

Career Development Series 2022

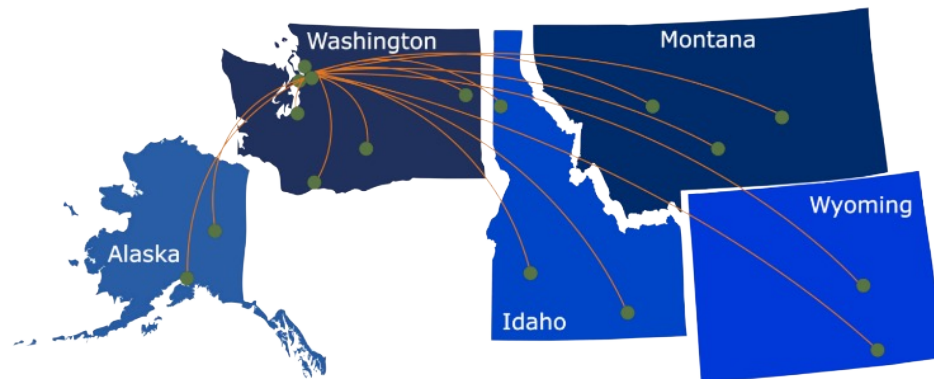
Turning Research into Products and Products into Companies

Presentation will begin at 12:00 PM (PT)



ITHS

Institute of Translational Health Sciences
ACCELERATING RESEARCH. IMPROVING HEALTH.



What We Offer:

- 1 Research Support Services:** Members gain access to the different research services, resources, and tools offered by ITHS, including the ITHS Research Navigator.
- 2 Community Engagement:** Members can connect with regional and community based practice networks
- 3 Education & Training:** Members can access a variety of workforce development and mentoring programs and apply for formal training programs.
- 4 Funding:** Members can apply for local and national pilot grants and other funding opportunities. ITHS also offers letters of support for grant submissions.

Contact ITHS

Director of Research Development



- Project Consultation
- Strategic Direction
- Resources and Networking

Melissa D. Vaught, Ph.D.
ithsnav@uw.edu
206.616.3875

Scientific Success Committee

- Clinical Trials Consulting
- Guidance on Study Design, Approach and Implementation
- Feedback on Design and Feasibility

[https://www.iths.org/investigators/
services/clinical-trials-consulting/](https://www.iths.org/investigators/services/clinical-trials-consulting/)

Feedback

At the end of the seminar, a link to the feedback survey will be sent to the email address you used to register.

Career Development Series 2022

Turning Your Research into Products and Products into Companies

Presented by:

Teddy Johnson, PE, MBA

Clinical Associate Professor - UW School of Pharmacy

Director of Technology Development - ITHS



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Learning Objectives

At the end of the session, participants will be able to:

- 1** Derive products from existing research
- 2** Identify the right time to pursue product development
- 3** Choose the right funding strategy for your venture

Agenda

Deriving Products from Your Research

Knowing the Right Time to Pursue Product Development

Funding Your Venture

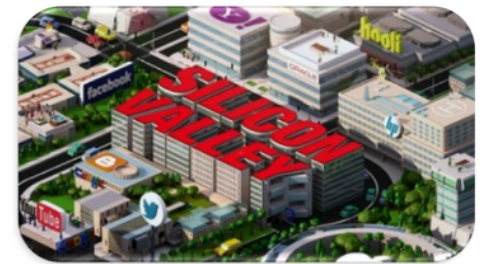
About Me

A.C.T. AMERICAN
CONSERVATORY
THEATER

Stanford ENGINEERING
Mechanical Engineering

M
MICHIGAN
ROSS SCHOOL OF BUSINESS

 **KERALA**
ayurveda™
wellness, naturally.



What I Do

My job is to help people
turn research into products
and products into companies.

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How to Derive Products from Your Research

What is needed in the field?

2021's top 10 clinical trial flops



Famous failures often highlight areas of strong interest from the clinical community and investors.

“Byproducts” of Research

“We had to figure out a process to [fill in the blank] so that we could do our actual research.”

