and components as early as possible. The cost of fixing a problem discovered during volume production can be 1000 times the cost of fixing it earlier and can cripple a new product in the market.

TIP #4: Cost, Schedule, and Performance

Cost, schedule and performance parameters trade-off against each other. Improving one parameter usually degrades one or both of the others. A well managed project optimizes the balance to best satisfy the business objectives of the project.

TIP #5: Beware of Accumulating Risk

The product development process should reduce risk and uncertainty at each stage. However, feature creep, failure to make timely decisions, delayed verification of performance, or reluctance to acknowledge technical risks and resource bottlenecks can increase risk over time. An experienced project manager can help a development team identify and mitigate these risks.

5 tips for Rapid Prototyping

Brought to you by: Fictiv www.fictiv.com

TIP #1: Know your design intent

There is a plethora of materials and processes you can use in prototyping. Take the time to understand the benefits and drawbacks to get parts that will meet your requirements, whether functional or cosmetic. Find a prototyping house that has many options, and ask them what they recommend. Technologies are always changing, and they should know the best solution for your near-term needs.

TIP #2: Partner with your suppliers early on in the design process

The design for manufacturing (DFM) feedback you receive on part geometries helps in keeping the costs of printing or machining low. Incorporate this feedback to help keep your project within budget for prototyping and beyond. Suppliers can help you not only in the short term for prototyping but in the long term for scaled manufacturing. Design your product with both in mind so that any edits that need to be done between prototyping and production are minimal and quick to accomplish. This saves both money and time.

TIP #3 : Have the long-lead and complex parts designed earlier

Risks of your project or program running overtime can be mitigated if your suppliers can start producing these parts first, in time for assemblies. It often helps to make a pareto chart of the longest lead items and focus your activities around their initial procurement, even if the design is not completely mature at that point. There is some risk that you order parts that are not optimal, but the risk is minimal if you have good specs available.

TIP #4: Tour your rapid prototyping shops

It is very difficult to keep up with the ever-changing rapid prototyping technologies out there. For example, there are machines that do both printing and machining within the same system. These types of machines may make an entirely new class of prototype available to you in a rapid and accurate way. Shops are often very willing to share their technology solutions with prospective customers.

TIP #5: Hardware is hard! It'll take several iterations to get the right product.

Evolutionary improvements can now happen very quickly with RP. Daily or weekly prints that can confirm design direction OR cause you to deviate are extremely valuable. Pursue knowledge and don't be afraid to fail in the early stages of development.

5 tips for Mechanical Fabrication

Brought to you by: MegaRoller, Kevin Kingston - www.megaroller.com

TIP #1: Know Your Files

When quoting or building a new plastic or sheet metal project know your CAD files well. Making changes to tooling and/or parts should never be your plan A or B. Check and recheck your details.

TIP #2: Consider the Details

Developing drawings with all the details will make life easier as your project progresses. On the injection molding side we look for the obvious things like texture specs, material, color, and the like. Examples of the common details that clients miss do not specify include areas that should be polished, an insert map or callout, pad printing or silk screening artwork, or location and tight tolerance areas.

TIP #3 : Don't Start Until You Are Ready

Sounds easy, but, in today's world everyone wants to kick off their project even if all details aren't worked out. Take the time to step back and do that last rapid prototype before you pull the trigger on tooling. For sheet metal enclosures/components, try to make a couple of test units first and save the decorated/painted units for a second run. If you need a painted unit for demonstrations or show, communicate to your investor or demo audience that the unit s=is an appearance model or working model and save the production for later. If you absolutely want to order production units before you are 100% ready, order them, but ask for an unpainted/coated first article to check your geometry before moving forward with the balance.

TIP #4: Consider All Options When Decorating Your Product

In today's world there are many options for the decoration of a new project. Work with your designer to explore your branding options, and pick the one that will work now and for the future. For both plastics and sheet metal, consider the standards such as silk screening, pad printing and laser engraving. Labels, name plates, membranes and overlays are also options when you want your project to speak for itself.

TIP #5: Plan Your Packaging Scheme Early

As you design and build your project plan the packaging and protection scheme far in advance. Although the packaging industry is considered quick turn, every product from consumer to industrial has special requirements that need to be addressed. Start gathering your requirements early and know the facts so you can pass along all information needed to your packaging partner. For industrial projects consider overall weight, geographical shipping locations, special shipping fixture requirements, drop tests and handling requirements, just to mention a few. For consumers, consider your pop development, retail packaging, sub cartons, master cartons, warning labels and more.

