

# Urban tools in a rural landscape

Discovery and commercialization of applied technology in rural economies

Michael S. Summers<sup>1</sup>  
Director of Technology Development and Commercialization  
California State University, Fresno

## Summary

Applied technology and entrepreneurial spirit lay just beyond your city gates in the rural landscape. Tapping and supporting this talent requires a combination of boots-on-the-ground evangelism—“success starts right here”—and, to develop these rural assets, the support of local community colleges, tech schools, high schools and regional universities.

*No low-hanging fruit:* There is a justified urban bias when distributing innovation/economic development funding. Bottom line: No big bang for the buck ... out yonder. This is heavy lifting with a slow development cycle. As a result, we are experiencing “rural decay.” Our once charming and thriving rural and suburban communities are becoming commuter ghettos, void of local wealth, jobs and identity.

*Rural strengths:* Living in the rural landscape is often the lifestyle choice of hardy and resourceful individuals with a “can do” mindset while it’s an economic necessity for others. Both of these personal survival traits lend themselves very well to entrepreneurship. Most innovations and enterprises born in rural areas have been developed to solve an immediate or chronic problem. The aforementioned strengths are two of the three most important components for a successful venture: a champion with survival skills and an innovation or enterprise based on common sense. The last component is the urban tool set: a hybrid of business survival skills and commercialization techniques available at local community colleges, tech schools, high schools or regional universities.

*Direction:* Better access to technology, online tools, incubators and community/ regional colleges sets the stage for launching an enterprise in the rural community as never before. For individuals and companies that embrace change and accept risk as part of life, solid economic success is closer than ever imagined. The rewards are worth fighting for: a better quality of life, monetary success, and social gain rarely achieved in a metropolitan environment.

*Next step:* Build a platform and support system that makes it possible for community colleges to grow and sustain rural economies through entrepreneur survival training and technology commercialization.

*End game:* Community colleges take the lead in regional economic development; not only training workers but company founders as well.

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<sup>1</sup> Contact author: ms.dogworks@gmail.com; 559.658.0795

## **Prelude:**

The following materials and methods are derived from humbling failures, life experiences and sobering successes. I owe this amazing opportunity to “make a difference” to the Lyles Center for Innovation and Entrepreneurship at California State University, Fresno, where I am honored to work with some of the brightest minds in the country. We, Office of Technology Development and Commercialization (TDC), owe “big thanks” to our amazing support staff for the synergy and flow they provide allowing us to work in an agile environment.

Consider this document a “quick start guide” for launching entrepreneurial training and technology commercialization with limited resources (that covers most of us). Starting a technology program is not inherently complicated; it’s just hard work.

Make it happen:

Technology commercialization and entrepreneur survival training can and should launch on a small scale. Offering fee-based services, like business intelligence, analytics, planning services, business plans, feasibility and workshops, raises money for your program and serves the business community. A program can be boot-strapped in its early stage and work just about anywhere. We use our program as the example: Lyles Center launched technology commercialization in July 2007 in a region with a national score card of “Worse than Appalachia”<sup>2</sup> in a tanking economy.

On March 30, 2009, the TDC will have spent \$100k during a two-year period to launch a technology development and commercialization program. That includes everything. The vision and support of Tim Stearns, executive director of Lyles Center, and John Welty, president of California State University, Fresno, is changing the rural landscape. These guys “get it.”

Score card:

In two years, TDC has processed hundreds of submissions, spawned four startups that have provided more than 30 jobs; and it has cultivated a future royalty stream. TDC has raised more than \$650k for new business startups and \$31k for funding graduate commercialization teams.

Educational value proposition: Consistent with our university’s mission, TDC challenges students to compete and perform at a higher level. Our student product feasibility and commercialization teams are managing commercial /university projects with deadlines, pressure and real money on the line. A quality learning experience.

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<sup>2</sup> “Worse than Appalachia,” *The Fresno Bee*, 17 July 2008. Source: “The Measure of America.” American Human Development Report, 2006-09. CRS Library of Congress.

Context: San Joaquin Valley’s 20th Congressional District scored last in a new national scorecard that ranks the well-being of residents. The assessment of health, education and income ranks the district 436th out of 436 districts nationwide.

