

Hitting the Nail on the Head with Market Driven Decisions

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Who am I?

Jeff Whalen
Scientist Entrepreneur

National High Magnetic Field Lab
*Materials science & magnet
technology development*

Jim Moran School of Entrepreneurship
STEM Entrepreneurship

COMPANIES

Wastewater
purification

Crystalline materials
manufacturing

MagTech Development

Scientific consulting

Automatic image
analysis algorithms

French macarons

Field deployable
trauma mitigation

Innovation
ecosystem building

My Story

- Biochemistry BS (2005) & Inorganic Chemistry PhD (2009) at FSU
- Joined faculty at MagLab in 2012
 - Executed several federally funded projects to date from National Science Foundation, Department of Energy & Department of Defense ranging from crystal growth to applied magnetism
 - 5 patents and about 30 publications, more in the hopper
- Started two companies in 2012, then a sole owner consulting firm in 2017, then MagCorp in 2018
- Joined The Jim Moran School of Entrepreneurship as first STEM Entrepreneur in Residence at FSU in 2017

It wasn't an easy road, but it was an easy decision

Reality is a perception that can be changed

Inner struggle of a scientist: knowledge gain versus commercial application

Subject Matter Expertise

Expertise

- -Science commercialization startups and technology transfer
- -Applied magnetism and development of new magnetically enabled technology
- -Crystalline materials growth and processing
- -Hydrogen storage materials and fuel cell technology
- -X-ray diffraction systems
- -Novel process control systems
- -Solid state physicochemical properties characterization
- -Principal investigator experience on multiple successfully completed federally funded projects
- -Highly collaborative cross-disciplinary research history spanning chemistry, materials science, physics and engineering
- -Federal, state and locally funded laboratory-based grant seeking, research activity and reporting
- -Setup and management of new and/or customized laboratories

Technical Experience

- -New and traditional crystal growth methods and custom small and large scale production systems
- -Innovation-to-product development for science and technology based startup companies
- -Crystalline materials growth and characterization using flux, Czochralski, Bridgmann, induction and solution growth methods
- -Single crystal and powder X-ray diffraction and structural refinement
- -Modeling of systems with computer generated simulations
- -Simultaneous thermogravimetric analysis/ differential scanning calorimetry (TGA/DSC - SDT)
- -Transmission and scanning electron microscopy/energy dispersive spectrometry (TEM/SEM/EDS)
- -Physical properties probing (PPMS)
- -Magnetometry/electron paramagnetic resonance (MPMS-SQUID/EPR)
- -Solid state magic angle spinning nuclear magnetic resonance (MAS-NMR)
- -Pressure-composition-temperature isotherms (PCT/PCI)
- -Optical Microscopy
- -ASTM specifications testing

The goal of this talk is to go into the details of identifying gaps and problems (opportunities) in existing and new markets by acting upon customer feedback.



Basic Concepts

- VALUE is everything driving customer decisions to buy
- Value comes from pain being stopped
- Pain can come from many places and can often lead to furthered opportunities
- Everyone has some kind of pain
- Wealth creation vs. wealth transfer, both can solve problems

Who is the boss around here...?

- **Pitfalls**

- Goals of furthering knowledge
- Following advice from non-customers
- Unwillingness to accept market feedback

- **Opportunities**

- Negative customer feedback is an open door to discovering the problem...ask what the customer would like to have in a perfect world.
- Aggregated customer feedback
- De-risked decision making and actions



Seemingly good ideas are only validated by market demand...

...otherwise they just sound like a good idea to YOU.

Coaxing out the truth 1

Assessing markets and gathering real feedback is the very first step after you have an idea

- You don't need a product idea, but it's OK to have one at this point
- Nobody likes emails from people they don't know, face to face = BEST but phone is better than email
- Make analogies to other solutions in different markets to help customers see your point
- Ask why over and over, understand their purpose for wanting the solution so you can make yours a perfect fit
- Don't disagree on anything, just note everything and digest it after the interaction
- Make a plan and stick to it, draw your conclusions after you have all your feedback

Coaxing out the truth 2

Customers often just know what solution they want, but not how to get it or what would be entailed in making the solution

- Listen...have patience
- Ask questions, now is not the time to sell!
- Drip don't deluge, be respectful of peoples' time
- Transparency goes a long way, tell customers you want your product to make them very satisfied
- Understand who you are talking to and keep this in mind when getting feedback: influencer, gatekeeper, decision maker, payer, user
- Your product is important to your customer in this order: Why > How > What

Coaxing out the truth 3

A flavor for what to ask about:

WHAT does the customer think about:

- The best perceived value proposition?
- Their biggest perceived drawback?
- Other people like see value?
- Other pain(s) could it solve for them?

HOW would the customer like:

- To have it marketed and sold to them?
- To see it packaged and delivered?
- The price range & payment structure?
- To see the features, capabilities and functions?
- To have support & troubleshooting handled?

WHY does the customer:

- Want this pain solved?
- Want to work with you?
- Not have a current solution?

Knowing when it's right

People should walk up and dump their wallet out on the table to buy what you are selling, if not you are selling the wrong product.

(Steve Blank)

Hashing up the perfect plan

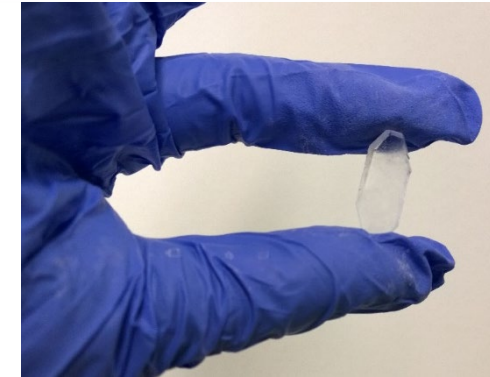
- The team is everything
 - Be multidisciplinary, nobody knows everything
 - Expect overturn at the outset, not everyone gets along
 - Leverage your skills and those of your teammates
 - Delegate, then delegate more, then organize your thoughts and continue delegating
- Maximizing de-risking
 - Early commitments & support are awesome, push for the pre-sale if you think it's possible
 - Early adoption strategies that de-risk ventures: stakeholder funding, alpha testing feedback, letters of commitment, etc.
 - Get feedback from other key players in the market (political influencers, educators, suppliers, etc.)
 - Show customers every development stage of the product concept and get feedback
 - Pilot programs help to control outcomes and maximize feedback gathering

Examples for Discussion

- Specialized Crystal Processing, Inc.
- Live, Love, Macaron LLC

- Fast food
- Home delivery of products

- Your ventures or other case ideas...



Opportunities

- *STEM Entrepreneurship Bachelor Program, launching Fall 2021*
- *ENT2624: Enough to be Dangerous: Impact Areas of STEM Innovation & Commercialization, JMS class offered spring semesters*
- *JMS Internship Program: An unprecedented opportunity for professional development in the real world, consultations always open*
- *STEMpreneurs RSO, Innovation Hub, Tallahassee Science Festival-STEM Workforce & Entrepreneurship Hall*
- Local funding events: FSU GAP, LCRDA TechGrant, InNOLEvation and more...
- Internships and part-time work at Tallahassee companies, MagLab & FSU

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