**Entrepreneurship in Science and Technology**

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Businesses come in all shapes and sizes, but science-based businesses are very different because a product could take years of research before it finally hits development, according to Dr. John Newsam, co-founder and CEO of multiple science-based companies.

Newsam spoke about his experiences with entrepreneurship of science companies and startups at the annual meeting of the American Association for the Advancement of Science in Chicago in February. A chemist by training, Newsam spent much of his career at Tioga Research, Inc., a company he helped create. He is an accomplished businessman who started his own successful companies using what he calls the organic model.

Besides explaining his organic business model, Newsam discussed entrepreneurship in small science companies, how science and research companies differ from non-science startups, and solutions to problems associated with running a science-based company.

Newsam’s organic model is one he used to gain capital and offset some issues often encountered by small science companies. The organic model involves creating a company that keeps its costs lower than its revenues, he said. Companies can find many ways to raise revenues, depending on their specialty and field, but the companies that Newsam co-founded typically make money by providing research and development services to other companies for a fee, or through grants. He said that consulting was not his long-term goal for these companies, but rather was a great way to raise enough money to become self-sufficient later on. One of his companies, FreedomVOICE Systems, raised around $100,000 to $150,000 and has not required more money since those initial funds were raised.

Newsam proposed strategies to make sure outside companies would be willing to pay and use the services of smaller companies. Ensuring that the small company has distinguished scientists who have technological and scientific credibility is a key part of getting business from others, he said.

According to Newsam, companies are evaluated by the quality of their researchers and the research team. He said that when science-based companies are evaluated, the team members are reviewed and generally a $250,000 value is assigned to “class A” people. The importance of well-respected members on the research team is true for grants as well, because oftentimes when funds are allocated for research and development, grants go to teams with experienced researchers who have proven their worth and capability in their respective fields.

Differentiating and broadening the specialties of the company can also help attract interest, Newsam said, because other companies will discuss their research needs with outside companies they feel can meet their demands. Even something as simple as suggesting that a company use a more alluring description can surge business. One company Newsam co-founded marketed itself as a “high throughput experimentation” company rather than simply calling itself the convergence company it truly was. According to Newsam, it was this simple change that led to multi-year research and development contracts with companies and grants, giving the researchers much needed start-up money.

Although team members are important, high-profile individuals are not the only employees companies should have. Newsam spoke very highly of small research companies hiring students as interns, and chided companies for not hiring interns often enough. He hinted that despite not adding much experience value to a company, students are exceptionally useful in small-scale operations and their labor is relatively inexpensive. In fact, Tioga Research sometimes hosts more student interns than full-time employees, he said.

Many small science-based companies do not try to achieve revenue right away, but rather design a company that has specific goals. Like most companies, science startups tend to have an idea and a timeline, which seems like a typical business model. However, according to the organic model, this is not the best method for these types of companies. Newsam proposed having long-term goals and trying to achieve them, but making sure the company has enough money first. That way it does not have to rely on outside investors or venture capital for money.

Newsam’s most recent company, Tioga Research, Inc., used knowledge from his previous business endeavors to become a well-funded company with long-term goals. Tioga Research specializes in discovery and development of skin-applied pharmaceutical and cosmetic products. The company was a spinoff of Nuvo Research. Creating the company in this manner meant the team of credible scientists was already assembled, and the company instantly yielded revenues through contracting services. Because the assembled team already had excellent experience and a proven excellent track record, the company was immediately credible to outside companies looking for consultants to work with.

In addition to discussing his own personal companies and the organic model, Newsam discussed entrepreneurship as a whole and whether starting a company was the right idea for everybody.

“I believe fairly strongly that a lot of the mechanical aspects…can indeed be taught, but there is that spark that cannot necessarily be transferred,” he said. But that is where team aspects come in. Even if one qualified member does not have an idea for a company, that person can still play a valuable and integral role.

He recommended that nobody cut out a possible idea until trying for themselves, and seeing how well they do. “If you don’t have the experience, how do you really know?”