5 tips for PCB Fabrication

Brought to you by: Royal Circuit Solutions, (831) 636-7789, www.RoyalCircuits.com

TIP #1: Understand cost drivers of PCB fabrication and assembly

Some of the biggest drivers of cost in circuit board manufacturing are **complexity** (number of layers, buried & blind vias, minimum hole and trace widths), **turn-time**, and **quantity** (panel utilization)

TIP #2: Choose components with procurement cost, assembly cost, and rework ability in mind

Generally thru-hole components are significantly more expensive to place due to the manual labor required to place and solder these parts on to the board. Choose majority surface-mount components, and pick sizes that you as the engineer are able to rework yourself down the road. This saves you a lot of time and money overall.

TIP #3 : Understand your manufacturer's standard build specification, and design within those whenever possible

Most manufacturers will have a set list of specifications from which no extra cost is incurred outside of quantity and turn-time (includes everything from minimum trace width, minimum hole diameter, max layer count, available substrates and surface finishes, etc.). Talk to your fabricator about these, and try and run them in your own CAD DFM-check prior to sending files in.

TIP #4: Run a DFM check with your manufacturer's capabilities in your own CAD package prior to sending in files.

Running a DFM check with your manufacturer's capabilities will save you a lot of time in up-front engineering manufacturability feedback that may take your manufacturer hours to days to review and get back to you -- often times something as simple as a hanging trace that had no physical impact on your design at all!

TIP #5: Take advantage of first articles whenever possible

Some manufacturers offer a first article service, a process in which only a few of your boards are assembled, fully or partially (for free!). This allows you to quickly get enough boards for your bring-up process, perform a sanity check and make minor changes (or halt production) like component changes, saving you time in rework and potentially bad or dead boards.

5 tips for Mechanical Development

Brought to you by: Fusion Design, Mark Brinkerhoff, www.fusiondesigninc.com

TIP #1: Concept quickly and prototype often!

Early on, get your ideas in sketch form and make crude prototypes that demonstrate your thoughts. Fail fast and often like Thomas Edison did. Learn fast.

TIP #2: Keep a record of your path to success.

As you evolve your design, save a digital copy of each step so that you can remember the process and the learning that it brings.

TIP #3 : Feedback, Feedback, Feedback

Start development with solid requirements using Marketing Requirements Documents (IMRD) and Product Requirements Documents (PRD). Make these living documents with revision control. Stay in line with the needs of the marketplace by gathering feedback from prospective customers for every major feature.

TIP #4: Do the hard stuff first

If there is a seriously challenging aspect in your design, pursue it's solution first. Doing the easy part first can be misleading in both budgeting and scheduling aspects.

TIP #5: Design with prototype, pilot production and volume production in mind.

Products that ultimately will be high runners, are often designed three times. The first time is for prototyping. The second time is for short runs. The third time is for volume production. Why not design with all three in mind? For example, divide the housing of a plastic product into the volume arrangement right away. Add details like draft and ribbing as the production volume increases.

5 tips for Microcontroller Design

Brought to you by: Microchip Bob Martin, Wizard or Make, www.microchip.com

TIP #1: Device scalability

This applies not only to memory sizes in pin compatible packages but over devices families in pin and code compatible packages. Most microcontroller vendors ship multiple memory loads with the same peripheral mix in the same package. Start with the largest memory size and then work your way down.

The same peripheral / memory selections should also be available in pin / package compatible devices offering higher speed or higher performance core.

TIP #2: Clock speed isn't everything

Some microcontrollers provide advanced peripherals that communicate and interact with each other without needing to get the processor core involved. These features not only make code size smaller but can really improve low power performance. Math intensive applications will benefit more from a 32 bit running slower than a 8 bit core running at full speed.

TIP #3 : Development environments

The microcontroller under consideration should have a rich choice of development tools both in IDE and hardware programming / debugging support. Active developer communities are invaluable sources of help and a good sign that the device family is active. A large selection of third party tools also suggests that developing with a certain device is covered from all angles. Open source development environments and low cost / free development tools from the microcontroller vendor also suggest that good developer support is available in the community at large.

TIP #4: IoT Security is not an afterthought

Anything connected to the cloud needs security, not only in the transport layer, but also in the application layer. Make sure that the microcontroller vendor has a well thought out solution for security implementation that's agnostic to the device.

