Welcome NMT Faculty
New & Returning

Dr. Michael Doyle, PhD

Vice President Research & Economic Development

Judy McShannon, PhD

Manager of Research Development

Myrriah Tomar, PhD

Executive Director, Office of Innovation Commercialization

Office of Research & Economic Development

RESEARCH CENTERS

- Energetic Materials Research & Testing Center (EMRTC)
- Hantush-Deju National Center for Hydrologic Innovation
- Geophysical Research Center
- Institute for Complex Additive Systems Analysis (ICASA)
- Langmuir Laboratory for Atmospheric Research
- Magdalena Ridge Observatory
- Mount Erebus Volcano Observatory
- National Cave and Karst Research Institute
- New Mexico Bureau of Geology and Mineral Resources
- New Mexico Cybersecurity Center of Excellence (NMCCoE)
- Petroleum Recovery Research Center (PRRC)
- Playas Research and Training Center

RESEARCH OFFICES

- Research Development
- Office of Innovation Commercialization (OIC)
- Research Compliance (11 AM Presentation)

RESEARCH PORTFOLIO

$300 Million External Funding

$50M Annual Research Awards

A Unique Research University

- Applied Research Addressing Societal Challenges
- Collaborating with State and National Partners
- Enhancing the Research Capacity of the State
- Creating Engines of Innovation

Research Collaboration and Grant Proposals

NM-INBRE - IDeA Networks of Biomedical Research Excellence
Partners: NMT, UNM, NMSU, SJC, ENMU, WNMU, NMHU, DACC, Burrell COM, NCGR, Pueblo of Zuni, Pueblo of Acona

NM-EPSCoR - Established Program to Stimulate Competitive Research
Partners: NMT, UNM, NMSU, NTU

New Mexico Consortium – Includes all three research institutions and LANL.

NSF Regional Innovation Engines ($160 M/10 year, if awarded)
Awarded Type 1 planning ($1M/2 year):

- **RALI-WEST** (water resources)
  Partners: UNM, NMT, NMSU, LANL, SNL, SRIC, SFCC, CNM, Area, Creative Startups, ENMU, UTEP
- **Space Valley** (space technologies)
  Partners: Space Valley Coalition, NMT, CNM, Newspace Nexus, Spaceport America, Levado, NTU, NM MEP, NMSU, City of Albuquerque
- **PEDL** (water resources in the Permian Basin)
  Partners: UT Austin, NMT, NMSU, UTPB, Odessa College, Midland College, UTEP, NREL, SNL, many more

NMT-led proposals

- **New Mexico Engine for Decentralized AI** (Artificial Intelligence technologies)
  Initial Partners: NMT, CNM, SNL, UNM, NMSU,
- **New Mexico engine for Spatial Biology** (Next-Generation Biotechnologies)
  Initial Partners: NMT, NCGR, UNM, NMSU, NM Bioscience Authority, University of Missouri-Columbia

Build Research Capacity

Faculty Services

- Provide detailed RFP analysis
- Provide proposal planning and organization
- Analyze proposal reviews to develop a resubmission strategy
- Review, revise, and write proposals
- Organize “Red Team” reviews
- Manage limited submission review process

Proposal Types

- Individual faculty proposals
- Large multi-disciplinary or multi-institutional efforts
- Center-level initiatives
- Institutional initiatives

Contact me early for proposal services

Contact me any time you see an opportunity that limits the number of proposals NMT can submit

New Mexico Tech
Proposal Routing Sheet

R&ED Proposal No:	
Date Due to Agency:	
If time due is earlier then 5:00 indicate:	

Directions: This Routing Sheet must be completely signed before your proposal is submitted. Email the routing sheet to Sponsored Projects Administration along with your budget, budget justification, draft proposal, and any documentation of F&A limitation or cost share requirement. The individuals listed at the bottom of this sheet will review and sign electronically to indicate approval.
Your proposal cannot be submitted until the routing process is complete.

Title of proposal:			
Agency submitted to:		**RFP #:**	

Electronic submission required by the following:
☐ grants.gov ☐ research.gov (NSF) ☐ NSPIRES (NASA) ☐ ASSIST (NIH) ☐ Submitted by PI

Type of proposal:
☐ New ☐ Renewal/supplement ☐ Revised budget ☐ Cost Reimbursement ☐ Fixed

Proposed start date:		**Proposed end date:**	

PI:		Dept:		Email:			
Co-PI:		Dept:		Co-PI:		Dept:	
Co-PI:		Dept:		Co-PI:		Dept:	

TOTAL FUNDING REQUESTED IN THIS PROPOSAL		**STUDENT SUPPORT REQUESTED IN THIS PROPOSAL**	
Total Direct Costs:			
Total Indirect Costs:		Undergraduate:	
Total Overall Cost:		Graduate:	
Indirect Cost Rate Used:		Total Student Support:	
Indirect Cost Rate Allowed:			

Does the Agency require indirect Costs to be reduced or waived? ☐ NO ☐ YES – Please attach copy of requirement
Does the Agency require cost-sharing? ☐ NO ☐ YES – Please attach copy of requirement

Amount of cost share	Source of cost share	NMT Account Number	Signature

Will this project utilize ionizing radiation? ☐ NO ☐ YES
Is this an NSF collaborative proposal? ☐ NO ☐ YES – if yes – who is the lead?

RESEARCH COMPLIANCE
All researchers have completed RCR basic training ■ NO ☐ YES
All projects involving human or animal subjects must be reviewed and approved by NMT's IRB or IACUC before research can begin. This project WILL involve: ☐ Human Subjects ☐ Animals
Have all research staff (including the PI) completed the required training course? ■ NO ☐ YES

Principal Investigator:		Date:	
Department Chair or Supervisor:		Date:	
Sponsored Projects Administration:		Date:	
VP for Research and Economic Development:		Date:	
VP for Administration and Finance:		Date:	
Research Service Specialist:		Date:	

REVISED: July 2024

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Conflict of Financial Interest Disclosure Form

NMT Conflict of Interest Policy

Principal Investigator: _____

	NO	YES
I have read the NMT Conflict of Interest Policy.		
I have taken the NMT Conflict of Interest Training.		
I have completed a Conflict of Interest Disclosure Form within the past 12 months.		
I have no changes to the current Conflict of Interest Disclosure Form on file.		

PI Signature: _____ **Date:** _____

Export Control Exclusion Screening

Principal Investigator (PI): Answer the following questions and submit to the Sponsored Projects Administrator (SPA) working on your proposal/grant/contract/agreement.

IMPORTANT NOTICE TO PI
Consequence of Non-Compliance
Failure to comply with US export control laws can result in severe penalties to the individual that can include the following: Civil penalties up to $500,000 for each violation; Criminal penalties can be applied up to $1,000,000 each violation; and/or Imprisonment for up to 10 years.

