

How to Evaluate a Science and Tech Startup

Now that you've reviewed the [Dos and Don'ts of Angel Investing](#) and have identified ways to [source quality startups](#), it's time to start thinking about how best to evaluate the startups you're interested in investing in.

In Part 2, we mentioned that one of the benefits of online investment platforms is that they often go to the trouble of initially vetting a startup for you. However, that doesn't mean that you can simply take a back seat. To be an effective angel investor, you need to know [how to evaluate startups](#) and be able to determine which opportunities are best for you. This is especially the case when considering science and technology startups. The good news is that doing your homework pays off. According to a [study](#) sponsored by the Kaufman Foundation, angels who spent 20 hours on due diligence experienced five times higher returns than those who didn't put in the time and reduced their losses by about one-third.

Let's start by taking a look at the areas that you should evaluate, as well as some of the [questions to ask](#).



Market Risk:

This is where you want to look at the number of people/companies that would be willing to pay for this kind of technology. How much would they pay? The answer doesn't have to be an outrageous number to be able to generate returns!

It is important to get opinions on the market size and the potential for growth. A good example of this can be seen in the Propel(x) evaluation process, which allows company management and outside experts to weigh in on the market size. Getting a larger pool of opinions allows you to understand other people's rationale and develop your own estimate of the market. Ideally, you want to talk to the startup's customers.

Key questions to ask customers include:

1. How many units would you buy? (or how large would an order from a single customer be?)
2. How much are you willing to pay per unit/order?
3. How pressing is your need for this solution? What are your other alternatives? Why is this alternative better?



Competitive Risk:

The outlaws who decided that one town “wasn’t big enough for the two of ‘em” had nothing on science and technology startups. In a business where being first in line gets you fed and second place leaves you waiting on the curb, the competitive stakes are high. So before you invest, you need to ask: who already exists in the space? Generally, if the space is quite empty, the startup may have more time to iterate and experiment with their technology and business model. This is often the case with a science or technology company, as intellectual property (IP) frequently protects the startup from direct competition--at least for a while. Still, make sure you understand the direct competition and get opinions on who already exists in the market and how they might react to a new entrant.

Key questions to ask customers and experts include:

1. What are the alternatives that currently exist to solve the problem? What are their shortcomings? Which companies offer these alternatives?
2. Why is this product/solution better than what exists?
3. What is the R&D in this area? Are large corporations investing in this? Is academia making good progress? (in short: what new startups in this area should we expect to see shortly?)
4. What protections does the company have for its technology (patents, trade secrets, brand, existing relationships etc.)?



Technology Risk:

Does the technology actually work? It might seem like we’re relaying the obvious here, but technology risks are often higher than normal in science and technology startups. Think Theranos! Owning the IP, or having the research come out of a top university is no guarantee of a technology's success. That’s why asking questions of experts in the field is imperative. Our Evaluation Process is specifically designed to bring in outside experts and have them answer tough technology related questions so that investors get a true sense of the value of the innovation.

Key questions to ask experts and management include:

1. How far along is the technology development: Is there a lab prototype? Customer-ready prototype? Manufacturing-ready model?

2. Have customers paid for this product?
3. What testing data exists? Are there results from lab tests? From customer tests?
4. What are the key technological risks that remain in bringing the product to market?
5. What are the key technological risks to scaling?



Regulatory Risk:

So, the technology works. Good news. Your next question should be: is this technology moving into a highly regulated area? Depending on the industry, the rate at which it becomes a usable product on the market may vary. It is much easier to develop, market, and sell a new coating for an industrial heat exchanger than it is to develop, market, and sell a new cancer drug due to the regulatory risk posed by the FDA. This is often one of the toughest areas to predict and collect information on, which is why we thoroughly discuss regulatory risk with the company management in our Evaluation Process.

Key questions to ask experts and management include:

1. Is this area regulated, and if so, by whom?
2. What similar technologies have gone through the regulatory process, and what were the results?
3. How long is the process?
4. What is your plan in case this does not get approved?



IP Risk:

IP protection of a technology is important, but not the most important! As an investor you need to understand what patent protections the company has. Always ask questions about future IP plans when evaluating a company. Propel(x) collects IP information from a company in its early onboarding stages.

Key questions to ask management include:

1. What IP exists and who owns it?
2. Has a Freedom to Operate (FTO) search been conducted?

3. Are there patents that have been licensed? If so, is the license worldwide and exclusive?
4. Has the company been involved in any IP disputes?
5. If the patent is challenged, who would likely challenge it (e.g. challenged by Apple vs. another startup)?



Execution and Exit Potential:

The competence and experience of the company leadership must not be overlooked while looking at the other associated risks of a science and technology startup. In fact, a high quality management team is often the single most important investment criterion.

Lastly, investors must understand how the company plans to exit and let its investors walk away with their profit. Is the goal an acquisition by a larger player, an IPO?

Key questions to ask management include:

1. Have the founders had any previous startups? Did any of those lead to successful exits?
2. What is the plan to scale? Has a supply chain and/or distribution relationship been established?
3. How long will the exit likely take? (This is crucial--time is the main variable when calculating the internal rate of return on your investment. So a longer timeline leads to a greater impact on returns.)
4. What is the expected exit value? How is this exit value determined?
5. Who are the potential acquirers? Do these acquirers have a history of acquisitions?

Allying with fellow angels to evaluate a startup:

This list might feel overwhelming, but the good news is there are resources you can utilize to ensure you are conducting thorough diligence. If you're a member of an angel group, the evaluation process is often divided up among the group members. Alternatively, online investment platforms like Propel(x) can provide a streamlined evaluation process that allows you to ask questions and also benefit from the questions your fellow investors are asking.

Whether it be online, individually, or through an angel group, conducting an in-depth evaluation of a company is one of the most important things you can do as an investor. It allows you to detect any weaknesses or discrepancies early on, so that you don't get the rug pulled out from under you further down the line.

Getting started:

Ready to get your feet wet? You can start evaluating a company today by asking questions of the management team, customers, or experts of the startup you're interested in. To see what startups are currently being evaluated on Propel(x) click [here](#).

In the meantime, be on the lookout for our next installment - the pros and cons of different angel investment vehicles.