TIP #5: Low power, datasheets and common sense

Low power numbers published in datasheets tend of course, to reflect optimal examples in use cases that never are practical. Independent benchmarks like EEMBC ULP Mark™ can provide a more realistic picture but low power designs are very application dependant. Make sure that the hardware design allows for proper isolation of the main system blocks to allow for more granular power measurements. Static power consumption measured by holding the microcontroller in reset is a good starting point

5 tips for Electrical/FW Development

Brought to you by: Voler Systems www.volersystems.com 408-412-9175

TIP #1: Communication, the Most Overlooked Aspect of Design

The biggest challenge with a design project is communication. To be successful, on time, and on budget, requires a lot of communication among the design team and with others outside the design team. The communication must start with a detailed set of requirements that take away any uncertainty about what is to be designed. It needs to continue with weekly meetings to review technical challenges, the schedule, and the budget.

TIP #2: Value Project Management

Project management is not valued as much as design in most of Silicon Valley, yet a good project manager will keep the project on schedule, on budget, and help make the resulting product easy to manufacture. The project manager's most important tool is communication.

TIP #3 : The Voice of the Customer in Design

When creating the requirements for a product, it is critical to get the voice of the customer. This usually comes from the marketing department in the form of Marketing Requirements. In a startup it may come from the CEO. It has to be someone who understands the pain of the customer that the product will address.

TIP #4: Firmware Requirements Are Hard to Write

Even software engineers often have trouble writing good firmware requirements. To do so you need to describe what the device will do. Describe it in terms of inputs, processing, and outputs. Include specifics like quantities and speeds. It is not important to describe the type of processor, for example, only what the processor will do.

TIP #5: Focus Early on Technical Risks

Focus early on the risky parts of your project. Identify the risks by reviewing the requirements and identifying what is hard to do. Resolve the risky things first. They may force you to make major changes that affect everything else. You may need to build prototypes to determine if you can achieve what you want. Sometimes a project is found to be impossible because the compromises required are not acceptable to the customers. Make sure you find this out before spending a lot of time and

money.

5 tips for Test Development

Brought to you by: Solution Sources Programming Dan Orlando; www.ssprog.com

TIP #1: Early Design Engineering involvement

Early involvement can reduce costly respins and speed up time to market.

TIP #2: Be prepared

Know what you want, have a specification and Statement of Work (SOW) and priorities.

TIP #3 : Streamline and Standardize

Keep the future in mind.

TIP #4: Experience over price

You'll make much more than you'll ever save.

TIP #5: Don't recreate the wheel

Concentrate on developing a great product and be open and flexible to what the experts can do for test.

5 tips for FDA Compliance

Brought to you by: Springborne

TIP #1: Start early

Begin thinking about compliance on day one! It can save you a lot of extra work afterwards. Imagine if you were to do your bookkeeping only just before tax filings were due. You would end up paying a lot more and also possibly missing some key pieces of information. More importantly, your financial process may be completely out of control and you would not know. The same reasoning applies to compliance requirements that mandate your product development and operations to be controlled.

TIP #2: Take a life cycle view

Compliance is not an event; rather it is a process. If your product is regulated, bake compliance into all your development and operations.

TIP #3 : Stay lean

Try to establish compliance activities at a level appropriate to your business stage. Do not over-interpret the requirements. While the principles are common, compliance requirements are definitely not meant to be one-size-fits-all. Be particularly wary of adopting process documentation from other businesses.

TIP #4: Take a risk-based approach

User-risk considerations are a key factor in determining appropriate level of effort for compliance. It is critical that you understand all facets of user risks associated with your product and process. This will help establish a rationale for what gets controlled and the manner in which that happens.

TIP #5: Leverage compliance to create true business value

There is a rationale for every compliance requirement that is ultimately targeted towards creating better customer value. In designing a compliance process, try to understand the rationale, and always ask yourself how the requirements might be aligned with your desire to create customer value. Take an approach that clearly connects the dots to your business mission.

5 tips for Supply Chain & Ops

Brought to you by: JSRosen Consulting

TIP #1: It's never too early for S&OPs

Many companies wait to put in a supply/demand process until they are well into volume sales under the rationale that S&OPs is easy to manage in early stages. There are many benefits of S&OP beyond the core of establishing collaborative forecasts and build plans. Surprisingly many small companies are siloed between Sales, Operations and Finance. This S&OPs creates early collaboration and interaction which is critical for the more complex situations to come. It's an easy win.

TIP #2: How much process is too much process for young companies?