* SECOND PAGE PROVIDED FOR REQUESTED OR ADDITIONAL INFORMATION

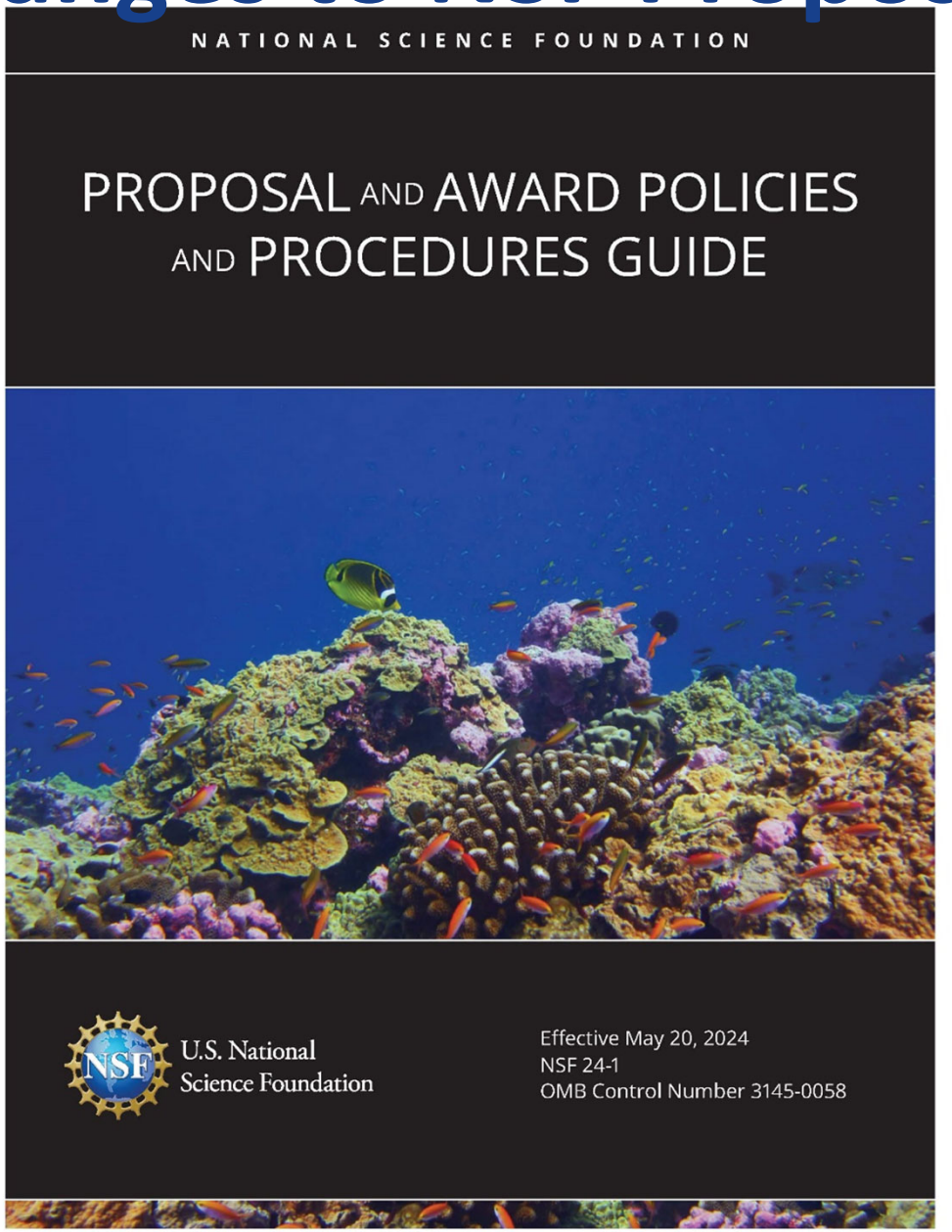
Title:	PI Name:

Fundamental Research Exclusion	**Yes**	**No**	**Unknown**
Will the information be published and shared broadly in the scientific community?			
Are there any proprietary or U.S. government publication or access dissemination restrictions in the contract?			
Are there any restrictions on foreign national participation or requirements for U.S. citizens only in the contract?			
Will there be any foreign nationals and/or persons holding dual citizenship involved with the project? Provide the name and nationality of each individual if known or when available (use page 2)			
Is any of the project equipment export controlled? (If new, describe on page 2)			
Is any portion of the project being conducted at a site other than NMT? (Subawardees, Collaborators, Consultants, Other). * If "Yes," Where? (use page 2)			
Will items and/or materials be shipped outside the United States? *If "Yes," What? Where? and To Whom? (use page 2)			
Is travel outside the US anticipated? * If "Yes," Where? (use page 2)			
Educational Information Exclusion			
Is the information commonly taught at schools and universities? (Please see Export Control Exclusion Screening Tip Sheet for more information.)			
Are courses about this information listed in published course catalogs?			
Other Terms Mentioned or Discussed Within the Project Documentation If "Yes" is indicated, please include a brief description (use page 2)			
Encryption Software? * If yes, contact the Office of Research - Research Compliance Officer export@npe.nmt.edu			
Select Agents? *If "Yes," What is it? (use page 2)			
Trade Secrets?			
Sanctioned or Embargoed countries? *If "Yes," Name? (use page 2)			
ITAR (International Traffic in Arms Regulation) or Munitions List? *If yes describe on page 2			
EAR (Export Administration Regulations) or Export Control? *If "Yes,"#			

PI Signature:		Date:	
SPA Signature:		Date:	
Compliance Office Signature (if applicable):		Date:	

https://nmt.edu/research/forms.php

Changes to NSF Proposals



https://new.nsf.gov/policies/pappg/24-1

Biographical Sketch and Current and Pending Support SciENcv Implementation

- SciENcv forms ONLY
- https://www.nsf.gov/bfa/dias/policy/biosketch.jsp
- https://www.nsf.gov/bfa/dias/policy/cps.jsp
- https://www.ncbi.nlm.nih.gov/sciencv/

Biographical Sketch

- Removed the 3-page limitation for biographical sketch – there is no page limit
- You certify that the information is correct
- Synergistic Activities removed from the biographical sketch

Synergistic Activities

- Synergistic Activities removed from the biographical sketch
- Submitted as a separate document
- Senior/key personnel must submit as part of the senior/key personnel documents
- Synergistic activities support your broader impacts activities