## Forewarning:

Entrepreneur training and technology commercialization is taxing. You must accept the following reality and conditions as normal:

1. You work with what you have. Early on, your program will process a ton of granola (lots of nuts and flakes) and will make gallons of lemonade (from the lemons). In time, the sifting process will uncover rough gems. As noted, you only need a few success stories to change the rural landscape.
2. Agile work environment: Entrepreneurs do not work regular hours; so you won't either. If you can't handle long hours, off-hour work or being accessible 24/7 (that's not 24 hours a week, 7 months a year), this type of work is probably not a good fit.
3. If you are not comfortable with conditions 1 and 2 - **STOP HERE.**

## Navigation:

We have done our best to distill this information to its essence. For simplicity, we will use an analogy to explain process or a simple graphic model to share our platform development.

For example, a mining analogy is used to explain the process of searching, finding and processing intellectual property candidates (IPC) for technology commercialization, e.g., exploration, discovery, extracting, processing, refining, to market.

## Challenge:

*Reality:* The number one angst in rural America: "my kids won't move back"; there's nothing here for them." No boomerangs—sad story. It's a challenge to build a vibrant economy in a culturally diverse rural or urban community with no pioneers and an aging or uneducated workforce. The good news: congressional districts 19 and 20 in our region are the worst in the nation ... so everything moves up from here!

*Impact:* Rural stereotypes, economies and culture can be changed with just a few success stories. Innovation and entrepreneurial success in a rural or depressed area have a significant impact on a community's commitment to change and growth. On the mythical economy-meter, the progress needle moves significantly with each success story. As a comparison, it takes a monster of an idea for the needle to even register in the Silicon Valley.

*Commitment:* Two commitments are required to change a decaying rural or urban economy: 1) capital investment—early stage; 2) entrepreneur survival training. Both are highly speculative investments in people with limited business experience.

1. Investment: Factual thinking in the investment community concludes that you don't invest in unsupported rural ventures with a high likelihood of failure. This is, and always will be, a major hurdle for rural and depressed urban economic development. To change this reality, you need great stories and success (evidence). Money follows great ideas, stories and successes.
2. Entrepreneur survival training: Regional universities and community colleges collaborating to provide business/entrepreneur survival training, mentorship, incubation, intellectual property development, and technology commercialization services.

## **Solution:**

University commitment: Build a platform and support system that will engage community colleges, tech schools and high schools to teach entrepreneurship and technology commercialization.

Community college commitment: Teach entrepreneurship as a vocation. Train the company founders and their workforce.

Definition of a winner:

Baseball analogy: Doubles and RBIs win games. Don't count on a home run to win the game. Modest success stories create a positive buzz in the community and will draw out those retired engineers who have that "special little project I was tinkering with"; the food industry professional wanting to do it "my way"; or the student developing disruptive software. Success stories, even modest ones, are the "evidence" investors need to commit to capital investment.

## **Start here:**

There are five phases described in this "quick start guide." A mining analogy helps to make it simple and, we think, somewhat interesting. (For example, Phase 1: Exploration, Phase 5: Export)

min·ing (mī'ning), *n.* the extraction of valuable materials from the earth.

Simple enough. The basic difference between mining raw materials and uncovering a new venture is elevation.

Depending on the methods deployed and resources available, mining for talent can be as difficult as hard rock mining or as easy as panning for gold. Intellectual Property (IP) discovery and commercialization in rural and urban areas could be characterized as either panning for gold or open pit mining.

Panning for gold (rural tech discovery)

- Follow the riverbed: dig, wash out the flakes, pick out the nuggets
- Low cost, heavy lifting, few resources
- High risk – low reward

Open-pit mining (urban tech discovery)

- Discover natural deposits (ore genesis): dig, crush, extract
- Costly, exhaustive due-diligence, highly competitive, influential networks
- Moderate risk – high reward

**Phase 1: Exploration:** Search, due-diligence, execution

Regional university (sponsor) introduces technology commercialization and entrepreneur survival training through workshops within the community college service area. Workshops are targeted at innovators and entrepreneurs who are interested in launching commercially viable technology, products and businesses through a local startup or an emerging or existing industry.

