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'Makery' Could Encourage Hawaii Entrepreneurship

By [Katherine Poythress](#) | 04/05/2011

The goal was to develop ways to entice students to stay in Hawaii after they graduate. The result is a tool that could help students transform their ideas into physical objects, gain new skills, replace a host of expensive imported goods and stimulate entrepreneurial thinking statewide.

It consists of a collection of hand tools and conventional machines, along with advanced design and manufacturing software that interface with a computerized milling machine. All of this is arranged in a compact pod-like structure.

It's called the Makery, and [Neil Scott](#), director of the [Archimedes Project](#) at the [University of Hawaii](#), introduced it at the university's spring technology showcase Tuesday.

The technology showcase is a small, thrice-yearly gathering designed to expose technology firms, venture investors and others to some of the most promising research and development at the university. It is co-sponsored by the university's [Office of Technology Transfer and Economic Development](#), [Enterprise Honolulu](#), [High Technology Development Corporation](#) and BAE Systems.

Both the governor and UH president have stressed the importance of university research and innovation as an economic driver. The goal is to take products like the Makery and turn them into commercial ventures that would create jobs for Hawaii residents.

The spring showcase featured three new discoveries: a drug that prevents heart enlargement, a 3D device for controlling cell cultures as they grow and a high-tech workshop called the Makery.

Not only has the Makery already helped some students link what they learn in science and math classes with the real world, but its other potential uses range from the manufacturing floor to the tourist shop in Waikiki, Scott said.

His presentation brought the small audience to life as they came up with an ever-growing number of possible applications for the invention.

The Challenge

Scott predicts that the Makery could be one answer to a host of economic and educational problems in Hawaii — including students who are disinterested in problem-solving and creating, and a market heavily dependent on imported goods.

"While there are growing calls from politicians and business leaders for more Americans to become makers rather than consumers, few young people possess the knowledge, skills, or inclination to do so," he wrote in a background paper for his presentation.

A common charge leveled against Hawaii is that its best and brightest students often leave after graduation because there are no jobs.

Scott said that is partially because the local environment does not foster entrepreneurship. And he attributes that to a lack of understanding of science, technology, engineering and math. Those four disciplines, collectively called STEM, are commonly considered to be the most promising for driving innovation and the economy.

An Answer?

The Makery showcase was laden with possibility. The possibility of students eager and itching to invent and

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create. The possibility of an entire state in which people can make working physical models of their ideas — quickly and affordably.

Scott envisions Makery shops modeled after the Kinko's copy shop model, where members of the public could bring their own designs and materials to create objects without having to invest in the expensive equipment. Another potential business model would have a group of small business owners sharing a Makery to manufacture their products. Yet another model would place Makerys in shops in Waikiki, stocked with local materials like Koa wood and sea shells, and tourists could make their own trinkets to take home.

The overarching goal, Scott said, is to produce products "made in Hawaii at Hawaiian-owned companies by competent Hawaiian workers."

From his perspective, that could include the following things:

- Producing replacements for imported goods
- New products that are needed in Hawaii
- Products for export
- Products where the buyer pays the freight (e.g. souvenirs for tourists)
- Machines for automating production in Hawaii

The benefits of doing those things include preserving existing jobs, creating new ones, stimulating innovation and entrepreneurship, generating exports and keeping money in Hawaii.

And to get there, students — the next generation of inventors and workers — must be inspired. Scott said the Classroom Makery does that by "(enabling) students to use their knowledge of science and mathematics to transform ideas into meaningful objects."

The Invention Factory, a 42-month project funded by the [National Science Foundation](#), used Scott's invention as a catalyst for getting middle and high school students interested in STEM. They learned about electricity, magnetism, electronics, microcomputers, sensors, actuators and computer numerically controlled machines, according to Scott's background paper.

Examples of products that have already been designed and built in the Makery include:

- Hawaiian electric steel guitars
- Stratocaster Guitars
- Assistive devices for people with disabilities
- Name tags
- Refrigerator magnets
- Trinket boxes
- Laser-cut artwork

Even with a successful pilot project behind it, before the Makery can be deployed to the state at large, Scott said workforce readiness, market research, public and political support need to be addressed.

Some of the potential products that could stem directly from Scott's invention include micromills, Classroom Makerys, professional development workshops and franchises for commercial or community Makerys. Potential markets include education (middle and high schools), rapid prototyping, manufacturing and personal applications like home workshops.

DISCUSSION: *[Share your thoughts on the Makery and other innovation coming out of the University of Hawaii.](#)*

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