Mentoring Plan

- A mentoring plan must be submitted if you have postdoctoral research or GRADUATE STUDENTS
- Page limitation is still one page
- Example of activities
  - Publication support
  - Networking and travel opportunities
  - Professional development opportunities (grant writing, grant management, leadership, lab skills)
  - Mentoring
  - Use of Individual Development Plan

Current and Pending Support Form Foreign Talent Recruitment Programs

Foreign country of concern:

- People's Republic of China
- Democratic People's Republic of Korea
- Russian Federation
- Islamic Republic of Iran
- or any other country deemed to be a country of concern as determined by the Department of State

Plan for Safe and Inclusive Off-Site Research

- For each proposal that proposes to conduct research in the field, including on research vessels and aircraft, proposers must develop a plan.
- Research in the field is defined as data/information/ samples being collected off-campus or off-site.
- You submit your plan to me – not NSF, unless your RFP asks you to submit to them.
- At template is provided for you to complete
- https://nmt.edu/research/forms.php

Template
Safe and Inclusive Working Environment Plan for Off-Campus or Off-Site Research

This template has been designed to help you identify special circumstances of your research. You will need to complete the boxes on the template document for your specific grant. Text in red must be completed by the PI. Text in black is the NMT requirement.

1. Proposal title	
2. Plan date	
3. Version	1
4. NMT proposal routing number	
5. Award number	TBD
6. PI Name, cell phone, email	
7. Location of off-campus research activity.	
8. Estimated departure and return dates.	If not known at the time of the proposal put TBD. You will need to update the document when you receive the award and have the trip planned.
9. List of participants	List all faculty, staff and students, as well as sub-awardee and collaborating organizations participants. If you don't know who will be participating (by name) at the time of the proposal you will update this form when you know names of all participants. You may be need to update more than once if you have multiple trips and participants vary by trip.
10. Description of the field setting and unique challenges for the team (include if the work is fieldwork, or research on vessels or aircraft).	Include any special circumstances that necessitate special plans.
11. Steps to nurture an inclusive off-campus or off-site working environment.	PI has confirmed participants have taken the "Sexual Misconduct and Title IX Awareness Training" with the NMT Title IX office. PI will have a team meeting before leaving, discuss what participants should do if something happens, and hand out this information. You must describe what Subawardee participants will do.
12. Communication processes within the off-site team and to the organization(s) that minimize singular points within the communication pathway.	Will participant's cell phones work? If not, are you taking a satellite phone? There should not be a single person overseeing access to a single satellite phone. There should be multiple persons off-site a participant can communicate with if they can't reach NMT.
13. Recommended contact for any reporting suspected misbehavior.	• Peter Phaiah, Title IX Coordinator - titleixcoordinator@nmt.edu - 575-835-5953 • Theresa Kappel, Director of Student Access Services - theresa.kappel@nmt.edu - 575-835-5899 You must describe what Subawardee participants will do.
14. Mechanism that will be used for reporting issues of harassment if they arise.	• Peter Phaiah, Title IX Coordinator - titleixcoordinator@nmt.edu - 575-835-5953 • Theresa Kappel, Director of Student Access Services - theresa.kappel@nmt.edu - 575-835-5899 • NMT on-line reporting procedures • NMT on-line reporting form You must describe what Subawardee participants will do.
15. Mechanism that will be used for responding to, and resolving issues of harassment if they arise.	What is the plan to remove the person from the situation? Can they just drive themselves home? Will someone go with them?

Use of NSF Funds for Conference Travel

- NSF will not fund travel to conferences that do not have a “Code of “Conduct Policy” in place.
- To request travel using NSF funds:
  - Check the conference website for their policy
  - Print the policy to PDF
  - Attach the policy to the travel authorization request
  - Without this information Sponsored Projects can not approve NSF funds for travel to a conference

SCIENCE SHAPING TOMORROW AAAS | ANNUAL MEETING

MENU

2025 AAAS ANNUAL MEETING: HYNES CONVENTION CENTER, BOSTON, MA, FEBRUARY 13-15

"This year's theme, Science Shaping Tomorrow, invites us to celebrate and strengthen the projects and collaborations among science, policy, and communication that already exist and to promote the infusion of scientific and technical expertise into the public discourse and policymaking. We will not only highlight the responses to challenges and crises, but also marvel at what our future could be."

Willie E. May, Ph.D.
AAAS President, Morgan State University

Share your student STEMM research! **POSTER SUBMISSIONS**

8/8/24, 9:05 AM AAAS 2025 Annual Meeting | Annual Meeting: American Association for the Advancement of Science (AAAS)

VIEW OUR POLICIES

@AAASmeetings **AAAS on Facebook** **AAAS Annual Meeting on Youtube**

CODE OF CONDUCT

CODE OF CONDUCT | CONFLICT OF INTEREST

SOCIAL MEDIA POLICY

AAAS HEALTH AND SAFETY GUIDELINES

AAAS is committed to providing a safe and productive meeting environment that fosters open dialogue and the exchange of scientific ideas, promotes equal opportunities and treatment for all participants, and is free of harassment and discrimination. All participants are expected to treat others with respect and consideration and alert staff of any dangerous situations or anyone in distress.

Speakers are expected to uphold standards of scientific integrity and professional ethics. This includes notifying AAAS staff in advance of the meeting about any possible conflicts of interest. AAAS recognizes that there are areas of science that are controversial.

The AAAS Annual Meeting can serve as an effective forum to consider and debate science-relevant viewpoints in an orderly, respectful, and fair manner. The policies herein apply to all attendees, speakers, exhibitors, staff, contractors, volunteers, and guests at the Annual Meeting and related events.

The following represent types of behaviors that will not be tolerated during the AAAS Annual Meeting and related events:

- intentionally talking over or interrupting others
- engaging in biased, demeaning, intimidating, coercive, harassing, or hostile conduct or commentary, whether seriously or in jest, based on sex, gender identity or expression, sexual orientation, race, ethnicity, national origin, religion, marital status, veteran status, age, physical appearance, disability, power differential, or other identities
- engaging in personal attacks of any kind
- commenting on personal appearance
- retaliation against reporting of conduct concerns or assisting in conflict resolutions
- disruption of the Annual Meeting (e.g., “Zoom-bombing”) or engaging in harm or threats of harm of any kind

Why Write Grant Proposals?

Provides funding which enables you to

- Conduct research, education, and service in your area of expertise
- Teach and train students
- Advance your careers and obtain recognition
- Provide benefits to society
  - Improved quality of life (health, technologies, communication. . .)
  - Sustainable energy and environment
  - Economic development
  - Job creation
  - Diverse, globally competitive workforce

NMT Research Office Resources on Website

Proposal Development

https://www.nmt.edu/research/proposal_development/overview_of_proposal_development.php

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Keep in mind. . .