If it was a headache for you, it’s worth money to someone else!

Can you sell your process products or excess capacity on a specialty machine?

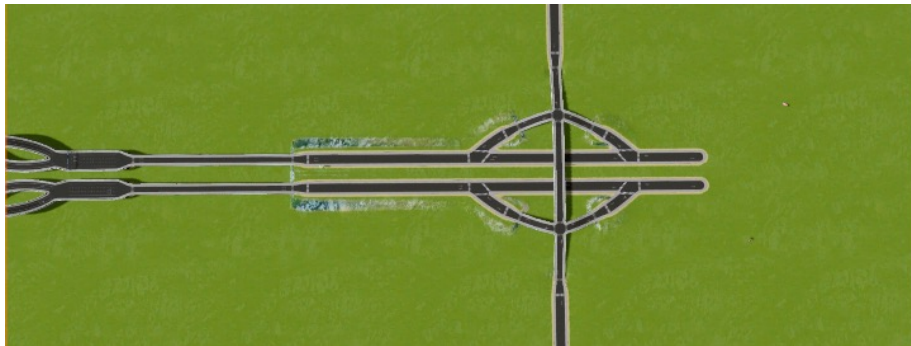


How do you choose which idea to pursue?

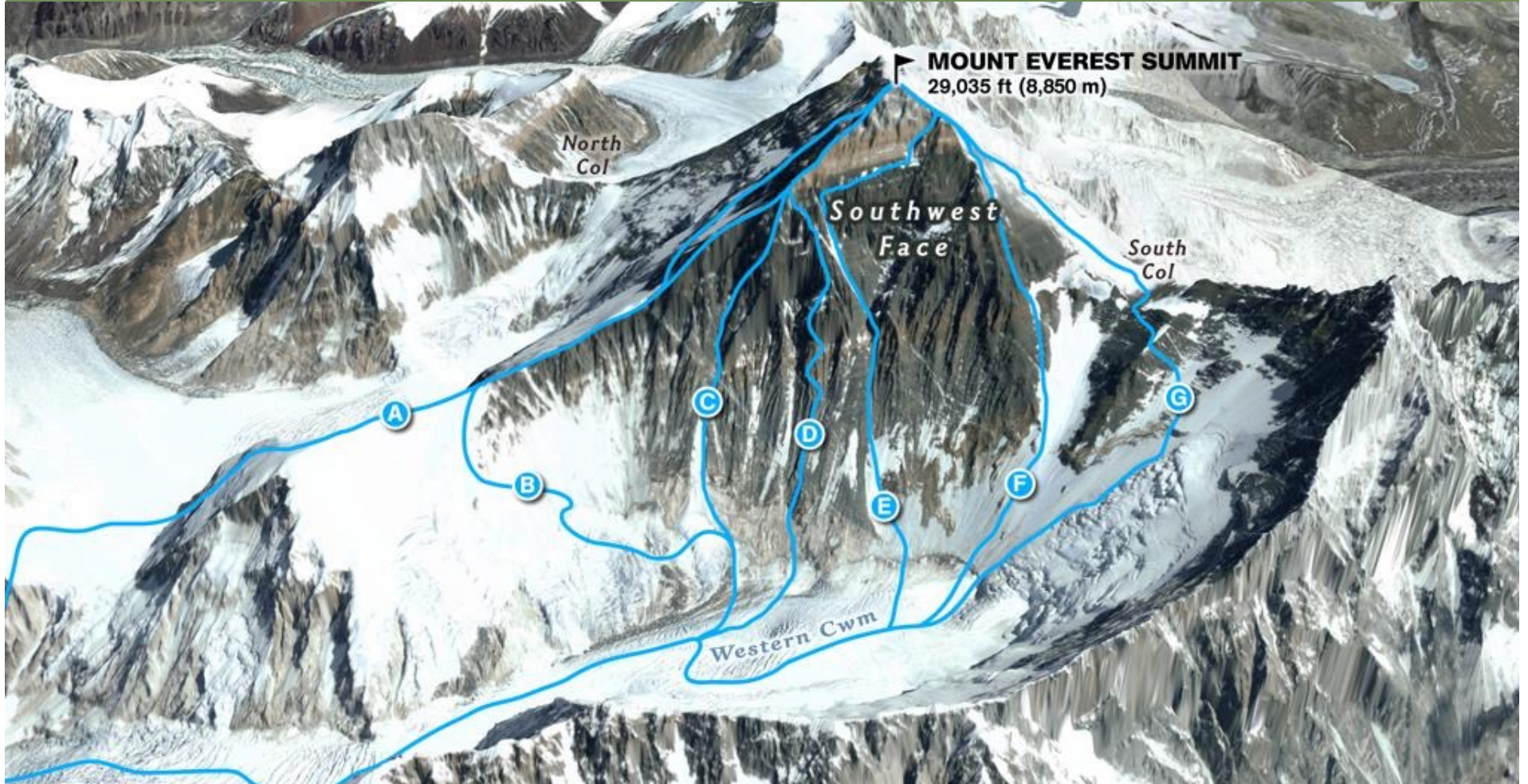
Don't worry,
you aren't
throwing out
any ideas.