University due-diligence:

- Area selection: establish the most prospective area that can be mined easily, cheaply and quickly.
- Ore genesis: locate natural deposits. Where are the ideas being born—business, university, cultural (arts)?
- Target generation: mapping and drilling down to verify targets.
- Reserve definition: statistically quantifying the grade continuity and mass of IP, i.e., long-term economic reserves—is this area sustainable?

Execution:

Regional university (sponsor) markets, coordinates and provides a low-cost idea feasibility/entrepreneur survival workshop to be hosted at a community college, tech school or high school campus. Deliverable: Participants receive a high-level evaluation

- Participants pay a nominal fee to attend (\$50 to ensure they show up) and are required to fill out some pre-workshop paperwork, e.g., idea assessment, bio and a mutual non-disclosure agreement. (See appendix for examples.)
- Two evening classes offered in one week: Tuesday and Thursday, 6 to 9 p.m.
- All materials are included.

Intended outcome:

- Provide the community college/community leadership with evidence that there is a need for innovation and entrepreneurial training/incubation within the service area.
- Demonstrate and train community college faculty in the “exploration” process of talent mining.
- Identify candidates.
- The majority of participants receive a high-level concept evaluation, next steps on how to move their idea forward, and access to a regional entrepreneurial support network.
- Select participants may receive direct technology development, commercialization or business development assistance.

## **Phase 2: Discovery**

### **Workshop 1: Feasibility and Presentation**

After introductions, a brief presentation and idea disclosures. The basics are covered: concept development, feasibility, marketing and sales. Only critical information and skills that will increase the odds of venture survival are covered. “Learn to fail quickly” rule should be taught as well. TDC uses “survivor”—or “boot camp”—training as a style guide for the workshop; it aligns well with the start-up conditions experienced in early stage concept/entrepreneurial development.

Emphasize:

- Importance of technology/venture evaluation with respect to commercial viability

- Success: examples of simple and successful product development/ventures executed by ordinary people
- Failure: examples of how failing quickly can save time, money, your family

*Suggestion:* When conducting a workshop with 30 innovative, entrepreneurial personalities, discourage participants from reacting to the disclosures. Entrepreneurs like to talk over, add and interrupt. Session two roundtable will give participants an opportunity to analyze, evaluate and improve on the disclosures.

Suggested topics for workshop 1:

Define success and recognize failure (“learn to fail quickly”)  
 Strength-Weakness-Opportunity-Threats (SWOT) Analysis  
 Elevator Pitch  
 \*Non-disclosure Agreements  
 Patents, Licensing vs. Manufacturing  
 Investors

Homework:

One-page SWOT analysis and elevator pitch (drafts)

*\*Non-disclosure agreements:* In the pre-workshop package sent to participants, a mutual non-disclosure agreement is included. There will be some who don’t want to disclose their “top secret” idea. Below is an example of a condition that merits *not* disclosing and why big companies are seeking innovative ideas.

- If your idea is a Microsoft knock-off or threatens national security, then you need to be hiding under a rock in Timbuktu; your life is in danger. If not, you are probably okay presenting your big idea at this local workshop.
- Large companies have bottlenecks in development and struggle to launch their own product lines. This is why big companies are so receptive to licensing or buying your IP.

Takeaway:

- Participant: Overview of opportunity assessment and “next step” due-diligence
- Host: Snapshot of the community’s entrepreneurial assets

Workshop 2: Roundtable. Brainstorming. Idea Development.

The roundtable session facilitates cross-examination of the disclosures. When you have 30 or more innovative people in a circle analyzing an idea, amazing things will happen. Flaws are identified, some are remedied, and improvements are made. People even offer to help outside the group or offer the network they have; sometimes the path is completely changed.

How the session starts: When the new idea is presented, the instructor delivers a battery of questions and comments focused on the flaws. When finished, the instructor asks for opinions—

good or bad. Participants usually rally around and defend their comrade through recommendations and strategies to improve the idea.

How a participant handles criticism and their ability to rebound with a solution helps you determine the concept's raw value. At the end of the day, what makes the product or venture launch is the entrepreneur. This is where you discover the rough gems. The prospect will stand out like a diamond in a cow pie.

### **Phase 3: Extraction**

Most of the rural innovation/entrepreneurial ideas encountered fall in the applied science, process, widget, or small-business category. On occasion, a specialized industry or technology will surface that requires a higher lever of expertise. With the established relationship between the regional university in place, this deficit is easily remedied.

