



# Grand Challenge Process & IP/Commercialization: What is it? Why is it?

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# UM Innovations Move and Improve the World

Mobility



Cybersecurity



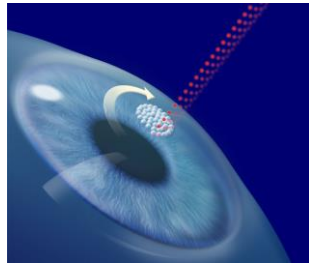
OLED Display



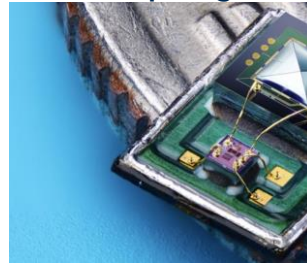
AI / Edge Computing



Bladeless Lasik



Ultra Low Power Computing



FluMist Vaccine



Therapeutics for Rare Disease



# Important Innovations from Other Universities

- **Google**, Stanford Univ.
- **HIV anti-viral therapies**, Emory Univ
- **Rocket fuel**, Clark Univ.
- **Insulin**, Univ. of Toronto
- **Vitamin D fortification**, Univ. of Wisc
- **Electron microscope**, Uni. of Toronto
- **Penicillin**, Oxford Univ.
- **Pap Smear**, Cornell Univ.
- **Blood preservation**, Columbia Univ.
- **Ultrasound**, Univ. of Vienna
- **Streptomycin**, Rutgers Univ.
- **Heart-Lung machine**, Univ. of MN
- **Polio vaccine**, Univ. of Pittsburgh
- **Pacemaker**, Univ. of Minnesota
- **Warfarin**, Univ. of Wisconsin
- **Seatbelt**, Univ. of Minnesota
- **Hepatitis B vaccine**, Univ. of Pennsylvania
- **CAT scan**, Georgetown
- **MRI**, State Univ. of New York
- **Recombinant DNA Technology**, Stanford Univ., UC San Francisco
- **mRNA vaccine delivery**, Univ. of Penn



# Impact and Importance

- University commercialization of federally sponsored research is hugely important to federal agencies
  - Mandated by Congress in 1980 (Bayh-Dole Act)
  - Closes the loop on taxpayer investment in university research
- University of Michigan has vast support network
  - Innovation Partnerships
    - Licensing, Venture Center, Alliances
  - Fast Forward Medical Innovation
  - Center for Entrepreneurship
  - Coulter Translational Research Partnership Program
  - Michigan Drug Discovery
  - Weil Institute
  - Support from University leadership at every level