You're just deciding how to start.



Unlike Everest, it's okay to learn and train along the way.

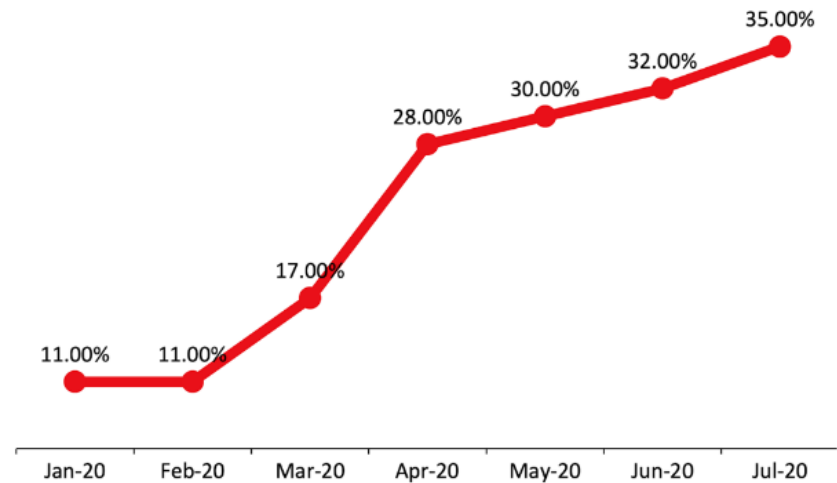


Criteria for the Best Place to Start – Market Need

Telemedicine Use During the COVID-19 Pandemic

Telemedicine use has been on a steady incline since the onset of the pandemic.

Is there a market need?