The best written proposal will not win money for a weak idea

BUT

Many good ideas are often not funded because the proposal is poorly written

Your Proposal Is a Sales Document, Not a Scientific Or Scholarly Paper

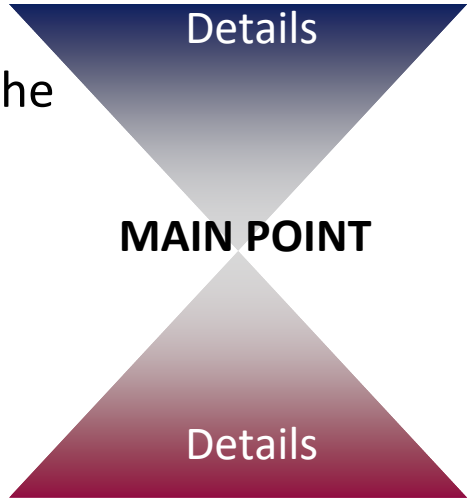
Good proposal writing turns the scientific or scholarly model many authors know from their professional experience upside down. Rather than drawing conclusions from an array of details, proposal writing begins with a conclusion and arranges substantiating facts to support it.

Scientific/Scholarly Writing

Scientific or scholarly writing starts with the details and subordinates main points.

Proposal Writing

Proposal writing starts with the main point and subordinates details.



Sell Your Idea!

1. Set the stage – Lay out the problem **(Why/Who Cares?)**
   A. Get interest at the outset
   B. Identify the importance – stress the need
   C. Summarize the state of the art
   D. Describe the technical challenges to solving the problem

1. State the theme – Your solution **(What and How?)**
   E. Describe the concept and establish credibility
   F. Describe your project's fundamental purpose

1. Create a vision **(So What?/Benefits)**
   G. Show how your work will advance the field
   H. Discuss the potential benefits

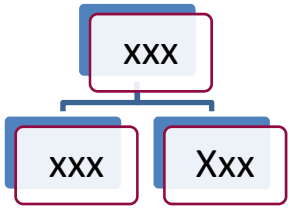
Create Reviewer-Friendly Text

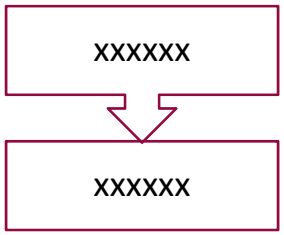
- Ensure that main section headings mirror RFP requirements
- Use titles, section headings, and sub-headings that are descriptive and reflect the benefit. For example,

  "*Water Systems*" VS. ***"Innovative Systems to Promote Efficient Water Usage"***
- Discuss main points first and then provide details
- Use the same terminology as that in the RFP and ensure it is consistent
- Use consistent writing style – one "voice"
- Define potentially unfamiliar terms
- Spell out acronyms and abbreviations

Create Reviewer Friendly Text

- Make it easy for reviewers to find the key concepts, benefits, and features of your proposal by using graphics and bulleted lists
- Examples of graphics:





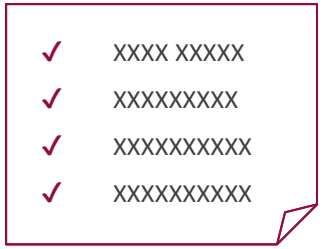


Table X	
Xxxxxx	Xxxxxx
Xxxxxx	xxxxxxx

Your Proposal Must STAND OUT from All the Others Being Reviewed by the Funding Agency

- Highlight your unique and innovative approaches to accomplishing your goals.
- Use technical terms judiciously, reviewers have different levels of expertise in subject matter
- Review each section of your proposal. Make certain your methods, management, timelines, budget, and evaluation pieces are on target, are connected, and are realistic
- Write clearly and concisely
- Style and format are as important as content
- Follow instructions on how to present information

Understanding the Program Goals, Priorities, and RFP Is Key for a Competitive Proposal

"A sound concept, but it does not fit our current funding priorities"

60% of all proposals are eliminated on first reading because the writer did not make an adequate project match or failed to follow directions

Next Step in Developing a Competitive Proposal Is a Comprehensive Analysis of the Solicitatior

Also known as

- RFP (Request for Proposal)
- RFA (Request for Application)
- PA (Program Announcement)
- BAA (Broad Agency Announcement)
- FOA (Funding Opportunity Announcement)
- CAN (Cooperative Agreement Notice)

So…, What Does That Mean?

- First, **read** the application instructions carefully
- Second, **read** the application instructions carefully
- Third, **read** the application instructions carefully

Generally, an RFP Contains

- A description of the funding opportunity
- Proposal preparation instructions, including required sections, content for each, and format
- Submission dates
- Evaluation criteria
- Institutional and PI eligibility
- Budget and budget justification requirements and forms
- Program Officer contact information
- Review schedules and selection processes/mechanisms
- Post-award procedures and reporting requirements for funded proposals

Contact the Program Officer

Program Officers (PO) give valuable advice on matters related to the program, including if your concept is a good fit with the program's goals and objectives

- First email your concept summary to the PO
- Ask for a time to call and discuss
- Pay close attention to feedback, whether they are suggestions to modify your proposal or apply to another program
- Send a follow-up email thanking the PO and summarizing the key points
- Contact information is listed in RFP

