Bridging the Gap Between
HW Start-ups & Manufacturing Operations

ORI KAPLAN, Operations Strategist
It might be come a Unicorn!
HW Start-up Operations Is Completely Different

Purchasing

Production

Support

Packaging
A PV Window Production Example
HW Start-up Initial Production Process Is Not Production Efficient

- Prism-Pair Washing
- Prism-Pair Drying
- Prism-Pair Masking
- Prism-Pair Plasma & Primer

Plasma & Primer

HW Start-up Initial Production Process Is Not Production Efficient

Prism-Pair Washing

Prism-Pair Drying

Prism-Pair Masking

Prism-Pair Plasma & Primer

2D Mechanical Assembly

Soldering

MCPCB Depaneling

Clean Storage

6010 Dispensing
BIPV Window Production - Early Days Process

The Lab Team

The R&D Guys
“Field Testing” Anywhere & Anytime
“Field Testing” Anywhere & Anytime

Wheelable
Toilet and Shower wheelchair
Logistics Is Not The Same As Well 😊
Scaling Up Together – Start-up Life Cycle

FORMATION
Mission > Vision > Strategy
-2

-1

0

VALIDATION
Lean Startup
Product / Market Fit
1

GROWTH
Scale Up
Business Model / Market Fit
2

3

Problem / Solution Fit
Vision / Founders Fit

BUILD
LEARN
MEASURE

https://www.startupcommons.org/
Don’t Miss The Opportunity
The Hardware Start-up DNA

- Flexibility
- Creativity
- Continuous Funding Search
- Time Sensitive
Hardware Start-up Funding (Ideal Scenario)

- **F&F - Family & Friends** (up to $250K)
- **Angels/Accelerators** ($50K - $150K)
- **Pre-Seed** ($250K - $1M)
- **Seed (institutional)** ($1M - $3M)
- **Series A/B/C/Growth** ($3M - $50M+)

- **Build POC**
- **Build MVP**
- **Hire Core Team**
- **Ship Beta**
- **Production/ Fulfilment**
- **Scale Up**
Reality Of HW Start-ups Survival

CONSUMER HARDWARE THROUGH THE FUNNEL
Initial Rounds in 2012 or 2013

382 INITIAL EARLY STAGE ROUNDS
(Seed, Crowdfunding, Biz Plan, Inc/Acc)

SECOND ROUND
93 (24%)
FAIL TO RAISE (INCLUDING DEAD ROUNDS)
284 (74%)
M&A/EXIT
5 (1%)

THIRD ROUND
43 (11%)
44 (12%)
6 (2%)

FOURTH ROUND
17 (4%)
26 (7%)
0 (0%)

FIFTH ROUND
3 (1%)
14 (4%)
0 (0%)

SIXTH ROUND
3 (1%)
3 (1%)
0 (0%)

The Production Stage Challenge

Manufacturing Hell

Ease of Manufacturing

Difficult

Easy

# of Units

1 100 1k 10k 100k

15
The Industrial Manufacturing Company
What A Typical Industrial Manufacturing Company Is Usually Looking For:

- Stability & certainty
- Cost effectiveness
- Standardization
- Long-term plan
How Can We Bridge The Gap
MANUFACTURING & SUPPLY CHAIN

- Manufacturing happens at seed stage
- Almost 50% of the US startups are manufacturing in China
- Half of the European startups are manufacturing in China
- It takes 3+ months to find a contract manufacturer (CM)
- 65% of the startups found that their CM was involved in the development of their product
- Price is the most important factor when it comes to picking a manufacturer
- Ensuring the quality at every step and getting to DFM are the most difficult manufacturing challenges
- Back in Q4 2018, 91% of the US respondents were very or somewhat worried about the US tariffs
- Companies are on average late to ship by 3+ months
- Most companies (86%) protect their technology through patents
Manufacturing happens at seed stage.

Half of the European startups are manufacturing in China.

It takes 3+ months to find a contract manufacturer (CM).
Companies found their CM (Contract Manufacturer) primarily through active searching (24%). Only 8% of the respondents found their CM through their investors or incubator / accelerator.

65% of the startups found that their CM was involved in the development of their product.

Price is the most important factor when it comes to picking a manufacturer.
The Added Value For The Manufacturer

• Exposure to new trends & technologies
• Enhance the production team creativity and proficiency
• Gain additional revenue
• Better utilization of production resources
The Added Value For The Start-up

- Experience, know-how and years of lessons learned
- DFXs expertise for large scale production
- Short NPI and quick response
- Access to production resources
My Five Cents

• Get connected:
  • Start-Ups, Angels, VCs, Accelerators
    (Meetups, Investors conferences, Hackathons...)
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• Allocate production resources:
  • Analyze the production resources you have that
can best fit multi-set-ups - small batches
  scenarios.

• Learn to manage the risks:
  • Products road map, Time lines.

• Team:
  • Find the people in your organization that can
work with Start-up people.
Thank You!