

Session : Open Forum

**A DIFFERENT PATH TO IP SUCCESS:
A DECADE-PLUS DELIVERING CORES THE CAST WAY**

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Abstract :

CAST, Inc. is a small, pioneering provider of IP products that is still thriving despite repeated predictions of doom for such firms. This paper describes some of the unorthodox yet effective principles followed by CAST management, employees, and partners over the past 14 years.

Introduction

We didn't start CAST in 1993 to get rich, and in that we have clearly succeeded.

Instead, we got together back then as a group of friends and ex-coworkers with a very specific goal: to build a company that would first provide real value to our customers, and second enrich the lives of our employees and partners. In this we have been an undeniable success.

We've seen the promise of IP-based design be born, blossom, and for some get snuffed out way too early. We've sold reusable functions since before "IP core" existed as a phrase. We've witnessed innumerable discussions of what is the best IP business model, usually focused on why everyone except the speaker is wrong. We were a charter member of D&R and just about all of the IP-related associations and third-party programs.

Through it all, CAST has steadily chugged along, focused on satisfying hundreds of customers who are successfully using our IP. We may not be driving Mercedes (well, some of us are) but we enjoy what we do, we're still around doing it, and the great majority of our customers seem to enjoy working with us (and we with them).

We must be doing something right. There are lessons in this from which any IP provider — large or small — can learn.

Make Your Own Path

The conventional, business-school approach to forming a high-tech company is to write a business plan, get outside funding, get early customers, get more rounds of funding, and repeat until buy-out or IPO. This approach can really squelch many solid product ideas and engineering teams, burying the organization's initial fervor to make and deliver great products under the weight of satisfying the almighty numbers.

We've shown that an alternative approach can be ultimately more successful — and more satisfying — by developing useful products that really work, helping customers be successful with those products, then repeating the cycle with even more useful products. We end up taking our planning cues from savvy engineers like ourselves who are out building real products, not from investors with their eye on the next quarter's bottom line.

Be Your Own Banker

We have learned that self-funding our company is one key to employee and customer satisfaction.

We're more than happy to invest in great people, and in tools that help us satisfy customer needs, but we never get caught up in the trappings of building an outwardly "successful" big business.

It may seem slower and counter-intuitive, but having to keep one eye on frugality and the other on satisfying paying customers every day is a worthwhile discipline in the volatile IP market. Being free to build products that designers need rather than what VC strategists predict has proven successful for us. We enjoy learning what engineers like ourselves really need, and then delivering it to them with quality and support that exceeds their expectations.

Expand Your Reach

We've developed over a third of our 100+ IP products in-house, and for the rest we partner with certifiable experts in focused functional areas.

These are partners not suppliers, and in practice we all operate much like departments in one big company. Nearly all IP companies have their different development groups working in different locations — or have outsourced to other firms — but we have embraced this approach from the beginning, and made it a streamlined art form. Our customers benefit by having quick, useful access to some of the best designers in every specific field.

For example, our partners Alma Technology in Greece have developed one of the best-selling JPEG solutions in the world. The encoder and decoder cores are of course quite good, but what really sells them is when customers talk to us and Alma and we share ideas about the best way for them to incorporate JPEG functions in their designs. These customers aren't just buying a core, they're buying expertise, and the graphics experts at Alma are excellent at delivering it.

Deliver Success, Not Code

While we do of course deliver code — and documentation, testbenches, simulation models, etc. — what customers hope they are buying is a better system design experience, not just a piece of IP.

A potential customer recently asked our sales director to delineate everything that CAST's standard product support includes. "That's simple," she answered, "Anything that helps you successfully use our products." (The actual Support Policy has a somewhat different wording.)

IP in particular can require a surprising amount of customer support, not so much for the core internals but rather for how the core is used in a system. This varies with every customer project. Even when supplying a relatively straightforward and understood protocol like USB, engineers from our development partner Evatronix SA in Poland will often spend hours going over a customer's system architecture with them to make sure the overall design will be successful.

Keep It Real

IP must eventually end up in silicon, and we've learned that it's important to have close relationships with semiconductor providers, PHY developers, and other masters of reality.