The two biggest assets for most early stage companies are Cash and Engineering. Optimizing these assets is a critical area to focus on, putting in place scalable but rationale processes. S&OPs is a good place to start and use as a filter for what processes are necessary without binding a company's ability to be agile.

TIP #3: Define roles and responsibilities and communicate often

Leaders think that people know what their role and job scope are but that is usually far from true. Additionally, often no one else knows what others do as well. This leads to faulty hand offs, dropped balls and lack of accountability. Roles and responsibilities don't imply fixed boundaries. Rather they are guidelines to help organizations be more efficient and effective. This is especially important when new people come onboard or existing people depart.

TIP #4: "Sell" all your suppliers on your company's opportunity

Take your company's marketing/sales pitch and configure it to a vendor-facing presentation. Show where the company is focused, the technologies in which it is playing, its target markets, and a demand ramp curve. Then define what the opportunity is for the vendor you are meeting with at that moment. Keep this pitch on you at all times. Selling occurs in both directions between the OEM and the supplier, especially for young, emerging companies who may not have a ton of press.

TIP #5: Stay connected to your key component vendors, not just your contract manufacturer

Companies tend to focus on building a supply chain partnership with their contract manufacturer. While doing that, they become less present and connected to their key component vendors. With contract manufacturers placing purchase orders, there becomes less and less interaction between the OEM and the component supply chain. This impedes direct efforts to reduce cost, time to market and lead time. Be regularly in front of your key component vendors. The payoff is significant!

5 tips for Domestic EMS

Brought to you by: Joe O'Neil, Green Circuits, (408) 526-1700 www.greencircuits.com info@greencircuits.com

TIP #1: Find your fit

It is often lost in the noise that whether you are building your products internally or outsourcing the manufacturing, you need a solid documentation set. From there to find your outsource partner, just find the factory that fits your vision of what you would want if you had your own factory to support your products. Factory fit can include people, process, equipment but also "feel," that is--cleanliness, attention to detail, smiling people, flexibility, controls, and the like. If you're an emerging OEM short on resources and talent to develop your product, hire a contract manufacturer that does NPI to volume production launch. Don't confuse an NPI process to prototyping capability. Suppliers may not operate on the same ethical playing field. Work with people that know what they're doing.

TIP #2: If you are looking for speed, don't forget to look in the mirror

Your assembly partners can place 25 components a second. Complex PCB fabrication can be completed in 3 days. We typically are shipping turnkey orders within 5 days of order receipt. There are dozens of examples every month where we are waiting 5+ days for purchase order processing from Customers. Manufacturing Service Agreements are one option to set out the rules of the road and allow both parties to move quickly without risk or confusion and take waste out of the process.

TIP #3 : Materials don't just materialize

Identify your Product's **critical components** – If it's a critical component, it no doubt has one of the following challenges: cost, lead-time, single source. Having your contract manufacturer procure on your behalf is different than managing your suppliers. Your continuity of supply will only be as good as your good relationships.

TIP #4: Manage your Supply base, don't let them Manage You.

Identify key partners, segment your supply base, establish metrics that involve your employees, and have a forum to meet with these partners quarterly. Suppliers want to perform and will perform much better with a clearly identified metrics plan.

TIP #5: Think Ahead

Look beyond the tactical order process. Work to gain a better understanding of your customer needs so that you can provide your contract manufacturer accurate forecasting and improved product delivery. Excess and slow-moving inventory are costly and degrade trust in the relationship.

5 tips for Asian Supply Chain

Brought to you by: Bob Khor, Product Realization Group, Asian Operations bkhor@prgnpi.com

TIP #1: The lowest price quote may NOT be the lowest cost

Lowest price quote may be tempting, but there may be hidden costs involved. Check on reputation, size, other customer profiles and endorsements, delivery capabilities, and quality standards-- factors that are important to ensure that you have the best chance of getting the product that you have paid for and are not saddled with unexpected costs. Try to flush out all these hidden costs as much as you can.

TIP #2: Communication is key! Never assume. Always verify.

In addition to the cultural and language barriers (even with English speaking partners), the lack of constant visual and body language cues, many things can easily be misinterpreted. It is important that you constantly communicate with your Asian partners, and use clear and simple messaging to get your requests across. And when there is potential for confusion, make sure that you over-communicate and clarify. And afterward, communicate again to verify that your partner understands the requests and takes the right action.

TIP #3: Build Trust in the Relationship

Work with your Asian partners who you can trust. Let them know your vision. Follow through with your words, and always work with them to find win-win situations. Things get done more efficiently, and products can be had with better pricing and delivery dates if there is trust in your relationship with your Asian suppliers.