Classification:

Specialized training or experience is not necessary for selecting early stage candidates. Most educators have the training, tools and experience required to evaluate personality and talent. Pre-workshop submissions and character assessment gleaned from the workshop will aid in the evaluation process as well. TDC has three levels of classification:

- **Stage 1. *Concept:*** Half-baked ideas, no industry experience, clients are spirited but lack the basic tools and energy to see it through. (60 percent of participants)
- **Stage 2. *Develop:*** Work-in-progress that can be supported with specific classes, university/community college development, mentors, or an Entrepreneur Asset Manager (EAM™), a proprietary model development of DogWorks™, Lyles Center stealth black box development group. Goals are not clearly defined with some industry experience. 12 months to launch. (30 percent of participants)
- **Stage 3. *Asset:*** Has an idea or business venture that merits another round of due-diligence. Clarity, direction, industry experience, six to nine months to launch. EAM™ required. (10 percent of participants)

Targets:

Stage 3 is low-hanging fruit that is six to 12 months to launch.

Stage 2 ventures can be very valuable as well but have a longer development cycle. Between 12-24 months.

Stage 1 is encouraged to keep innovating. Most entrepreneurs/innovative people will pursue several ventures. TDC provides a reading list and materials and assigns milestones that will either build up their idea or kill it quickly. Our policy: Stage 1 can contact us every three months with a one-page update (tied to a completed milestone) before we field their call.

*Note:* It's important to establish a protocol for follow-up. For example: If a Stage 1 submits a milestone, they should have an understanding of your submission process, e.g., we respond within 10 business days. Without an iron clad contact policy, you will be quickly overrun by e-mails and phone calls—some friendly, some kooky and some not so friendly.

Assets:

Stage 3 candidates show the most promise, require the least amount of resources and offer a quick ROI. All stages have setbacks and problems. Because of experience and education, Stage 3 participants typically enjoy a relatively smooth front end (due-diligence, aka fuzzy front end). TDC refers to this as the "Midas touch" syndrome. The syndrome gives a false sense of lift in the launch cycle. The result: premature and reckless decisions—"The Crash"

Stage 3 and Stage 2 participants have similar odds of success and ROI. For example: You have more time to coach, condition and develop Stage 2—so less mistakes. Stage 3 is practically ready to launch; but like experimental aircraft, it's either a significant contribution or a ball of flames.

#### **Phase 4: Processing - Part 1**

The regional university starts to re-enforce the platform and provides support to community colleges or other institutions. The regional university can provide basic support, advanced entrepreneurial training, coaching, EAMs, or program building from the ground up—depending on what is already in place.

What curriculum the community college or institution uses to develop entrepreneurs or teach commercialization is a personal choice. Whatever fits the institution or its regional needs. TDC has a more hands-on approach. For example, because our commercialization projects are fast-tracked, there is a lot of one-on-one coaching. As a result, we are developing/training EAMs.

EAMs. We believe this model will change how entrepreneur/IP assets are developed. Simple in structure yet a powerful tool for entrepreneurial, innovation and economic development.

EAM™ model:

This specialized training prepares university entrepreneur students to handle business details and to recommend or initiate strategic decisions that rapidly advance an entrepreneur's venture (the asset). Specialists graduating from EAM™ training are walking incubators. Self-contained entrepreneurial urban toolsets designed and programmed to keep clients on track. Spirited and creative, not bogged down in the labyrinth of business and policy. Think an agent, like "Jerry Maguire," or a campaign manager tasked with doing what it takes to ensure the entrepreneur's success.

The likely candidate is a bright student earning his/her degree in entrepreneurship but will likely never become one. Since most entrepreneurs are type A and type B personalities, type C is the best partner. Type C entrepreneurial students are rare; they view the entrepreneurial curricula and personal experiences from a more analytical view. If identified early enough, type C entrepreneurial students can be trained in business manager/agent skills while coaching and "living" with entrepreneurs in real time.

The Bridge:

EAMs are a specialized workforce that will service public sector (economic development efforts) or private startups. Part of the field training for EAMs will be working with early stage entrepreneurs. EAMs will be trained at three skill levels. EAM-1: second-year entrepreneurship student with basic training. EAM-2: third year student with Stage 2 training. EAM-3: four-year student with Stage 3 training.