Plan - Before you Begin Writing…

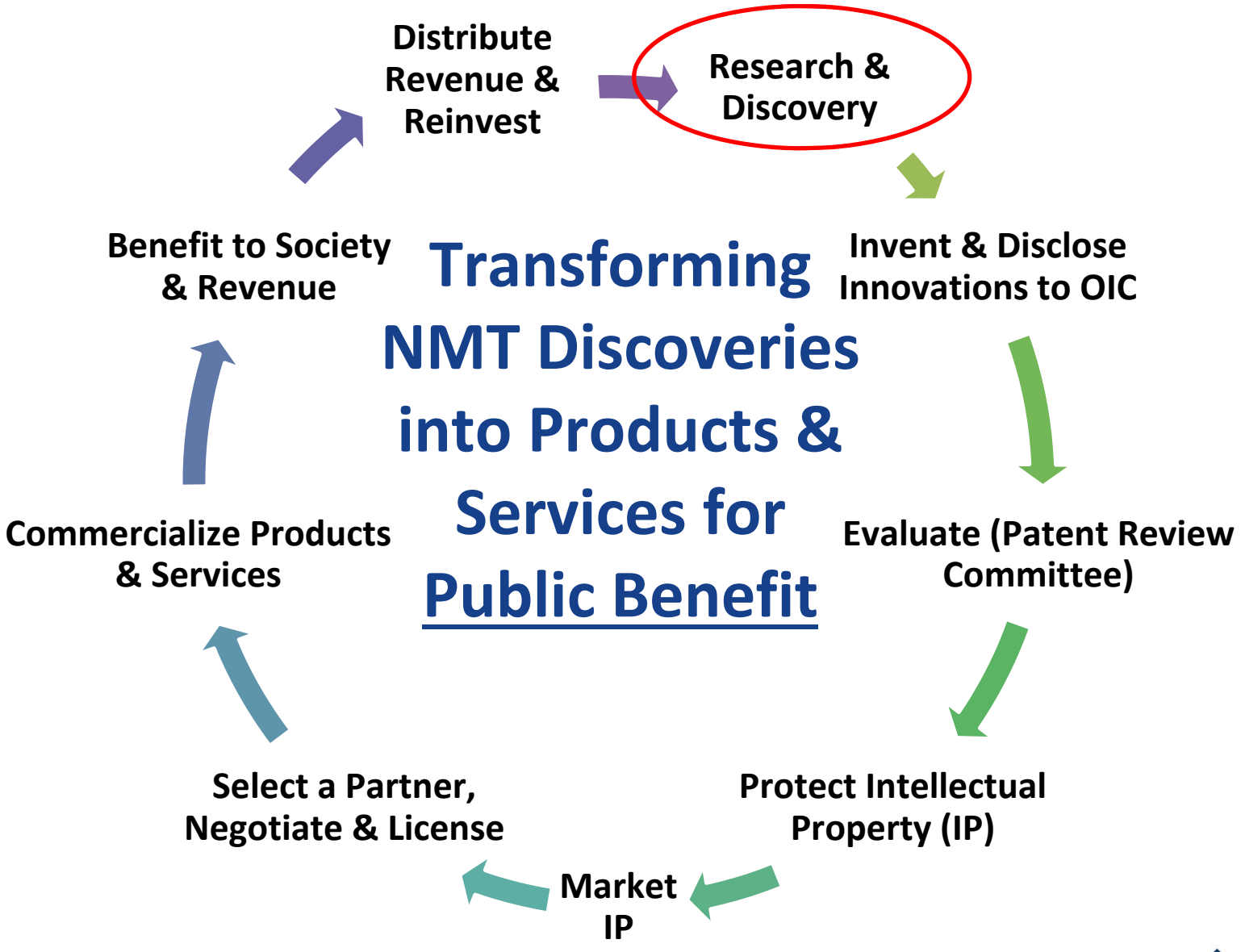
Have you

- ✓ Reviewed the list of recent awards in your discipline?
- ✓ Drafted a concept summary?
- ✓ Contacted the Program Officer to see if your ideas are a good fit and to discuss appropriate budgets?
- ✓ Created an outline using the RFP sections?
- ✓ Created a timeline for proposal writing, including peer and ORD review and revisions?
- ✓ Created a draft budget?

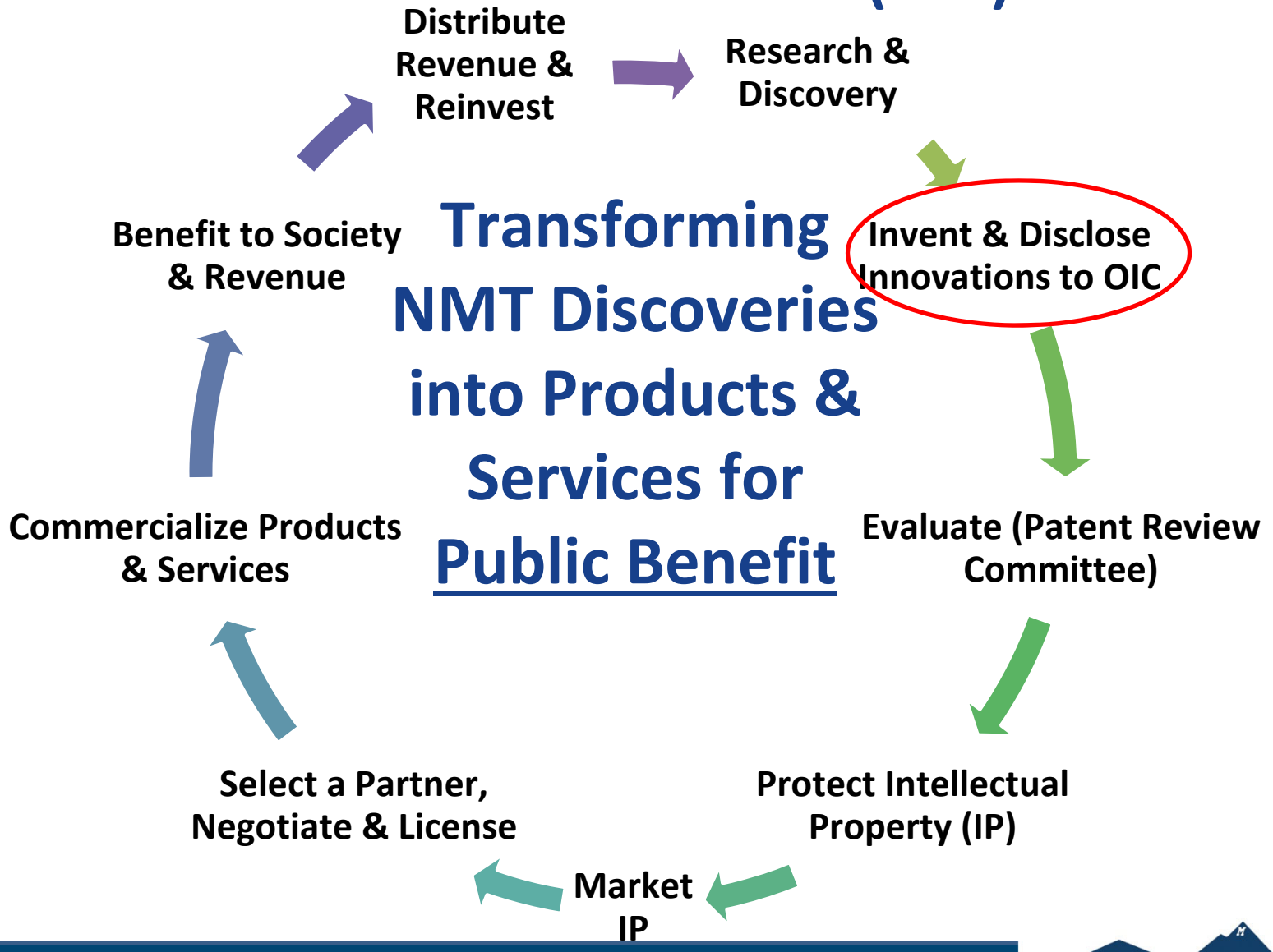
Where to Start

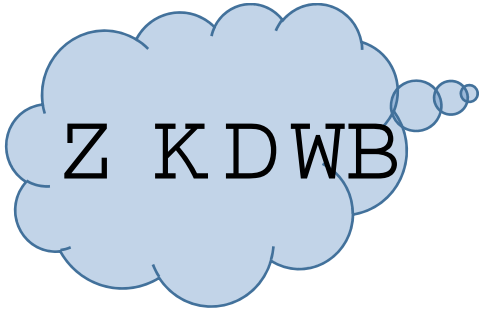
Judy McShannon, Ph.D.
Manager of Research Development
Brown Hall, room 200F
575-517-6430
judith.mcshannon@nmt.edu

Your grant is funded…. What's next?