TIP #4: China + 1 Strategy

The trade war is real and impacts all things China. However, it is not easy to exclude China from your supply chain strategy. Therefore, it is prudent that any supply chain strategy still include China, but have the flexibility to switch to another option at a moment's notice. Work with partners that give you such an option.

TIP #5: Patience Pays off

We know doing HW is hard, and going to Asia makes it even more so. With time, you will be able to iron out all the kinks and reap the benefits of going to Asia. If you find the right partners and execute according to a well thought out plan, the payback period can be shortened immensely.

5 tips for Continuous Improvement

Brought to you by: Pavilion Data Systems Ajaypatel333@yahoo.com

TIP #1: Metrics

Ideally quantitative, but qualitative may work selectively

TIP #2: Habitual measurements

Find a way to measure quality/quantity of the outcome of all your tasks. This action forms the basis for metrics and dashboards.

TIP #3 : Establish an honest baseline

TIP #4: Set goals

Setting goals will gain you competitive advantage. Trying to maximize your current capabilities is not meaningful.

TIP #5: Open, meaningful, and timely feedback loop

5 tips for Business Process

Brought to you by: ACS adolphconsulting.com

TIP #1: Early Stage

Put in place minimal (yet scalable) NPI/Operations manual processes to effectively manage the key business functions.

TIP #2: Early Stage

Establish the key set of business metrics to track business performance:

- product cost
- product quality
- customer satisfaction

TIP #3 : Growth Stage

Implement integrated business systems solutions (PLM, ERP, CRM) slightly before they are required based on your product roll-out plans and level of data transactions.

TIP #4: Growth Stage

Investigate leveraging manufacturing/distribution partners systems (“portals”) where appropriate to delay timing of a full scale ERP implementation.

TIP #5: Growth Stage

Understand the trade-off involved in selecting “out of the box” SaaS based business systems versus Enterprise software. The goal is to minimize the total cost and time of implementation; pay attention to how the selected packages integrate with each other.

5 tips for B2B Supply Chain (Last Mile Operations and Logistics)

Brought to you by: Extron, sales@ExtronInc.com, www.ExtronInc.com

TIP #1: Design your supply chain and reflect that design in your product design.

This is much too important to leave to chance. Think of your supply chain in two parts - component manufacturing (typically globalized) and “Last Mile” solutions (which are typically in-market). This is important for the following reasons, and more: IP protection, tariff protection, risk management, inventory reduction, freight cost reduction.

TIP #2: Remember to consider IP protection in your Supply Chain design

TIP #3 : Think of your supply chain in two parts - component manufacturing (typically globalized) and “Last Mile” solutions (which are typically in-market)

TIP #4: Integrate, as far as possible, final manufacturing and logistics - it is significantly less expensive, and faster too!

5 tips for Retail Channel Development

Brought to you by: AJ Duran Consulting, aaron@ajduran.com www.ajduran.com

TIP #1: Delight your customer with an amazing product experience and value.

You only get one shot for a channel launch for new vendors. Ensure that your product is ready for retail, starting with a great out of box experience and tremendous value. Retailers want return customers, not return products.

TIP #2: Launch products in the channel no later than September.

From Amazon to Zappos and all retailers in between, it takes time to get product on the shelf (virtual or not), lock in holiday traffic drivers, plan for promotions, and gain relevance and reviews for channel success. Retail open to buy dollars and warehouse space is prioritized for top selling products, so you need time for momentum to build.

TIP #3 : Own the last three feet.

Does your packaging explain the “why to buy” on the front of the packaging from 3 feet away on the shelf? And in 3 seconds? All white packaging should remain with the Beatles and Apple. Customers need to know what problem your product solves - and quickly. Do your online product detail pages connect with customers on the tangible features and benefits? With an abundance of options on a virtual shelf, product titles, description, bullets, images and video are more important than ever. Read review and refine content every three months. Brand names may become less important as the amount of detailed product information is learned.

TIP #4: Stay in stock. Stay in stock. Stay in stock.

Advocacy and Allocation. Ensure success with select retailers who can be advocates and allocate inventory accordingly. Any stock outs with partners has a negative effect on your vendor scorecard and buyer metrics. Amazon is open 24 hours a day. 7 days a week. Not to mention the Amazon algorithm that takes into consideration stock outs. I just mentioned it.