DogWorks™ pilot EAM™ program will be incorporated in TDC's U.S. Economic Development Administration grant, "San Joaquin Valley Technology Commercialization" (authored by Timothy Stearns, Ph.D.) and the Urban Tools in a Rural Landscape project. Below is an example of how our EAM™ could be utilized in the Classification model (page 7):

Stage 1. Concept: [EAM-1]

Stage 2. Development: [EAM-2]

Stage 3. Asset: [EAM-3 + TDC senior project manager]

An EAM is the type of support that could localize economic development. In a perfect world, entrepreneurs would come to learn, take copious notes, retain critical information and start companies in your community that employ thousands of people. Our reality, we practically hold our clients hands through the whole process, no joke. If you let go, they get lost or run over. An EAM with a track record of success will have "rock star" status in the venture capital community.

We've all heard the old adage: Give a man a fish, and he will eat for a day. Teach a man to fish, and he will eat for a lifetime (perfect world). EAM adage: Feed them fish every day until they hate it. Teach them how to kill a bear.

#### **Phase 4: Processing - Part 2:**

Critical thinking or creativity? Who to pick and why? The most mentally taxing and time consuming stage of the process. If you make decisions using critical thinking as your only measure, it will ensure a sub par idea that requires millions of marketing dollars to convince a customer to buy it. On the opposite side of the spectrum, ridding the rollercoaster of a type B visionary is fast and fun; but the rollercoaster track always leads back to the station. The workshops in Phase 2: Discovery identified the obvious—the good, the bad, the ugly. The raw materials are ready for another sifting.

Post-workshop. Phase 1, 2, 3 will produce three outcomes:

1. Discovery of community assets that could change your rural/urban economy
2. Deliverables: the proof needed to justify entrepreneur training and technology commercialization in your region
3. Market penetration

Facility:

Where do you process? A community college, trade school, high school, the Elks lodge. It doesn't matter. The decision should be based on meeting your minimum needs. Entrepreneurs need to get comfortable with the minimum.

The regional university will guide the community college through one or two idea-discovery and commercialization cycles (Phase 1,2,3,4). Depending on what educational programs are currently in place, the university could assign EAMs to help facilitate the ramp-up and determine the amount of support required.

The end game is for community colleges to teach entrepreneurship and technology commercialization. This action provides students, while at community college, a pathway to a

university entrepreneur program and stimulates regional economic development through the services community colleges provide, e.g., workshops and entrepreneurial training. Community colleges taking a lead in regional economic development, not only training workers but company founders as well.

Working for money:

Okay. You have found some good ideas/talent. Now what? The building blocks of economic development are:

1. Money: Everyone needs to be paid.
2. Support: Relates directly to money.
3. Retention: No money? No incentive to stay.

Yes. It is all about the money. What a shocker. While the definition of success is “doing whatever it takes to get closer to what is most important to you”; the definition of economic development is gimmee, gimmee, gimmee. All parties involved need to understand this reality from the very beginning: universities, community colleges, consultants, et al., do not work for free.

Raising money:

TDC has completed numerous business and marketing plans for private industry. This work is excruciating for us, but it helps keep the doors open. You are training entrepreneurs how to start enterprises. You should be able to fund your program. Or at least try. Here is an example of one creative funding mechanism we used to launch a product:

Investor A was very interested in Project X, but it was in the napkin stage (rough idea).

- Project X pitched investor A
- The deal: If Investor A funds Project X business plan, feasibility study, rollout, technical design document, Project X will give Investor A the rights of first refusal on funding and owning a larger percentage of the technology.
- Investor A agreed to a \$12k work plan and later took the option to fund Project X through commercialization.
- Project X inventors walked with a percentage of the company.
- Project X was commercialized.

Royalty stream:

The Lyles Center works from a technology development and commercialization model opposed to the traditional technology transfer. TDC launches local companies and either negotiates a 5% to 7% front-end royalty based on net sales (actual invoice less returns) or a fixed fee. Community colleges can and should use these strategies as well.

In the early days of TDC, before our sifting procedures, policies and gatekeepers, generous

innovators would pay us regular visits. These selfless innovators only had our best interest in mind.

