Product Conceptualization and Market Definition
Start-Up by Engineering-Driven or Business-Driven Management Teams

Markus Mäkelä
markus.makela@tkk.fi

SOFTWARE BUSINESS LABORATORY
Helsinki University of Technology
http://www.sbl.tkk.fi/

Issues Looked at Today

- How software products get conceptualized
- How software products’ markets get defined
- Roles of engineers, marketers, and “entrepreneur types”
- Building product concepts and market definition with different types of management teams (engineering-driven teams vs. marketing-driven teams)
Interrelated Factors in Founding a Software Start-up

- Strategy
- Business model
- Technology
- Product concept
- Marketing plan, including sales plan
- Finding and correctly employing the financing
- Finding and correctly employing the right people
- Finding and correctly employing the business partners
- Economic environment and cycle phases

The Beginning of a Software Start-up

- A start-up always begins with people somehow
- Sometimes just one person
- Could be, e.g.:
  - A group of engineers
  - An individual entrepreneur
  - An individual marketer (business/industrial management expert)
  - A combination
Importance of the Management Team

- Initially, the founding team explores the product and marketing concepts for the new venture
- The team is the most important factor of success
- Importantly affects your chances to obtain financing
  - Then, financiers, a great product concept, great market opportunities, an innovative business model, etc. will help you supplement you team

A “Textbook” Example of Team Formation Phases

- A rather typical (or standard) course of building the team (Nesheim, 2000):
  - First
    - Many firms start with the CTO
    - Often, a CEO then selected
    - VP of Marketing
  - Later
    - VP of “Business Development”
    - VP of Sales
    - CFO/VP of Administration
- The VC does not require that you immediately have the whole team!
- The VC can help you find VPs and eventually, a new CEO
- Rather be careful to make the right choices
- In practice, things can start on a more ad hoc basis
Types of Initial Teams – General Categorizations

“Engineers”
- May have an important technology concept or hopefully a product concept
- May have obtained important technological and process insights in their previous job

“Marketers”
- Have business acumen
- Financially more sensitive
- May have obtained a important vision on markets in previous job
- Or may simply be doing their job: identifying new markets

“Entrepreneurs”
- Relentlessly seeking opportunities to initiate actions on new ideas, perhaps increase their influence, and build a growing business and make money
- Could have their educational or practical background in engineering, management, marketing, or some quite other area
- The best thing would be to have both solid engineering capability and business expertise in the initial team!
- And, finally: these are just general categorizations: often (luckily), the reality is richer with many combinations of traits
A Marketing Driven Team

- Will not often begin with an idea of market opportunity, not an idea of a product.

Seeking market opportunities

- Find a lucrative, existing market with a lot of problems: e.g., how to improve business processes so as to decrease companies' costs in their non-core activities?
  - Payroll
  - Facilities management
  - Travel management
  - Benefits, incl. stock options
  - Part-time employment and other working time management

- Go to an emerging or high-growth market (the Internet) with a killer application (new disruptive products and services that radically alter the operation and rules of everyday life for millions of people, see e.g. Downes and Mui, 1998)
  - Email
  - WWW
    - the browser; the www portal, the search engine; etc.
  - Mobile connectivity solutions

How to Size Up the Market Opportunity?

- Bottom-up analysis
  - Number of users * average sales price = total available market size
  - Number of users you can service * average sales price = total serviceable market
How to Size Up the Market Opportunity?

- Top-down analysis
  - For instance, average tool budget of a company designing safety systems for nuclear energy plants e.g. 1-3% of expected revenue
  - Or, average IT budget of a large enterprise
  - Then consider the relative importance of your application: which products will the customers pass to buy yours? How much of the IT budget will be spent on your product?
  - Again, need to estimate number of users to be serviced
  - The statistics could be available from industry analysts, trade shows, and industry and engineering organizations such as Gartner, Dataquest, ACM, IEEE, etc.
  - So you have some idea of the market opportunity – what next?