Disclose New Innovations to Office of Innovation Commercialization (OIC)





Intellectual Property: Creations of the Mind/ Intangible Asset

Intellectual

Property

- A novel, useful, non-obvious manufactured device…
- A word, symbol or both used to identify services or goods…
- A book, music, software, and artwork…
- A recipe…

Disclosing Inventions Developed at NMT

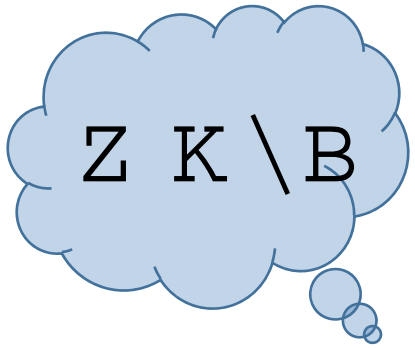
Faculty, research staff, students funded by a grant or inventor research conducted on the NMT campus

BEFORE discussing your idea at any public event, conference, poster session, published manuscript, or dissertation, otherwise you may lose all rights to your invention

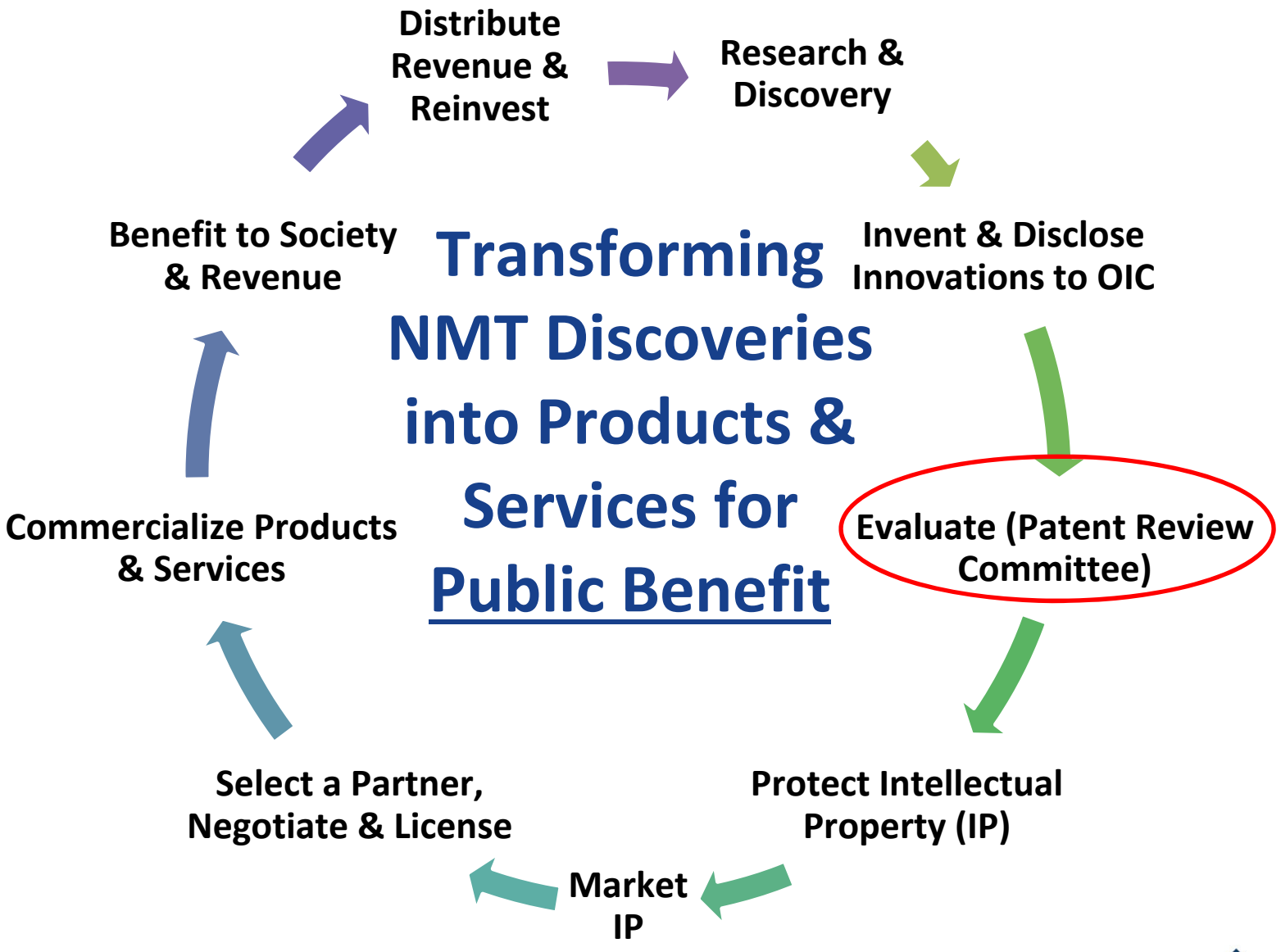
Visit https://nmt.edu/oic and download the "Invention Disclosure Form"