Most of the pitches began like this: "I have a multimillion-dollar idea." And they would end like this: "I've been very fortunate in life, and I just want the university to run with this idea. All I want is just a small cut, 10% to 15%." "Wow!" We would exclaim. "So, if we develop and roll out this big idea and it makes \$100 million, all you want is \$10 million? Then the response would be something like this: "Well, if it makes that much, maybe a little more."

One generous innovator thought his idea was so amazing that he would probably receive an honorary doctorate. We informed the gentleman that an undergraduate degree or a \$50 million donation to the university might improve his chances.

*"Most Technology-based inventions never go beyond the conception stage. The light bulb in the mind gets lit often, but only occasionally does it leave a trace" [Jolly].*

More sifting:

Before spending any serious time with your Stage 3 and Stage 2 candidates, you must go deeper into their backgrounds and complete your due-diligence. Set a realistic timetable of 30 to 60 days.

1. Mutual non-disclosure agreement in place.
2. Idea/personal disclosure information complete and thoroughly vetted.
3. Comprehensive IP background search.
4. Background checks of all principles and investors, e.g., criminal, financial.
5. Letter of Intent (LOI) defining the scope of work and the financial benefit to all participants. LOI needs to convert to a definitive agreement within six months.

Processing Stage 3 candidates can be an arduous task full of surprises. Similar to human resources hiring procedures, no matter how detailed your due-diligence, you will uncover more dead bodies down the road. Stage 2 candidates are early enough that you have more time to flush out problems. It is highly recommended that Stage 2 candidates are processed as early as possible.

Refining:

As with most processing operations, commerce is the end game. Raw materials that require the least amount of effort in process have an accelerated return on investment (ROI). Only Stage 3 and 2 are thrown into the "funnel" for further processing and refining. As assets move down the process line, product value increases and quality assurance (QA) is stepped up as a lost prevention measure. Take the time and do your due-diligence. You can't afford to be this far along in the process and discover your candidate is a rehabilitated axe murderer.

Contamination:

Probably the single biggest mistake incubators and tech-developers can make is allowing a Stage 1 to slip into the mix. A few examples of recent justifications for allowing substandard Stage 1 product in process:

- “This idea/ team might grow faster if they are imbedded with our later-stage teams.”
  - False. Mixing low-grade assets with higher quality only slows down the process and brings down the value of the finished product.
- “This Stage 1 team has a great pedigree; I think their idea will come around.”
  - Probably not. Don’t allow them in the mix just because they are smart.
- “This idea is amazing. The guy is brilliant and has an excellent pedigree. I think once he’s off parole, has a place to live and a job, this guy is going big.”
  - Nope. Never.

### **Phase 5: Export**

A quick recap of the process: Explore, Discover, Extract, Process, Export. The quickest launch— from prototype to market—we have experienced is about eight months. The longest, about 14 months. These are very fast development times because the products were simple. Our current product development pipeline is packed with technology. We have grown a little. If you start from scratch, try a few small products that everyone understands; and do them very well. Remember: Doubles and RBIs win games. Don’t count on a home run to win the game.

Hand off. There comes a time when you need to hand off, or launch, the asset. That could involve anything from preparing and packaging your client for a large capital raise to helping them move into their new offices. The proper time to exit can be tricky. Launching entrepreneurs is similar to raising kids—when they are babies, they need you for everything; when they are teenagers, you don’t know anything. And when they turn 25, they realize you are wise and always worked in their best interests. Export as soon as you are able.

### **Entrepreneurial trivia:**

No talent in your neighborhood? Look closer. Below is a list of companies founded by “dropouts”: (Courtesy of [www.millionaireddropouts.com](http://www.millionaireddropouts.com))

Kodak, Polaroid, Procter & Gamble, Disney, Ford, Learjet, Boeing Aircraft, Bank of America, Motown Records, Whole Foods, Domino's Pizza, Apple Computer, Netscape, Microsoft, Virgin Group, Polo, Jet Blue, Dunkin' Donuts, NBC, KFC, Wendy's, McDonald's, Hershey's, Mars, Wrigley's, Holiday Inn, Liz Claiborne, Max Factor, Oakley, Blockbuster, Jimmy Dean Foods, Honda, Rolling Stone Magazine. Just to name a few.

Would you have welcomed any of these startups in your town?