We've helped evaluate and certify these firms' new technologies and tools before they've even hit the market, have been charter members of many semi-

conductor IP programs, have gotten certifications with multiple PHY vendors, and generally do our homework to make sure we can support our IP customers with any process that they target.

Observe But Don't Trip Over the Leading Edge

It's essential to keep up with the latest industry trends and new ideas, but don't let them get in the way of running a successful business.

We keep up with and participate in advances in IP packaging, encryption, quality, SPIRIT, and so on — as well as ESL and other design trends — and we are quick to adopt the newest versions of popular tools. But we know our customers today live in a less ideal current world, and we don't divert resources from helping them succeed in that world.

The sexy talk is all about 45-nm and smaller process technologies, and for parts of the industry that's where much of the money is. But the vast majority of all designs are still going into "old" processes like 180- and 130-nm, and a great many customers are happy to buy cores that work at these levels. We continue to find that there is a lot of opportunity away from the "bleeding" edge, and designers still living there who need our help.

Develop Designer Empathy

The decision to use an outsider's work in the form of an IP core is fundamentally tough for any good designer. You'll make that designer feel better by proving that you can be a trusted and valued design team partner, not just a salesperson.

This doesn't mean offering design services, but rather comes from the attitude and respect with which you treat your customers. Strive to be more like a smart buddy than a slick IP supplier, and customers will appreciate you.

Keep Things Flat

The designer's dream situation is to have the actual IP developer move in next door for the duration of the project. Come close by resisting the tendency to have organizational layers build up between your customers and engineers.

Nothing helps an IP user more than talking with the person who designed that core.

Master Time and Space

Designers work in 24/7 mode, all over the planet. We've learned that we need to provide support in a similar fashion.

A network of home and industrial offices; the best IM and VOIP communications tools; and setting a culture of rapid response have done the trick for CAST. In our “extended family” organization, the right person is typically started on a customer’s question within an hour or two of that question coming in, wherever they may be in the world.

We have found that answering quickly is in fact one of the best things any IP provider can do, and we regularly beat larger, more corporate competitors at answering potential customers’ questions.

1. One of our field sales people once overheard what we consider the ultimate complement, as one customer engineer whispered to his newly-hired coworker: “Be careful what you ask these CAST guys; they’ll have an answer even before you can finish asking your question.”

Make A Plan, But Always Stay Flexible

We have learned to be both agile and effective in fielding diverse IP products. Having a broad product line means continually adding the new functions that designers need, while having finite resources means sometimes trimming products that no longer fulfill a need.

IP products are supposed to be pre-packaged and work “off the shelf” if a firm is to make a respectable profit, yet we find that every customer situation is unique, and flexibility is essential. We don’t even try to just toss products over the wall, but instead are prepared to help make each core work for each customer buying it. CAST engineers or those of our development partners will almost always agree to make custom modifications for very modest NRE charges, to help the customer succeed with our core. One of our partners, SoC Solutions in Georgia, USA, is even ready to take on whatever degree of total system design and integration a customer may need help with.

Prove Your IP Quality

Checkboxes don't measure IP quality but success does: IP providers providing trash fail their customers and simply don't last.

We’ve been a big supporter of efforts like the QIP to measure and document IP quality, but we’d much rather focus on achieving certification with PCI-SIG, the USB-IF, and the like — or simply helping customers complete projects — than working on promotional materials.

Price by Value

You know the difficulty of developing and supporting a core and want to get a good return on your significant investment. But the customer has a different perspective. They must justify a “make or buy” decision to themselves, and to their management.

So don’t be greedy: price each core fairly according to the value it offers to the designer, and happy customers – and repeat sales – will follow.

Conclusions

Flaming statements abound about the impossibility of running a successful IP business. It is indeed challenging to design a quality core that really works and can be profitably resold, rather than creating a big new design services situation with every sale. It is hard to build a support network that gives quick, knowledgeable assistance in the eleventh hour — it's never the fifth, or sixth, hour — but it can be done.

By setting our goals on achieving satisfaction for our customers and employees and by building a contributing company slowly and with reason, CAST has shown that success in the IP business can indeed be found. So far, we’ve been finding it for fourteen years.