Product Concept to Meet the Market Opportunity

Planning

Marketing
- Articulate the market opportunity explicitly
- Define market segments
  - by needs
  - by hardware platform
  - by budget/capability to pay/willingness to pay
  - by sophistication (leading adopter, follower, laggard)
- End consumer characteristics
  - Demographically (age, gender, …)
  - Geographically
  - Psychographically

Design
- Software architecture
- Target hardware platform(s)
- Software development methodology
- Think about what key technologies are required and do “technology inventory”: which of those are in residence; which are missing; where to get the from

Product Concept Development

Marketing
- Identify key customer needs
- Identify “lead customers” – could be imaginative
- Identify competing products

Design
- Scope development time and resources
- Prototype
  - Obtain also customer feedback to solve key technical problems
- Examine IPR issues
- “Manufacturing” software products and distribution
  - Seems easy, but still: licensing, keying, distribution need to be managed
Refining the Product Concept

- Qualitative methods
  - Imaginative user
    - Find the “imaginative user” and obtain from her all information you can get
    - “If our whole company was at your disposal, what would you have us do?”
    - Obtaining requirements from customer is, in the end, a superior way to obtain requirements
      - Other ways try to synthetically figure out what the customers need
    - Focus groups – a method of data collection suitable for market research and obtaining customer requirements
      - Small groups of potential customers
      - Gathered for a small price
      - Moderated by a professional
      - Observed or filmed through a one-way mirror

Refining the Product Concept

- Quantitative methods
  - Customer surveys of questionnaires
    - Not too long – people can answer during a break
    - Much of creative thinking cannot be expected
    - Questions should present clear alternatives:
      - How much would you pay for: 1. 20% improvement in simulation speed, 2. 50% improvement in simulation speed, 3. 300% improvement in simulation speed
By Itself, the Product Concept Is Nearly Useless

- If the marketing-driven team lacks a vision on how to execute, risks include that:
  - Engineers cannot know what they should actually achieve
  - The product concept can be heard of and used by another company
  - Credibility with financiers and advisors can be lost
  - What do the marketers need?

The Astute Marketer

- Finds or co-creates the technology that meets the market need
- Is the “engineer’s best friend” – not what some engineers would consider the “typical, flashy marketing type”
- Advocate of the customer viewpoint
- Has broad support to rise in the organization
- Knows how to pick the engineers with whom to found a start-up

Market Requirements → Technology
Identifying Key Technologies

- A product is now needed to meet the market opportunity
- A product development plan to be integrated to the business model
- Technology expertise is required – need to get it
- …so, let’s consider the viewpoint of start-up’s that get conceived by an engineering-driven team (as opposed to a marketing-driven one)

A Technology-driven Team

- If technology experts found a start-up, they most likely have a new technology, or product idea that has been developed to some degree
- It could be a radically new technology
  - WWW browser, Mosaic
- It could be an incremental improvement
  - E.g. more features, better usability, better throughput or delay results, or cheaper use
- What does the engineer need to learn to make the technology a successful product?
The Astute Engineer

- Molds the technology to meet the market: needs and requirements of customers
- Able to influence business operations outside the realm of engineering
- Has broad support to advancing upwards in the organization
- Able to found an own company and keep it going

Product Concept and Market Definition

- Mold the technology into a product concept that meets the needs of an attractive market
- The technology might be so flexible that there is no pre-defined market for it
- The product concept and market identification must go hand in hand
- Both the product concept and market identification are fluid: intuition is needed
- Identify matched pairs of [product & target market]
- Marketing capabilities are needed – get them
Critical Components Needed for Viable Business

Once the engineer team has obtained business expertise or the marketing-driven team has obtained engineering expertise, the venture team has the critical components needed for viable business at this stage:

- Technology
- Product concept
- Market opportunity

Some Components for Viable Business Needed Later

After the company has the required marketing and engineering capabilities for the management team (also manifested in the “textbook” description of complementing the management team by Nesheim (2000))

- Funding
- Business model
- Product development plan
- Sales and marketing plan
- And finally: a business strategy for sustained competitive advantage (in the IPO, nobody wants to invest in a “one hit wonder”)
References and Other Readings