Complete as much as you can and email it to OIC@nmt.edu

Protecting the rights of the inventor and university



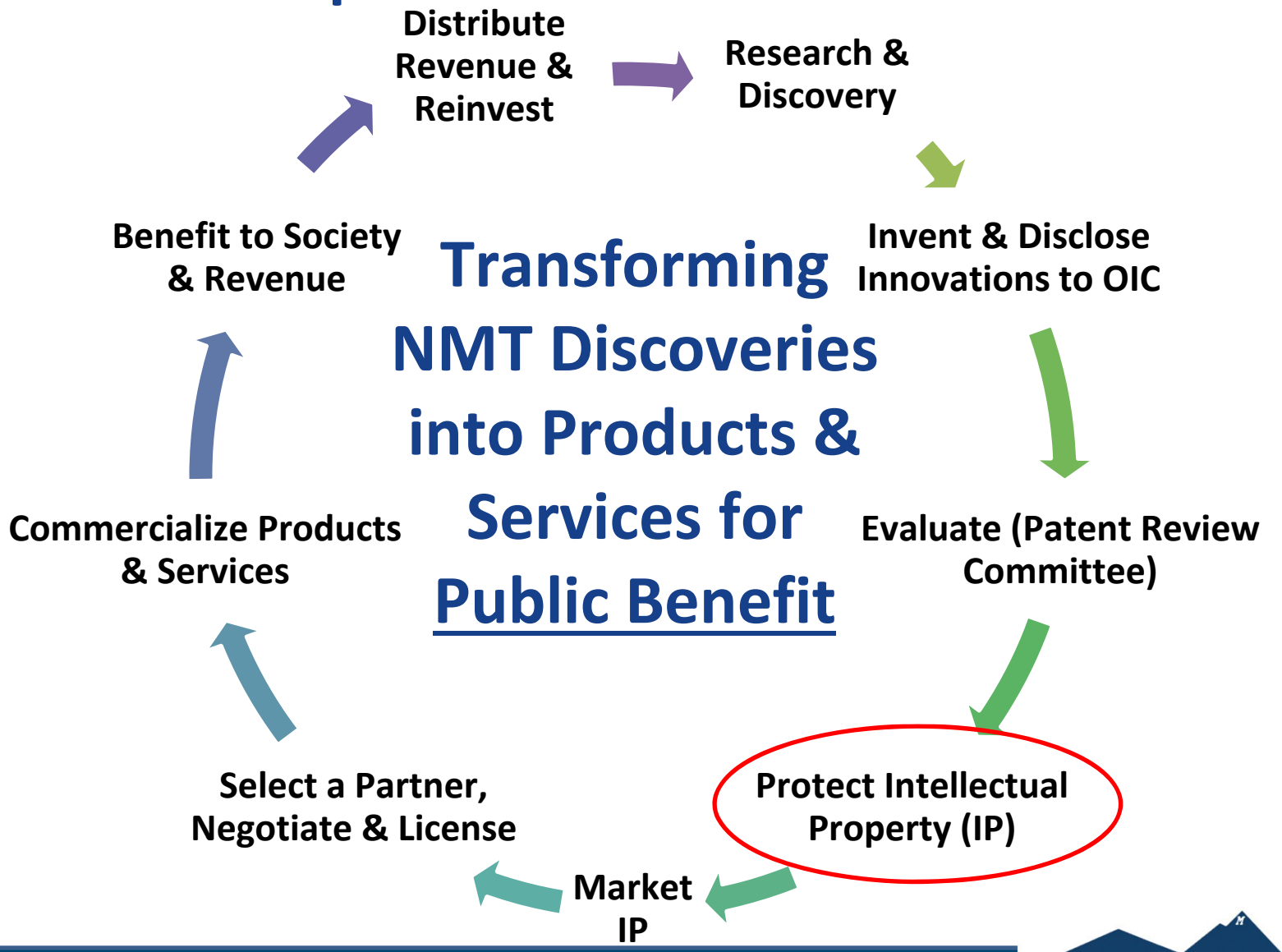
- **Institutional Policy**: NMT owns IP resulting from NMT resources and opportunities
- Protect the IP rights of inventors and the institution
- Creates products and services that benefit the public
- Potential for IP royalties going back to faculty from their IP being commercialized

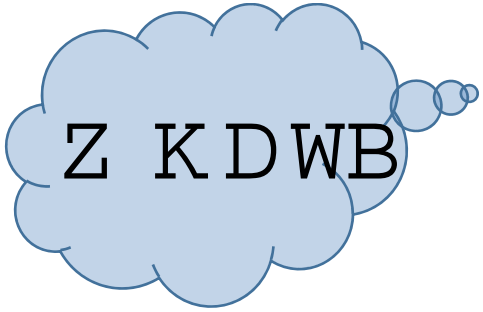

Distribute Revenue & Reinvest
Research & Discovery
Invent & Disclose Innovations to OIC
Evaluate (Patent Review Committee)
Protect Intellectual Property (IP)
Market IP
Select a Partner, Negotiate & License
Commercialize Products & Services
Benefit to Society & Revenue
Transforming NMT Discoveries into Products & Services for Public Benefit

OIC and a Patent Committee Evaluate Invention

- **Identify** your Intellectual Property Assets and IP Strengths (market demand, licensing opportunities, etc.)
- **Assess** the viability, scalability, and potential applications
- **Research** IP partners or licensing opportunities
- **Evaluate** the product market fit
- **Adapt** to changes in the market

