Successful Entrepreneurship for Microsystems

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Towards a Successful Startup

…“Plan A” – an iterative process

Problem / Need

Your Company

Customer

Investors, $

Top Line
Bottom Line

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Presentation Key Elements

- **What** is your offering – a “Tag” line? ...basis for 60second “elevator pitch”
- **What** is the problem you are solving?
- **What** is your solution?
- **How** you do it?

- **Who** will buy it? ...Market Research, GET OUT and TALK to Customers
  - How much will they pay?
- **Who** is your competition?

- **What** is the Market Size?
- **How** will you Market it? Channels?
- **What** is the Business Model?
  - **How** will you make Revenue? Profit?
“HUG”

A mobile app that
makes efficient your social media experience
Or adds efficiency to your social media experience
Or organizes and adds efficiency to your social media experience
Current situation
The Hug way

Selected
Friends
News
Interests
..
Hug – how we do it

- A proprietary AI algorithm that is an “Aggregator”
Hug – Who is the Competition?

➢ What is your UVP / Differentiation?
Target Market

- Initial Customer feedback
  - x/20 potential customers say they are very interested to Hug it!
- College students and young adults
  - Alpha – selected 10 students at UCSD, and 10 ‘friends of friends
  - Beta – sample of 100 UCSD students, and 100 other young adults
  - iStore and Google Play store
Market Analysis

➢ **Size of market in terms of numbers.**
  
  E.g., the number of 20-year olds, if that's your target demographic.

➢ **Size of market in terms of dollar value.**
  
  E.g., based on sales of similar products or other metrics.

➢ **How much of the market will you capture?**

➢ **Competition: who are the other players in the field?**

➢ **Other relevant details.**
Business Considerations

- Revenue from iStore/PlayStore
- Revenue from Google Adsense ads
- <20 employees
Income Statement
Exit Strategy

 License
 Get acquired
Business Model Canvas
Team

- CEO
- CTO
- CMO
- COO
- Customer Rep
“DigiBag”

A “Smart” bag that synchs electronic devices, and sets an alert for missing devices
Current situation – the Problem

➢ We all carry a plethora of electronic devices in our backpacks, briefcases, purses
➢ How often have you missed having the right power charger, head-set,...?
DigiBag’s solution!

DigiBag
Smart Electronics

Laptop
Charger
iPad
Charger
Phone Charger
Head-set
...

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DigiBag – how we do it

- Smart Electronics unit built from off-the-shelf component initially allows devices to be connected via NFC
- Follow on devices will be built using FPGA’s, and a custom designed Integrated Circuit
Product Roadmap

Phase 1
- Smart Electronics built using off-the-shelf components
- Bags procured from overseas
- Final assembly in San Diego
- Marketed thru online sales – Amazon, eBay etc.

Phase 2
- Smart Electronics built using an FPGA
- Bags procured from overseas
- Final assembly in San Diego
- Marketed thru online sales – Amazon, eBay etc.
- Will seek to license to name brand backpack and briefcase manufacturers – Samsonite, Swiss,..

Phase 3
- Smart Electronics built using an FPGA
- Bags procured from overseas
- Final assembly in San Diego
- Marketed thru online sales – Amazon, eBay etc.
- Will seek to license to name brand backpack and briefcase manufacturers – Samsonite, Swiss,..
Target Market

- Initial Customer feedback
  - x/20 potential customers say they are very interested in DigiBag
- College students and young professional
  - Alpha – selected 10 students at UCSD, and 10 ‘friends of friends
  - Beta – sample of 100 UCSD students, and 100 other young adults
Market Analysis

➢ Size of market in terms of numbers.
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- CMO
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- Customer Rep
In-class Quiz 6-1

1. Each individual to please list the 5 essential parts of a company presentation
## Success elements – product positioning

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard, market, customer base</td>
<td>Standard, market, customer base</td>
</tr>
<tr>
<td>➢ Super-Integration</td>
<td>➢ Emerging standard</td>
</tr>
<tr>
<td>➢ Problem solutions</td>
<td>➢ New features/capabilities</td>
</tr>
<tr>
<td>➢ Evolutionary enhancements</td>
<td>➢ New interfaces</td>
</tr>
<tr>
<td>➢ e.g. Cost reduction</td>
<td>➢ “Revolutionary” enhancements</td>
</tr>
</tbody>
</table>

Will Impact Schedule, Technology Selection, Design Methodology, ….
Conceptual timeline

Existing markets:

- Chip Development
- Market Accept
- Ramp
- Hi Volume

~5 quarters

For existing markets, getting the product to market and increasing market share is important!

