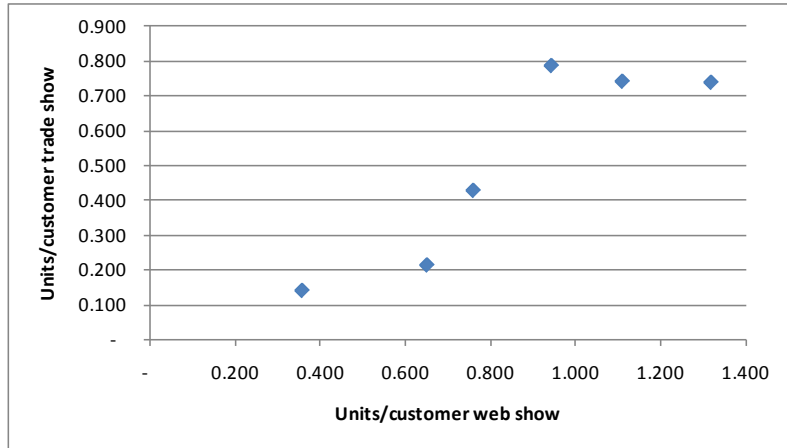


## Final IPD 2014 results

### 1. Web and trade show customer preferences

Customers were significantly price-sensitive this year in both the web and physical trade shows. Working with a fixed budget money spent on one product could not be spent on another, so there was an opportunity cost for buying a high priced item. The web and trade show product preferences were very similar with a high correlation of .897 between them in “unit sales per customer”.



In the web show customers spent on average \$161.42 (out of a \$200 budget) and purchased on average 5.1 products. In the physical trade show customers spent on average \$82.60 (out of a \$100 budget) and purchased on average 3.05 products.

The product-specific demand rates in the two shows were as follows:

Product	Units per customer (web)	Units per customer (tradeshow)	Average	Average price
Seed	0.943	0.786	0.8645	\$ 25.00
Battpack	0.65	0.214	0.432	\$ 37.50
Peak	0.356	0.141	0.2485	\$ 79.00
Cordly	1.319	0.738	1.0285	\$ 24.99
Bestie	1.11	0.741	0.9255	\$ 19.99
Tap	0.759	0.428	0.5935	\$ 35.00

As noted above consumers were price sensitive, the three least expensive products were also the three most consumed products.

### 2. Economic parameters

Product	Fixed cost	Web show variable cost (\$)	web show price (\$)	Trade show variable cost (\$)	Trade show price (\$)	Average margin
Seed	\$315,653.00	\$ 15.55	\$ 30.00	\$ 5.19	\$ 20.00	0.611
Battpack	\$ 65,588.00	\$ 29.99	\$ 30.00	\$ 29.99	\$ 45.00	0.167
Peak	\$ 58,278.00	\$ 44.27	\$ 79.00	\$ 44.27	\$ 79.00	0.440
Cordly	\$ 20,600.00	\$ 5.95	\$ 24.99	\$ 5.95	\$ 24.99	0.762
Bestie	\$ 14,810.00	\$ 2.56	\$ 19.99	\$ 2.56	\$ 19.99	0.872
Tap	\$ 8,326.40	\$ 15.81	\$ 39.99	\$ 15.81	\$ 30.00	0.539

The first thing to note is that all non-electronic products (Bestie, Cordly, Seed) had higher margins than any of the electronic products (Tap, Peak, Battpack), and this will have significant consequences. In most cases this was a direct result of teams not sourcing electronic components aggressively enough, perhaps due to a time crunch toward launch. Most of the value in a modern manufactured product is in sourced components, so sourcing is key to competitiveness, in IPD and in reality.

### 3. Results of the competition(s)

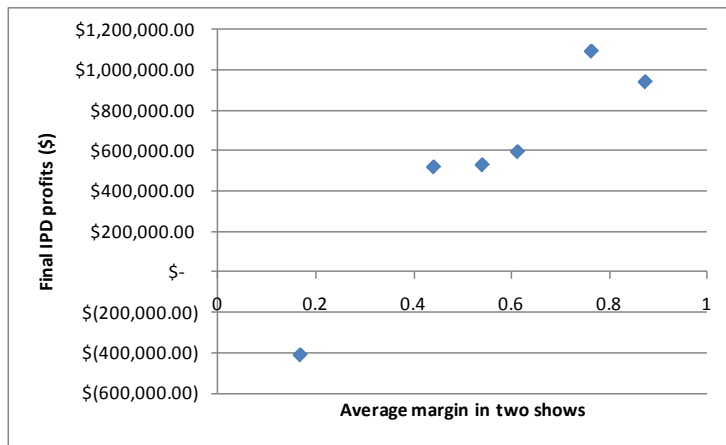
100,000 customers were assumed for both trade shows, so a team can compute its sales potential by multiplying its “sales per customer” by 100,000. The difference between this sales potential and actual sales was driven by inventory policy. Actual sales multiplied by the profit per sale (price – variable cost) gives raw profits. To compute the final IPD profits we weight the raw profits (1/3 web show + 2/3 physical trade show), then subtract fixed costs and any variable costs invested in excess (remaining) inventory.

In the web show, all teams stocked out except Battpack, who then gained a lot of spillover demand from other products. Unfortunately, Battpack’s costs were too high (margins too low) to fully benefit from that spillover. In the physical trade show only Peak stocked out, sending some demand to other products. The results of these calculations are as follows:

Team number	Product	Trade show profit before fixed costs	Web show profits before fixed costs	Weighted average of profits	After subtracting fixed costs	Final IPD profits after paying for remaining inventory
1	Seed	\$ 1,217,145.04	\$ 578,000.00	\$1,004,096.69	\$ 688,443.69	\$ 595,978.65
2	Battpack	\$ 321,214.00	\$ 1,000.00	\$ 214,476.00	\$ 148,888.00	\$ (408,926.00)
3	Peak	\$ 434,125.00	\$ 868,250.00	\$ 578,833.33	\$ 520,555.33	\$ 520,555.33
4	Cordly	\$ 1,405,152.00	\$ 571,200.00	\$1,127,168.00	\$1,106,568.00	\$ 1,093,478.00
5	Bestie	\$ 1,339,251.48	\$ 522,900.00	\$1,067,134.32	\$1,052,324.32	\$ 941,824.48
6	Tap	\$ 607,332.00	\$ 507,780.00	\$ 574,148.00	\$ 565,821.60	\$ 531,039.60

While there was some excitement around inventories, the big story this year is margins. Neither variable cost nor price in isolation explain the results as well as margins (profit per unit divided by price) do. High margin products did well, low margin products did less

well. There is a remarkable .944 correlation between the average margin (over the two shows) and final IPD profits.



In IPD 2014, the key driver of competitiveness was managing the margin. The best opportunity for teams to improve in their next product design engagement is to recognize the important place of sourced parts in one's overall cost structure, and to invest considerable energy in getting those sourcing costs down. With the design and features (and therefore a competitive price) stable, aggressive sourcing can reduce variable costs and increase margins.