Source: CivicScience, 2020

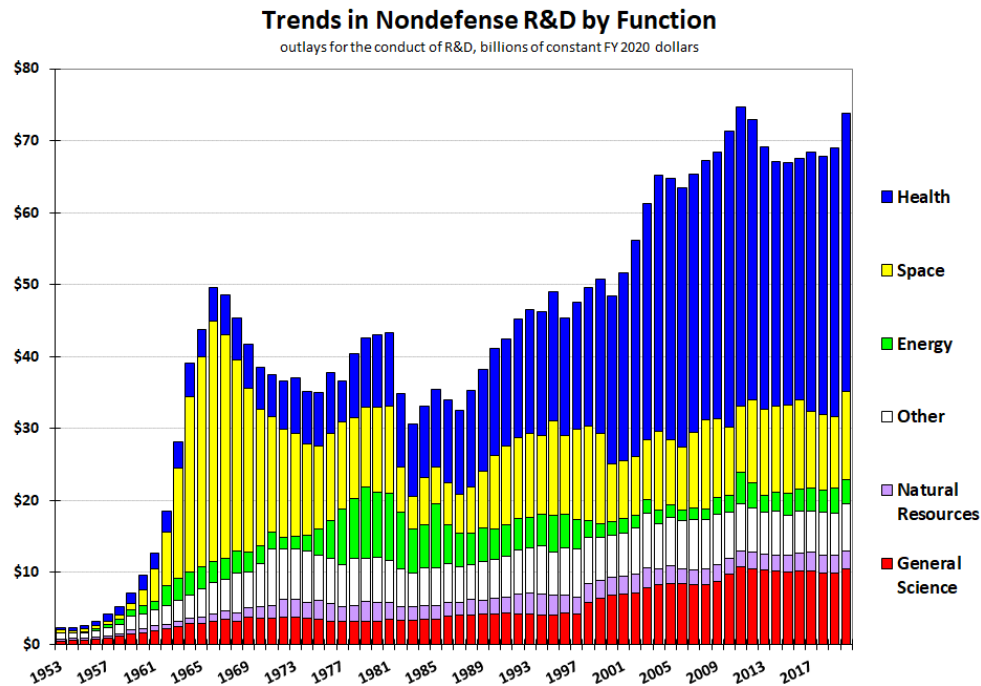
Methodology: Data collected by CivicScience's survey of 195,466 responses, conducted from 01/02/2020 to 07/27/2020. Responses were weighted by US Census (18+)

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[InsiderIntelligence.com](https://www.insiderintelligence.com)

Criteria for the Best Place to Start - Funding

Can you get funding?



Source: OMB Historical Tables in *Budget of the United States Government FY 2021*. Some Energy programs shifted to General Science beginning in FY 1998. © 2020 AAAS

Criteria for the Best Place to Start - Interest



It's hard to escape
your favorite idea!

Market Potential

Don't worry about getting accurate numbers at this stage. You just need to know if the market is big enough to make it worthwhile for you and your investors.



Reimbursement and Pricing Potential

How does the price for the product or service compare to the cost to manufacture, sell, distribute, and maintain the offering.

Is there reimbursement support for the price?



MAP KEY:

- **White** – No reimbursement for RPM
- **Orange** – RPM only reimbursed through CTBS
- **Purple** – Reimbursement for RPM

When is the right time to pursue product development?

When life allows....

Life stage?

Support from partner?

Cofounder relationship?



When you have a product-worthy idea....



Listen carefully to:

Potential users

Potential customers

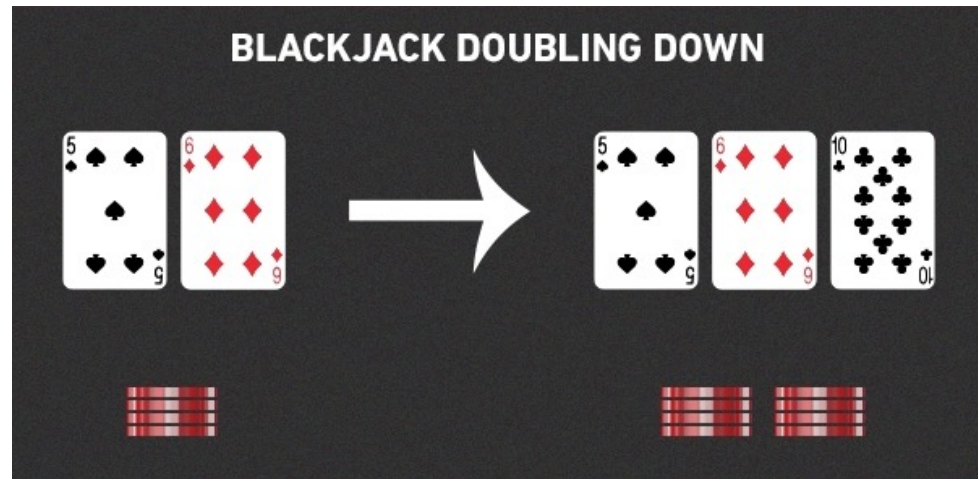
Payor must appreciate the need as much as the User.

