There are many reasons innovative small businesses may wish to team with a university:

- Accessing pre-existing top-tier research and intellectual property (IP);
- Leveraging resources;
- Building a more rounded team;
- Cultivating a long-term relationship around joint research and development (R&D) and employable talent; and,
- Enhancing face validity with decision makers.

Universities are remarkable engines of innovation and ideas. Whether patentable, otherwise restricted or protected, or freely disseminated via publications and presentations, these ideas often have practical potential. This potential does not materialize on its own. Rather, hard work known as technology maturation and transition to practical, commercial products is required. While technology maturation and transition could and often does occur within the universities, often these technologies are commercialized through for-profit companies. Companies – including small innovative enterprises – seek university relationships in order to access top-tier IP and engage in their commercialization.

LEVERAGING PARTNER RESOURCES

Many small businesses lack access to specialty laboratory equipment and personnel, especially during the early years. Suppose, for example, that a small business is developing a way to identify soil contaminants using remote optical techniques. During the course of this development, the business may need to test certain aspects of optical components. The testing in turn requires the use of an optical engineering lab and the time of a trained optical technician. The business may not be sufficiently capitalized to stand up such a lab and hire a technician. However, a university partner may well offer an established optical engineering group with such a lab and technicians. The small business may then engage university services, for a fee or perhaps, in turn sharing in the eventual product revenue. This is a classic example of leveraging partner resources and it is a common reason for a small business to team with a university.

Universities employ many highly-qualified faculty and graduate Bachelor, Master and Doctorate degree students. These faculty and students often seek temporary or regular employment at small businesses. A faculty member or a recent graduate may bring new strength to the organization, rounding out the
small business team. For this reason, many small businesses offer employment to faculty and students.

Similarly, a small business may also look to a university as a potential long-term partner in a particular R&D area. The R&D process is not linear. Ebbs and flows are common and often more directions and ideas lead to failure than to success. However, having an academic institution as a long-term partner mitigates some of the R&D risks. As mutual trust and familiarity grow, ideas can be bounced off one another, joint proposals written, patents filed, papers published and presented. Top student talent can be cultivated and then employed upon graduation by the small business.

Another reason to potentially team with a university is to enhance face validity. A small business – even one run by brilliant and hard-working folks – can benefit from the renowned reputation of a partner. This is particularly true during the start-up phase. For many entrepreneurs who are starting their first company, the reputation of their alma mater will be quite valuable. There should, however, be practical reasons to team with a university beyond merely leveraging its established reputation.

HOW TO TEAM WITH UNIVERSITIES

There are various ways that small businesses commonly team with universities including:

1. Directly hiring university personnel;
2. Licensing-in IP;
3. Enabling experimentation, test and evaluation (T&E) and prototyping; and
4. Joint R&D and leveraging costs and investments.

COMPUTATION OF REQUIRED FUNDS

A small business may want to bring a pre-existing research capability aboard by hiring a faculty member or university researcher. Typically, this is accomplished by offering a sub-contract to the university for hiring the professor, and using some of the funds to buy some of the faculty member's time. The following simple and hypothetical example illustrates the computation of required funds, to pay for a faculty member's ¼ release time during the academic year plus one more in the summer. Assuming the faculty member is paid $90,000 based on nine months and the university's total overhead is a straight 75% load regardless of the work location or time of the year, the funds required are going to be 

$$[(0.25)(90K)+(1/9)(90K)](1.75), \text{ or } \$56,875.$$  

<table>
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<tr>
<th>Calculation</th>
<th>Amount</th>
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<tr>
<td>$(0.25)(90K)$</td>
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A small business may also wish to make use of some of the university's IP. For example, a firm working on biomaterials may wish to license a process already developed and patented by the university. Negotiating an IP arrangement can be a fair bit of work, involving both technical and legal professionals.

In this tutorial we have explored why and how small business and universities collaborate. In Tutorial 2, we will talk about university culture and the organizations with which a small business will interface within the university.