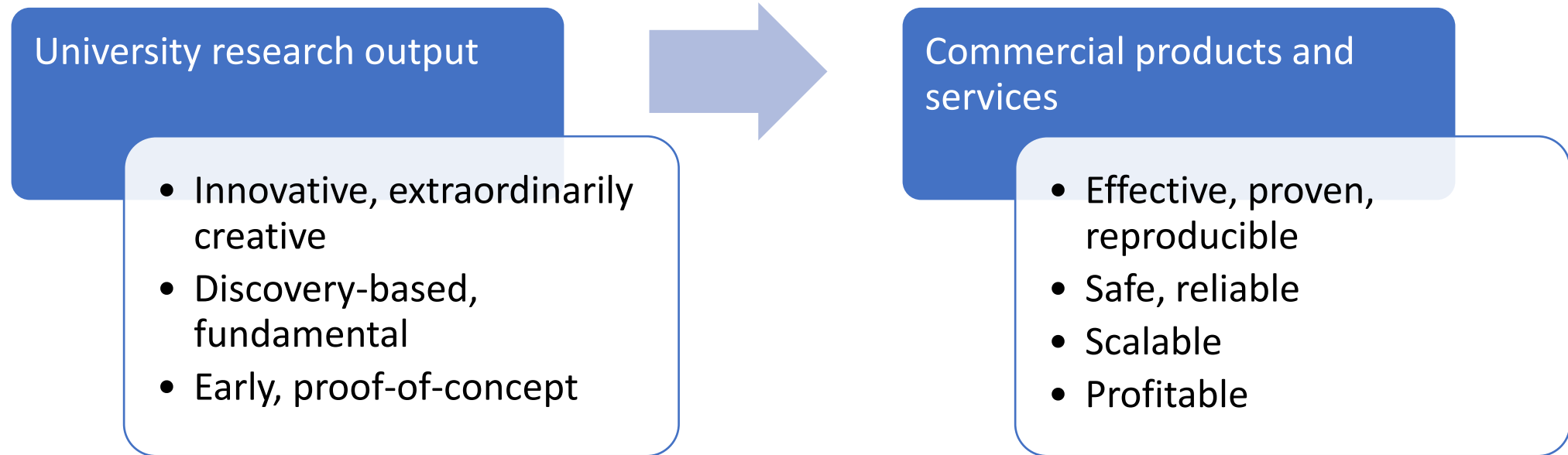


# What is Intellectual Property?

- IP includes
  - Utility patents
  - Design patents
  - Plant patents
  - Plant Variety Protection certificates
  - Copyrights
  - Trademarks, servicemarks
  - Trade secrets
  - Know-how, technical information
- IP can protect
  - Compositions of matter, formulations
  - Devices, methods, algorithms
  - Therapeutics, diagnostics, instruments
  - Sexually and asexually reproduced plants
  - Software, designs, written works, any artistic expression in a fixed medium
  - Symbols, names, slogans used in commerce
  - Secrets, knowledge



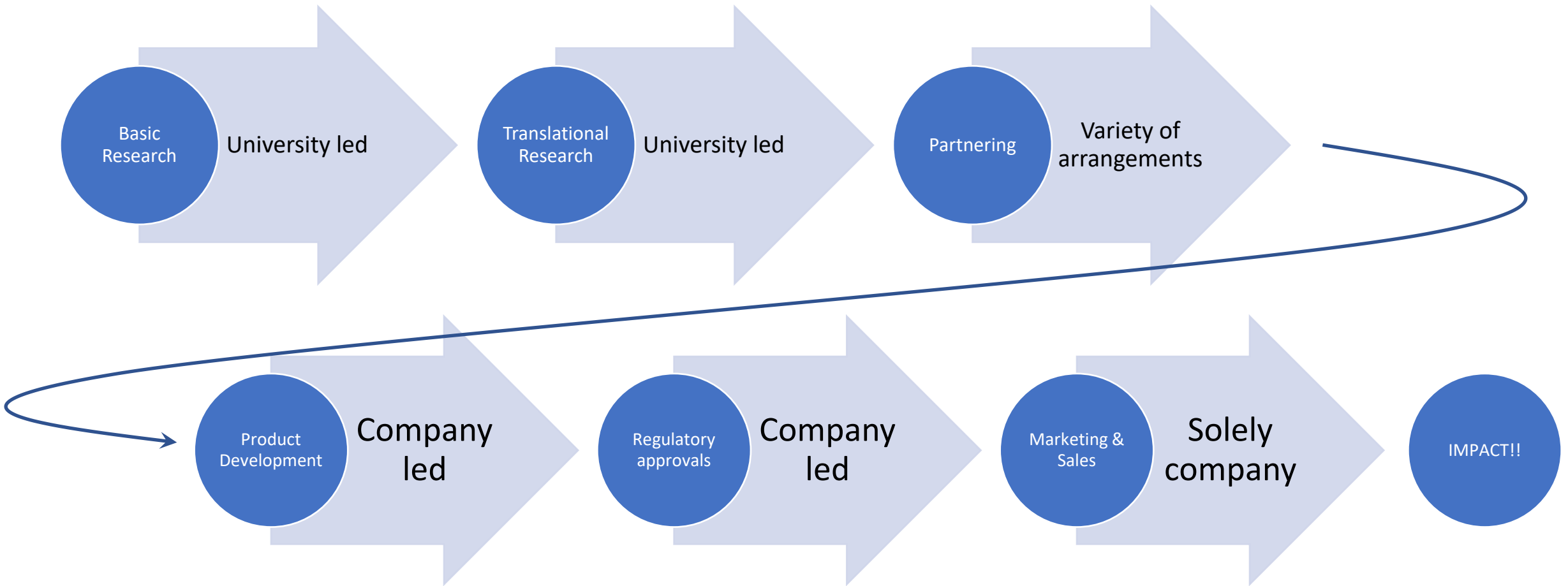
# Intellectual Property Helps Bridge the Gap



- Significant investment required to turn research output into a commercial product!
  - Requires millions to 100's of millions of \$\$\$
- Intellectual property helps assure stakeholders that investment is worthwhile
  - Carrot for companies, entrepreneurs, investors
  - Sustainable market advantage allows for commercial successes and recouping of investment