When you have investment-worthy assets....

Patents

Copyrights

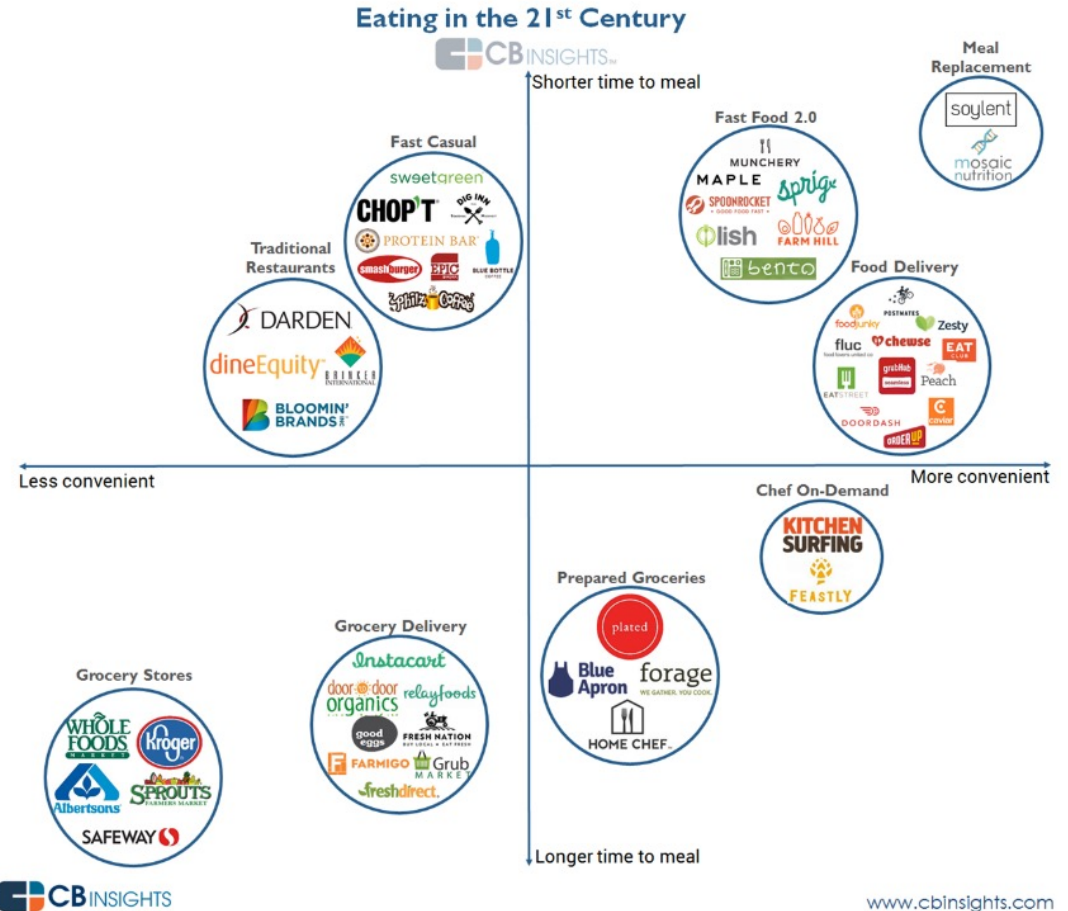
Trade Secrets



You may spin out with 1 or 2 patents, but companies typically develop 10-20 patents to fill-in gaps around a single initial patent.

When you have a competitive idea....

- What research is going on?
- What products are out there?
- What do you have to offer?
- Where does your idea fit in?



When you have demonstrated feasibility....

