<table>
<thead>
<tr>
<th>Company</th>
<th>Business Opportunity</th>
<th>Person</th>
<th>Why Succeeded or Failed</th>
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<tbody>
<tr>
<td>Soligen (S)</td>
<td>Need to cast real parts from ceramic molds, current lost wax with stereolithography is not feasible. Building machines that will be sold. Many shortcomings with current process.</td>
<td>Yehorman Uziel: VP of engineering of 3D systems. Expert in manufacturing of capital equipment. Had already developed the stereo lithography machine. Knew the need -- developed a lost plastic method.</td>
<td>Had to develop from scratch. Large market (20B). Someone who knew what it meant to develop a product. Closer to real parts – fewer steps. Eliminates pattern making.</td>
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<tr>
<td>3D orthopedic (F)</td>
<td>Provide printed “parts” for the human body. Don’t need to hand carve.</td>
<td>Stephen Campell: Academic, research, doctor. Expert in proodontics. Knew what services were available and their problems.</td>
<td>How to get this to work. Issues of FDA – question about ability to get through the system. May not have had credibility, does not have experience with FDA or product development. Many outstanding issues of biology, binder, material etc.</td>
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<tr>
<td>Therics (S)</td>
<td>Building “pills” that are time release. Benefit from not having to validate the process as well as the prototype.</td>
<td>Walter Flamebaum: academic, entrepreneur and pharmacology executive. Understood technology development. Understood the market need for pills. Understood the FDA process.</td>
<td>Huge market (9Billion). Many FDA issues (same as above). Gaining benefit from not having to validate two sets of processes. FDA binder going through vapor phase – do the same chem prop. exist?</td>
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<td>3D partners (F)</td>
<td>Concept models for architecture. Providing a service firm.</td>
<td>Andrew Kelly – MS student. Friend in 3DP lab who had some arch. experience.</td>
<td>Small market. Doesn’t know the architectural market.</td>
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| 3D imaging (??) | Supply 3D models to doctors  
Benefit from better visualization  
Printing in multiple colors | Ted Jackson – 3DP Phd Student  
Lau Christianson – MBA with  
healthcare and pharmo-economics | Outsourcing machine (could buy a soligen or Z corp machine)  
Idea is appropriable – very little cost to set up competition |
| Conference (F) | Supply “busts” of people at the mall | Michael Padnos – translational and conference systems  
No engineering or marketing background | Already done  
Small market  
Failed |
| Specific Surfaces (S) | Trying to build filters from ceramics (need hot and small filters)  
Need highly designed filters | Mark Parish – ceramics expert  
Andrew Jeffrey – Filter expert | Using the soligen machine  
800 M per year |

Current system:

Very basic – not developed
Emphasis on precision, single material
Not fast, not multiple materials
J&J have dibs on any medical application
**Adverse Selection:** In moral hazard, we considered the problem of parties to a contract being unable to verify the relevant behavior of another party. Adverse selection concerns a different issue: the inability to verify a relevant characteristic of the other party, one that that party is unable to change (or at least, unable to change quickly). [http://econweb.sscnet.ucla.edu/luk/ec160/advsel.htm](http://econweb.sscnet.ucla.edu/luk/ec160/advsel.htm)

**Moral hazard:** People often lack important information about other’s actions. A principal contracts with an agent to provide a good or service. Moral hazard occurs when the agent has no incentive to act in the best interest of the principal and the principal can not observe the actions of the agent.

**Credible Commitments:** You need to make it believable that you will follow through on the commitment that you have made. In entrepreneurship, this can include leaving a job, making your own financial commitment. Etc.

**Social Capital:** The notion of "social capital" was first introduced by the sociologist James Coleman in 1988. He defined it as "the ability of people to work together for common purposes in groups and organizations". It is argued that a group with members that trust each other can accomplish more economic growth than a similar group without trust. In this way, Coleman has suggested that social capital is a new production factor which must be added to the conventional concepts of human and physical capital.

**Trust:** Confidence in or reliance on some quality or attribute of a person or thing, or the truth of a statement. (OED).

**Appropriability:** Ability to take your idea/ compete with you.

**Complimentary synergies:** Both groups gain benefit from the synergies between the organizations.

**Transaction costs:** When dealing with outside groups, there is a cost of information/goods exchange. The ability to minimize transaction costs is termed the efficiency.

**Risk:** Cost & probability of not having the ideal outcome occur.

**Uncertainty:** Not knowing the outcome.
## Opportunities

Opportunities come from
- Symmetry: No two individuals have the same information
- Resources laying fallow
- Better way of doing a job
- Resources that will become scarce
- Technology breakthrough
- Existence of a critical need

Sources of opportunity (talk about her companies)
- Inefficiencies in the market
- Changes in social, demographic and economic forces
- New inventions

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<tr>
<th>Individuals</th>
<th>Resources</th>
<th>What are the risks in a new organization</th>
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| Need to have the right individual who has
  - The idea
  - Ability to see opportunity
  - Desire to take the risk
  - Ability to convince others of the importance |
| Can’t do the work alone need external resources:
  - Suppliers
  - VC – Business angles
  - Other people that you need to hire
  - Technology source (TLO) |
| Risk:
  - All people see risk differently
  - Perceive downside differently than the upside
  - People are loss adverse even when the upside is greater than downside
  - Can offset risk differently
    - Insurance
    - Diversification |
| Barriers:
  - Moral hazard
  - Opportunism
  - Adverse Selection |
| Methods to overcome barriers
  - Credible commitments
  - Social Capital
  - Trust (what are the economics of trust)
  - Ability to enforce commitments
  - Staged investments |
| Various modes of organizations:
  - New firm
  - Franchise/license
  - Joint venture
  - Contract |
| What determines mode:
  - Transaction costs
  - Risk reduction
  - Competitive positioning
  - Complementary synergies
  - Performance
  - Cost
  - Speed
  - Appropriability |

Opportunities are rarely in a neat package

How do you overcome the issues of information asymmetry?
- Educate the customer
- Educate your resources

Once the information is more symmetric, how do you keep competitive edge:
- Monopoly – patents
- Head start
- Inability of others