# Commercialization Pathway



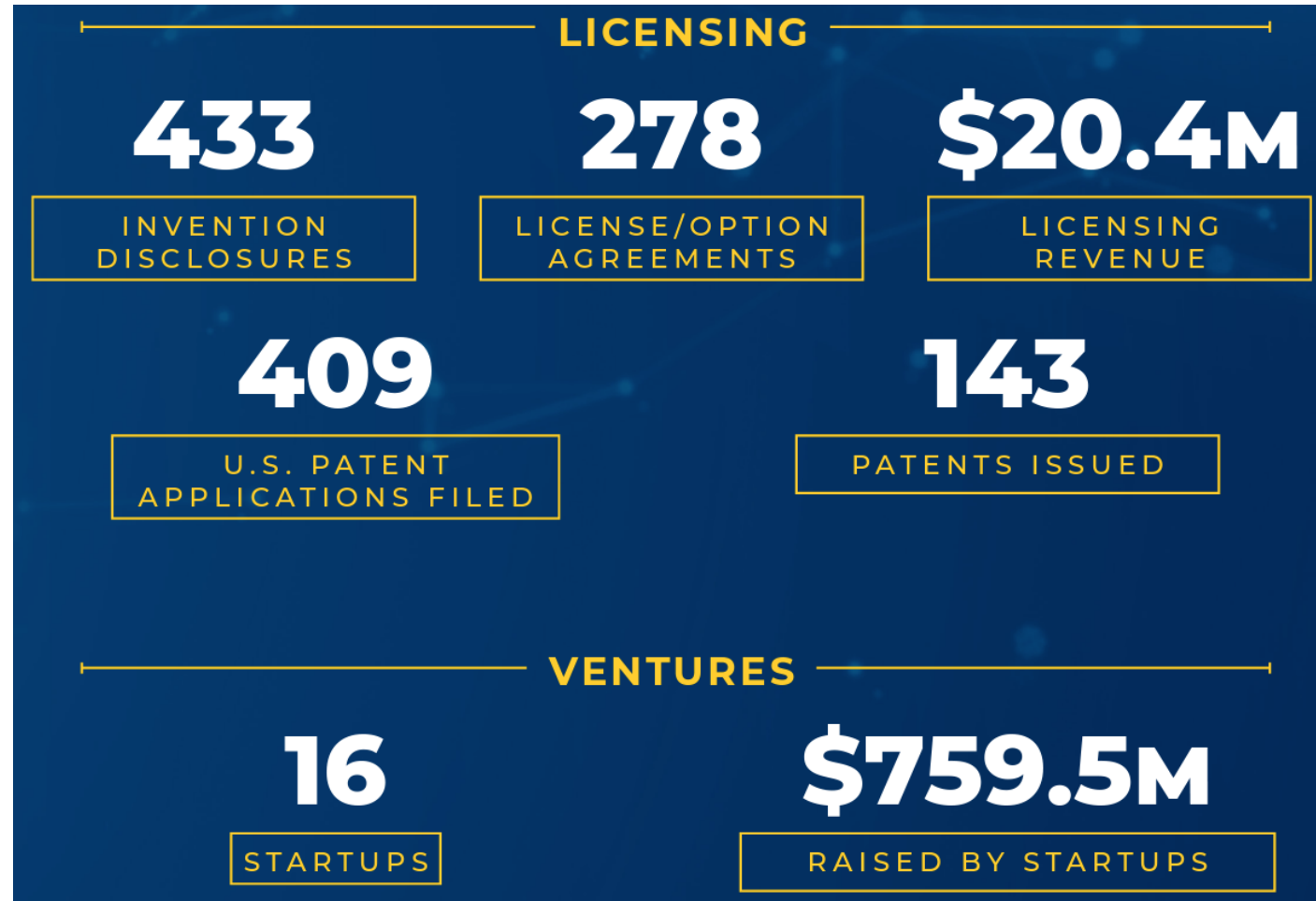
# Commercialization at UM

- Two primary approaches
  - “Direct license” to established company
  - Launch a startup company
  - Pros & cons to each, usually circumstances dictate
- License rather than sell the IP
  - Provides UM with greater control over outcome
  - Mandated when federal funds involved
  - True of nearly all universities nearly all of the time
- Roles for research team
  - Marketing and initial engagement
  - Sponsored research in UM lab
  - Consulting
  - Founders (startup)
  - Board of advisors (startup)
  - Executive/management role (startup, usually only students and postdocs)
- As product development matures, inventor engagement typically diminishes