Repeatability

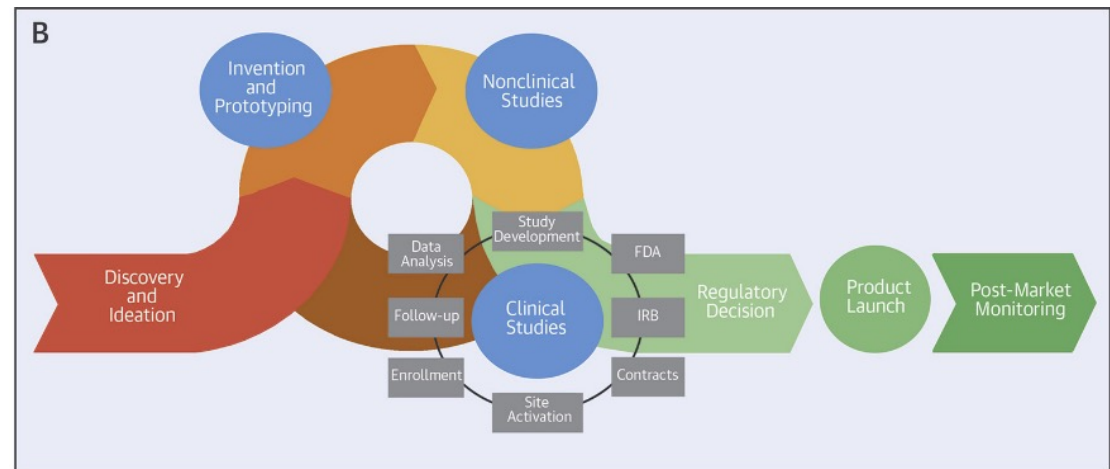
– Can you do it again?

Process yield

– Now and with proper CMC/DFM

Cost of reagents/components

– e.g. Is there a chip shortage?



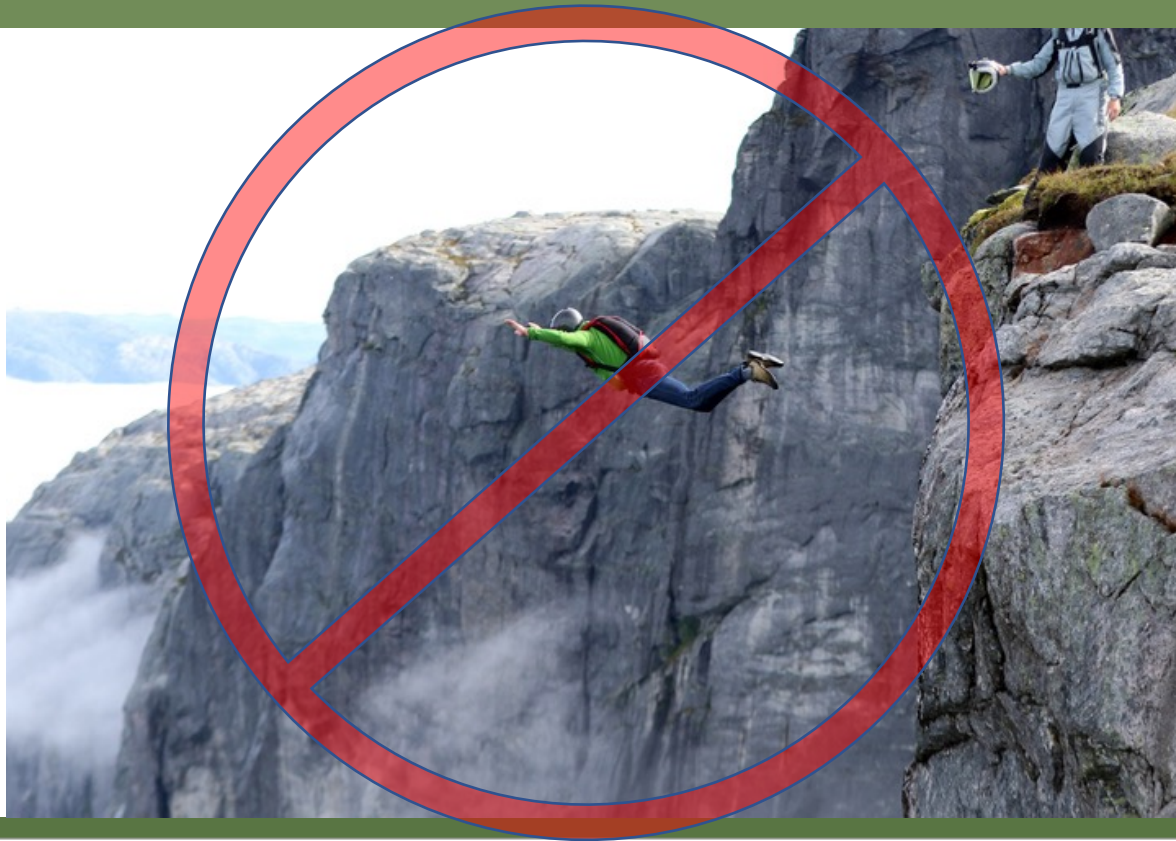
What seems impossible to you, can be easy for someone else.