IP Protection gives inventor exclusive right to profit from their work

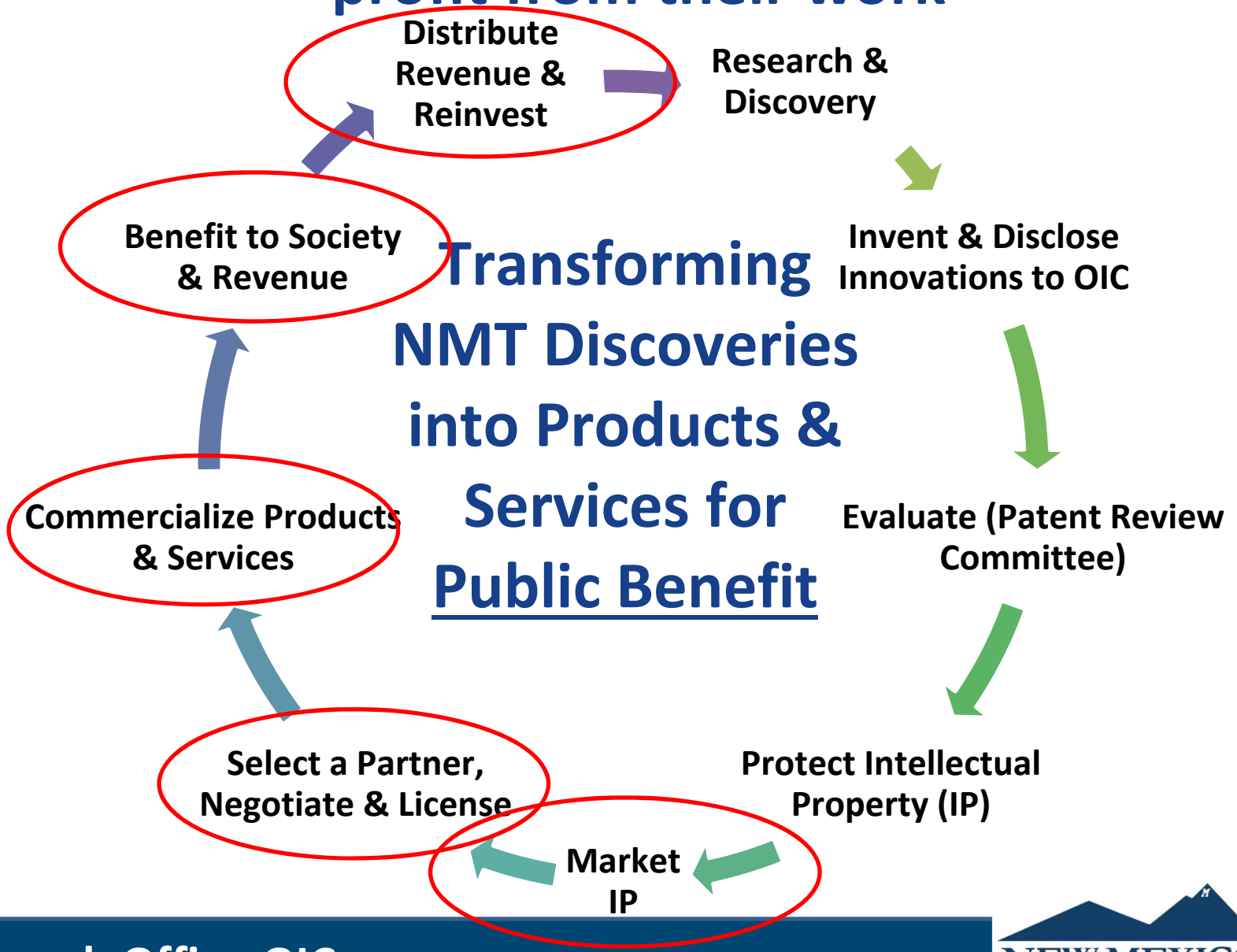




Intellectual Property: Creations of the Mind/ Intangible Asset

Intellectual Property	Intellectual Property Protection
A novel, useful, non-obvious manufactured device…	… can be **patented**;
A word, symbol or both used to identify services or goods…	… can be **trademarked**;
A book, music, software, and artwork…	… can be **copyrighted;**
A recipe…	… can be a **trade secret.**

IP Protection gives inventor exclusive right to profit from their work



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https://nmt.edu/oic

NEW MEXICO TECH

Office of Innovation Commercialization

The Office of Innovation Commercialization (OIC) was created in 2017 to promote an entrepreneurial culture on the New Mexico Tech (NMT) campus, focusing on commercializing technology created and developed at NMT. OIC receives invention disclosures from NMT faculty, staff, and students and evaluates these disclosures based on their commercial potential. We work closely with NMT faculty, staff, and student inventors to understand and assess the potential of their intellectual property to either license their innovations to industry partners or develop their IP into a startup venture.

Our mission is to foster entrepreneurship and innovation throughout the NMT campus via the university's Science, Technology, Engineering, Entrepreneurship, and Mathematics (STE²M) initiative.

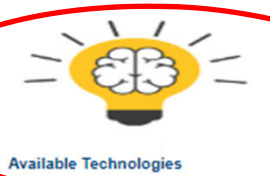
Submit an Invention Disclosure

Intellectual Property Policy

Frequently Asked Questions

Technology Commercialization Accelerator

Events/News



Available Technologies

Patent Committee

New Mexico Tech University Research Park (NMTURP)

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Available Technologies

NEW MEXICO TECH
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A 3D Printed Nickel-Based Superalloy Resistant to Cracking

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A Biodegradable and Non-toxic Anti-bacterial, Anti-fungal, and Anti-Viral Formulation to Treat Infections

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A Novel Method to Generate and Isolate Radioisotopes for Use in Nuclear Medicine

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A 3D Printed Nickel-Based Superalloy Resistant to Cracking

Challenge

Additive Manufacturing involves 3D printing of parts or components using a gradual additional of materials in a layer-by-layer method. Currently, alloys are produced by additive manufacturing, and traditional methods that are prone to crack formation. Crack formation is especially problematic in manufacturing nickel-based alloys.

Solution

This invention provides a technology based solution that overcomes existing state of the art approaches by using Nickel-based superalloys. This superalloy is capable of withstanding high temperatures, high stresses, and high oxidizing conditions.

Benefits and Features

- Superalloy composition has increased crack resistance.
- Uses a manufacturing methods that forms a low-carbon or no-carbon superalloy.
- Allows alloys to be 3D printed with Ni-based superalloys and withstand temperatures up to 1100 degrees Celsius without crack formation.

Market Potential / Applications

This invention has applications in aerospace, additive manufacturing, and industrial settings.

Developments and Licensing Status

Status: Available

Commercial sponsor sought? Yes

Patent Status

US Patent Pending

Inventors

Bhaskar Majumdar; Kevin Garber; Mohammad Chowdhury; John O'Connell; Nathaniel Badgett

Keywords: superalloys, additive manufacturing, metal, crack resistant, nickel-based alloy, equilibrium solidification

NEW MEXICO TECH
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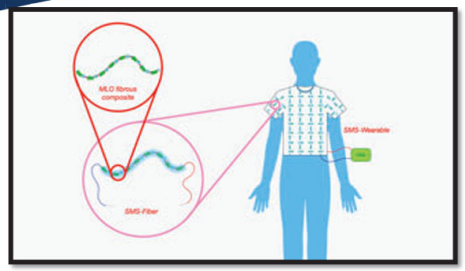
Self-Powering Smart Clothing



Challenge

Sensors used in smart clothing depend on external electrical energy and require an enclosed unit to house batteries and the communication circuit.

Solution

Mechano-luminescence-optoelectronic (MLO) smart clothing converts mechanical energy from body movement into electrical energy that can be applied to several functions such as sensing tensile strain and charging electrical bodies (battery, etc.). This invention employs MLO fibers that can self-power sensors and harvest energy from bodies.

Benefits and Features

- MLO self-powering sensor platform
- The ability to harvest energy
- Multimodal sensing wearables
- Lightweight, minimally intrusive, highly flexible and resilient

Market Potential / Applications

This invention has a variety of applications for use in multifunctional materials, self-powered sensors, health monitoring wearables and drone technology.

Developments and Licensing Status

Status: Available

Commercial sponsor sought? Yes

Patent Status

US and EP Patent Pending

US Patent Issued 11,047,750 B2 (MLO)

US Patent Issued 11,725,994 B2 (MLO aircraft)

PCT/US?019/020803

Inventors

Donghyeon Ryu

Keywords: smart clothing, MLO material, wearable sensors, health tracker, self-powered sensor, drones, energy harvesting, aerial vehicles

Office of Innovation Commercialization

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