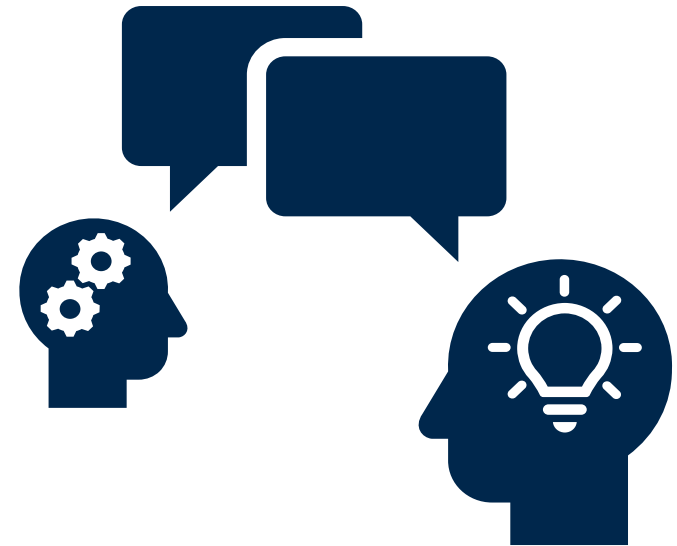


# Innovation Partnerships in FY 2022

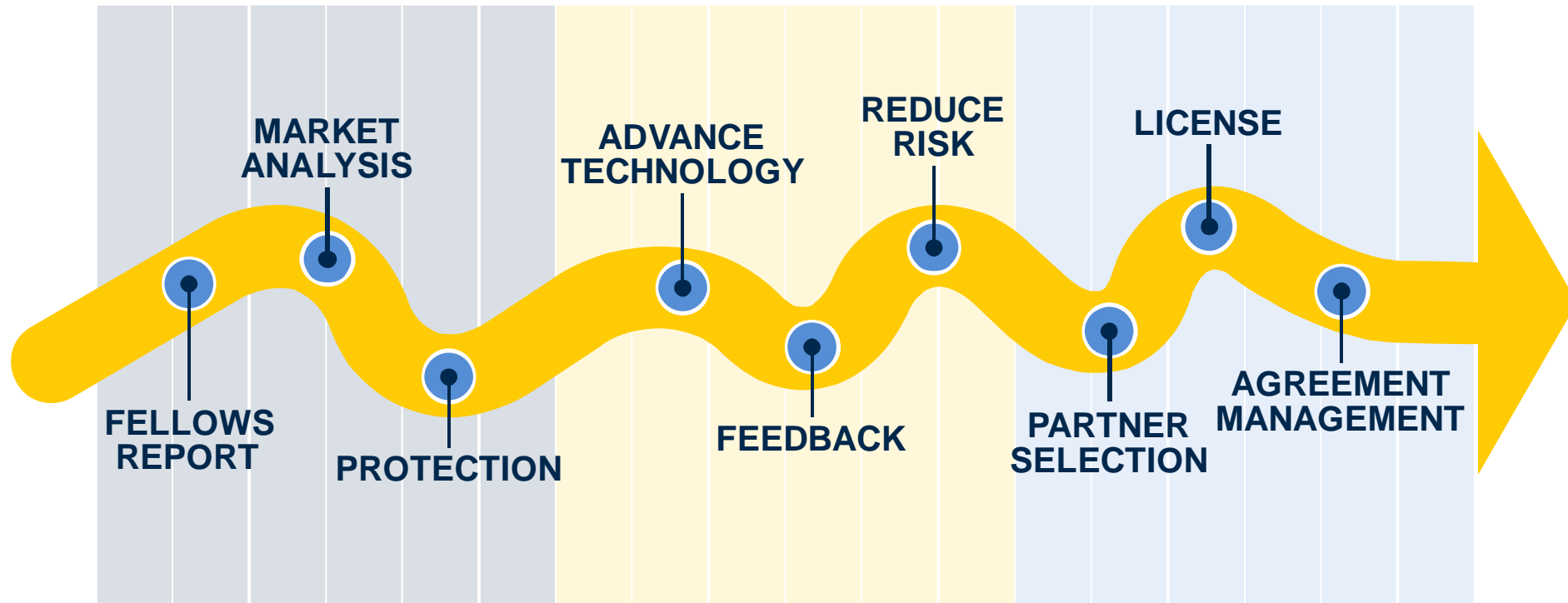


# Invention Reports – The First Step

- Why?
  - We can only help if you let us know
  - (Nearly all research grants require it)
- How?
  - Online portal on our website ([innovationpartnerships.umich.edu](http://innovationpartnerships.umich.edu))
  - Short form, upload supporting materials
- When?
  - ***Before first public disclosure!***
  - Earlier is better than later
  - As soon as you can describe the invention in detail
- But I'm not sure...
  - Reach out and talk to us anytime!
  - Use your regular contact, if you have one
  - Or contact me ([jernelso@umich.edu](mailto:jernelso@umich.edu)) or Ken Spenser ([kspenser@umich.edu](mailto:kspenser@umich.edu))
    - Beware of imposters!! 😊



# Next Steps



# Questions?

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