- Can you find an expert?

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How to Fund Your Venture

Don't just jump over the edge! No, you can't "just do it!"



What makes something fundable?

Digital health investments should:

Address a health need



Not duplicate existing digital tools or systems



Be appropriate to local context



Account for long-term costs



World Health Organization



human reproduction programme
research for impact

How much money do you need?

Cost Examples - Device, Therapeutic

Product Category	Activity	Regulatory Stage	Est. Low Cost (not incl. staff labor)	Est. High Cost (not incl. staff labor)
All	Early stage intellectual property		Paid by institution	\$25k / year
Medical Device	Prototype (basic)	Pre-clinical	\$ 10,000	\$ 25,000
Medical Device	Prototype (refined)	Pre-clinical	\$ 50,000	\$ 150,000
Medical Device	Usability study	Pre-clinical	\$ 3,000	\$ 10,000
Medical Device	Regulatory filing	Pre-clinical	\$ 5,000	\$ 20,000
Medical Device	Early IRB study	Clinical	\$ 50,000	\$ 500,000
Therapeutic	Animal model identification	Pre-clinical	\$ 15,000	\$ 50,000
Therapeutic	Animal model development	Pre-clinical	\$ 50,000	\$ 250,000
Therapeutic	Small batch manufacturing	Pre-clinical	\$ 10,000	\$ 30,000
Therapeutic	Toxicity study	Pre-clinical	\$ 40,000	\$ 60,000
Therapeutic	Dose finding study	Pre-clinical	\$ 50,000	\$ 100,000
Therapeutic	Pre-IND research	Pre-clinical	\$ 5,000	\$ 20,000

How much money do you need?

Cost Examples - Mobile Health, Diagnostics

Product Category	Activity	Regulatory Stage	Est. Low Cost (not incl. staff labor)	Est. High Cost (not incl. staff labor)
Mobile Health	Human factors research	Pre-clinical	\$ 5,000	\$ 25,000
Mobile Health	Interface design	Pre-clinical	\$ 10,000	\$ 50,000
Mobile Health	Software coding	Pre-clinical	\$ 20,000	\$ 60,000*
Mobile Health	Regulatory filing	Pre-clinical	\$ 5,000	\$ 20,000*
Mobile Health	IRB study		\$ 5,000	\$ 25,000
Diagnostic	Assay development	Pre-clinical	\$ 40,000	\$ 90,000
Diagnostic	Reagent formulation	Pre-clinical	\$ 15,000	\$ 35,000
Diagnostic	Device / reader prototype design	Pre-clinical	\$ 50,000	\$ 100,000
Diagnostic	Interface design	Pre-clinical	\$ 10,000	\$ 50,000
Diagnostic	Software coding		\$ 5,000	\$ 35,000

Honest Self-Assessment

Are you especially good at getting large grants?

- Consider staying in the university longer and spinning out after advancing the research with big grants.

Are you comfortable with the “side-hustle” life?