TIP #5: Earn a reputation as a company that is easy to do business with.

Treat resellers as partners, and involve the channel early in the launch process so that their input is heard and considered. Know what retailers look for in a product.

- Large volume sales of product
- Positive market recognition of product
- Good shelf presence and image
- Customers looking for product
- Future upgrade or add-on sales increase basket size
- Return of satisfied customers
- No returned product nor defective product
- No technical support issues

Exit gracefully - vendors are not only judged on vendor responsiveness and sales success, but also product transitions and end of life programs.

5 tips for B2C Logistics & Retail Channel Development

Brought to you by: Rush Order | Dana Madlem | dmadlem@rushorder.com | www.rushorder.com

TIP #1: Embrace a multi-channel strategy

E-commerce only represents about 10% of all retail sales in the US, and Amazon already owns half of the online market. There are LOTS of great online and physical storefronts in the US and worldwide to reach your target customers. Develop a thoughtful multi-channel sales strategy early in your product development cycle. The channels you select may have major geographic impacts on logistics, but also product specific details like packaging and pricing.

TIP #2: Understand the difference between sell-in and sell-through

A celebration is well deserved upon receipt of your first large PO from a major retailer. However, it is often said that retailers are great at fulfilling demand, but not generating demand. Work closely with your channel partners to help drive demand and avoid returns. Finding “the right fit” in a channel partners is a great first step. There is nothing worse than a large bulk return from a channel partner many months after the original sale because the fit was bad or the demand simply wasn’t generated.

TIP #3 : Hardware is indeed hard. Returns will happen.

Orchestrate a thoughtful returns management and warranty replacement procedure in advance of your product shipping out to consumers en masse. Customers may be willing to forgive any unexpected issues with your product(s) if they are treated fairly and quickly. Be prepared to collect solid data on customer stated reasons for returns versus bench test results from those returns.

TIP #4 : Build an agile supply chain and operation

New threats and opportunities will emerge. Perhaps your product will take on a subscription element later on. Or, perhaps you will enter a new geographic market to take advantage of a lucrative opportunity. From your manufacturing site to warehouse locations to customer support infrastructure and returns management, all the pieces need to work seamlessly to handle the inevitable pivots your hardware business will endure.

TIP #5 : Sales tax laws are changing

Until recently, your ecommerce sales were only subject to sales tax in the states where you had a “nexus,” which was typically defined by where you have employees, offices or inventory. This recently changed with a Supreme Court ruling that appears to require sales tax collection and remittance in any state in which you ship a “substantial” amount of sales. This will likely impact nearly all ecommerce businesses that ship thousands of dollars of orders per year to any given state.

5 tips for International Expansion

Brought to you by: Munish Gupta, Supply Chain Advisory Group munish@sc-advisory.com
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TIP #1: Think of international expansion at same time as US launch

Each new country can bring up to 100% increase in consumers if you target demographics similar to that in the US. Think international early because you might lose first mover advantage as competition comes up with 'me-too' products. International set-up takes time but is worthwhile. Netflix went into 200 countries at the same time, and while it did not do well in 50 countries, it is a great success in 150 countries and the international revenue is more than 50% of Netflix's annual revenues.

TIP #2: Three logistics things to remember for international expansion

1. Have the proper regulatory/environmental certification such as CE, Bluetooth etc. for each new country.
2. Tax entity: It is important to get set up properly for taxation and import. Australia, Canada and EU countries allow the simple tax set up of a nonresident importer.
3. Have adequate logistics infrastructure such as 3PL warehouse, shipping company, customs broker, and the like.

TIP #3 : International tax entity

While countries such as India, China and Japan require the setup of a local tax entity, countries such as Australia, Canada, EU countries allow a simple tax setup called "non-resident importer" (NRI) .

As NRI, there are no income taxes, and the only taxes that you have to pay are VAT/GST taxes. These are "pass through," so your net tax liability is zero. The set up is quite simple.

TIP #4: Distribution Channels

There are different distribution channels for international expansion such as B2C consumers from company website, B2C consumers from marketplaces such as Amazon, and B2B clients such as distributors and retailers.

It is important to think of an all-encompassing expansion strategy right up front so that logistics for the different channels are covered.

TIP #5: Be patient and don't give up if one country doesn't work out

Each country has its own cultural nuances and consumer tastes. If you launch a hardware product in one country and it does not work out, don't give up on international expansion. The same product might be a huge hit in another country.

One company launched in China unsuccessfully but launched the same in Japan with great success.