New markets:

- Chip Development
- 1st Customer
- Slow Ramp
- Hi Volume

Alliance / New Standard Accept

- Key: early engagement with customer to evaluate and validate the new chip.
- J. Fiebiger (Board Directors Actel, Mentor, QLogic):
  
  "The fabless company must identify the first potential customer early. It is important to have customer’s input in shaping the product requirements… Investors and suppliers will get a favorable story when they perform due diligence with the customer about the viability of the product and potential volume."
Lifecycle of a Fabless IC development – the 4 phases

- Global Planning
- IC Design
- IC Prototyping
- IC Production

Series A

Series B

30 – 50% of TT$
Lifecycle of a Fabless IC development – activity highlights

- **Global Planning**
  - High Level Design
  - Floor Planning

- **IC Design**
  - Chip Design
  - Physical Design
  - Analog IP Design
  - FPGA Implementation
  - Reference Design
  - Customer Evaluation “Proof of Concept”

- **IC Prototyping**
  - IC Qualification
  - Debug
  - Prod. Ramp

- **IC Production**
  - Hi volume

- **Series A**

- **Series B**

- **“System” Architecture / Design / Simulation / Verification**

- **Customer Samples**

- **Reference Boards**

- **Customer Evaluation Design Acceptance**

- **30 – 50% of TT$**
Typical ASIC Development Cycle

Start Design

ASIC DESIGN

Proto Ramp

Hi Volume

Year 0

Year 1

Year 2

Software

Software α

Software β

Software Prod.

Initial Silicon

Initial Silicon Ramp

Initial Product Ramp

Volume Production

Tapeout

ES

QS

Prod HW/SW

Launch

FPGA

Ref Board

HW/SW Launch

Prod Qsupelos.
System vs. IC Development Cycle

a. At the System company:

b. At the Fabless IC company:
Success elements – market positioning

- Customer, customer’s customer (value chain)
- Competition – the “big boys”?
- Market segment, TAM/SAM
- Features – existing or new standard? Customer base?

a. Chip Development | Market Accept | Ramp | Hi Volume

b. Chip Development | 1st Customer | Slow Ramp | Hi Volume

Alliance / New Standard Accept

Understand customer expectations!
Success elements – funding

- Business plan
  - A good executive summary is a must
  - Strength of the idea, the need, the market
  - Schedule
  - Revenue plan
- Select the right VC, matched to your segment and need
- Team’s credibility
- Presentation
Success elements – technology selection

- Avoid using the newest technology (process, design, packaging, …)
  - If that is the only way you can meet the specifications…..
- Use the **newest** technology you can **afford**, and the **oldest** technology that lets you meet the specifications

% Designs

![Graph showing % Designs vs Complexity, Performance, Development Cost, and Risk.]

Process Node Maturity

<table>
<thead>
<tr>
<th>Process Node Maturity</th>
<th>Mature</th>
<th>Mainstream</th>
<th>Leading Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>nm</td>
<td>500</td>
<td>350</td>
<td>250</td>
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<tr>
<td></td>
<td>65</td>
<td>45</td>
<td></td>
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</tbody>
</table>

Source: FSA

% Revenue

![Bar chart showing % Revenue across process node maturity levels from 2004 to 2006.]

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Success elements – supply chain selection

- Technical due diligence
- Business due diligence
  - Will they accept your business?
  - Confidentiality documents
  - Quotes
  - Firm up the commitments
Success elements – cost management

➢ Unit cost optimization

➢ Development cost optimization
Success elements – other considerations

- Sourcing methodology – FPGA, ASIC, COT, ...
- Operations best practices – legal, financial, production control, customer support, …
- Quality and reliability – Quality Manual, build in quality from the start, …
- Schedule development and management
- Program management
  - Internal development
  - Management of the distributed supply chain
Exit Strategies

- Stay private
  - scale up company at least for some years, especially if profitable
- IPO (Initial Public Offering) - go public
- M&A (Merger and Acquisition) – merge with or get acquired by a larger company