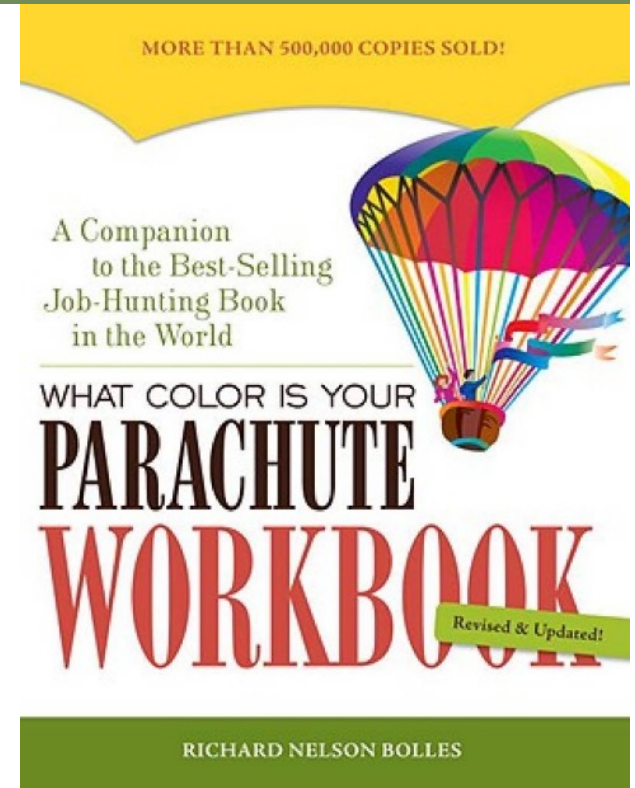
- Many companies are started by post-docs and engineers. You can be a scientific advisor and guide the spin-off.

Is your specialty equipment sitting idle? Are your Research Assistants/Scientists available to work more hours?

- Consider doing contract work for academic labs and industry partners.

Can you build a collaborative team?

- Investors invest in high functioning teams. Dysfunctional teams fail catastrophically.



What's your superpower?

**Stoic
Visionary**

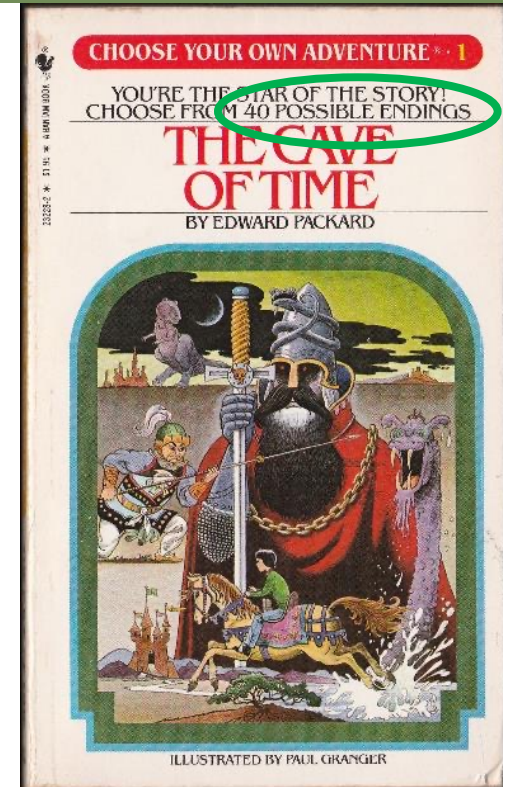


**Astute
Champion**

**Charismatic
Team Builder**

Match Strategy to Product, Environment, and YOU!

1. Define value inflection milestones.
2. Describe the staff you will need to achieve each milestone.
3. How much money (equipment, salaries, etc.) do you need to achieve the milestones?
4. How long can you afford to wait for the money?
5. Decide what type of funding will be right for you, right now.
 - Grants – research vs. small business
 - Friends and Family
 - Angel
 - Family Office
 - Venture Capital
6. Generate “on-strategy” revenue as early as possible to offset the burn.



Thank You!

Open for Questions

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Feedback Survey

A link to the feedback survey has been sent to the email address you used to register.

Please get out your device, find that email, and spend a few moments completing that survey before you leave today.

Tip: If on a mobile device, shift view to landscape view (sideways) for better user experience.