

Oklahoma State University Innovation Portal

For General Innovation Disclosure Form (IDF) Submissions

Rev 1.5

Welcome to the Oklahoma State University's Innovation Portal by Cowboy Innovations through Inteum. The Innovation Portal allows Oklahoma State University faculty and researchers (graduate students) to submit an Innovation Disclosure Form or **IDF** for evaluation and the opportunity of patent filing and/or commercialization by Oklahoma State University. The following guide covers the use of the Innovation Portal and expectations of the submitted IDF by providing explanations and suggestions not found in the Portal itself. The flow of this guide follows the order of the fields in the Portal. Questions relating to the IDF process can be directed to the Office of Technology Commercialization or **OTC** Commercialization Officers, InnovationPortal@okstate.edu.

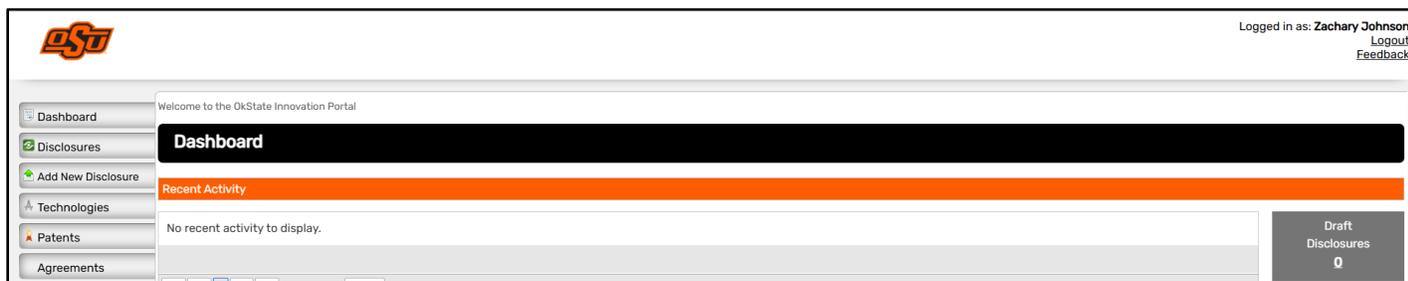
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Pre-Portal Preparations



Although we are eager to jump right into the Portal, completing an Innovation Disclosure Form or IDF will be easier with *pre-Portal preparation*. We have two suggestions for *pre-Portal preparation* that can be done in any order and described below.

1. Create a **Summary** and **Detailed Description** of the IDF in a **Word document**.
2. Perform a **literature** and **patent search** that pertains to the scope and specificities of the IDF.

1) *Pre-Portal Summary and Detailed Description*

Creating a *pre-Portal* document will smooth the IDF submission process. The Innovation Portal fields are **text based**, so creating an editable document with figures, graphs, or illustrations (best for communicating your innovation quickly) expedites the user experience. We ask that the editable Pre-Portal [document](#) be uploaded to the Portal to reduce the cost and time to file a patent application.

If pre-Portal preparations are complete, go to <https://okstate.inteum.com/okstate/innovationportal> and skip to the [Updating User Profile section](#)

SUMMARY: The summary of your innovation can be derived from your publication draft but should be written in terms understandable to technical and non-technical readers. The highlights and novelty of your innovation should be described beyond that known to one in the art/field. Please do not include export-controlled details in the Summary.

DETAILED DESCRIPTION: The Detailed Description should contain ample and specific detail to allow a peer to fully understand the innovation and reflect its use in practice. We suggest using a rough draft or publication. Try to include multiple industry application examples with details on alterations or modifications needed to meet industry needs. Provide estimated acceptable ranges and alternatives to broaden the publication draft. Include diagrams, drawings, and flow charts to allow others to understand the innovation as you do. If controlled information like Confidential Unclassified

Information (CUI)¹, trade secret / internal proprietary² or technical data/export-controlled technical data³ is used, bookend the text with ****PROPRIETARY**** or ****EXPORTCONTROL****.

Example: ****PROPRIETARY****The sensor runs at 35°C. ****PROPRIETARY****.

****EXPORTCONTROL****The sensor uses poly-buoyant muslin filler. ****EXPORTCONTROL****

Can a PowerPoint Presentation (PPTX) be used as the Detailed Description?

The use of a PPTX is a good start but requires further work for use in the Innovation Portal because details are missing.

- 1) Save the slides as images and insert them into a Word document,
- 2) Copy-and-paste the slide text below the corresponding slide, and
- 3) Add material presented verbally from each slide.

In creating this document, entering the text into the Portal will be a simple copy-and-paste operation.

2) Perform/update literature and patent search

Using the reference list from a publication as prior art search results often contains additional citations outside of the scope of innovation novelty. Record in the Word document the most relevant publication/website citations and provide one-liner explanations of what the publication/patent covers and how your innovation differs.

If this is your first prior art search, please do not spend more than an hour searching.

Good Patent Search Engines are Google Patents (www.google.com/patents) or FreePatentsOnline (www.freepatentsonline.com)

Finding related patents, publications and websites can be as simple as 'googling' the idea and with the right search terms, a good rule of thumb is to review three (3) pages of results. Use a Word document to track the most relevant publication/website citations and the one-liner explanations.

Create PDFs of the cited websites and publications and upload them to the disclosure, as attorneys use them to report to the patent office.

DO NOT submit screenshots of Google results and annotate; DO NOT include a weblink to an entire Google results search.

Example Citations – Note link provided and COMMENT: with one-liner comparison statement for each.

VanWijk, M. J., et al (2003). Microparticles in cardiovascular diseases. *Cardiovascular research*, 59(2), 277-287. <https://academic.oup.com/cardiovasces/article/59/2/277/287424>

¹ Government created or owned UNCLASSIFIED information that must be safeguarded from unauthorized disclosure.

² Trade Secrets or Internal Proprietary are innovations that cannot be reverse engineered. These may be the property of OSU or the industry partner from a Sponsored Research Agreement.

³ Any information or related data that cannot be released or transferred to foreign countries or representatives of a foreign nation, without first obtaining approval or license.

COMMENT: VanWijk et al (2003) cover micro particles, but our work results in nanoparticles.

www.merrygoround.com

COMMENT: merrygoround.com covers merry-go-rounds but not flying merry-go-rounds

US11045427B2 “Hollow nanoparticles with hybrid double layers” Found on Feb 2, 2023 from:

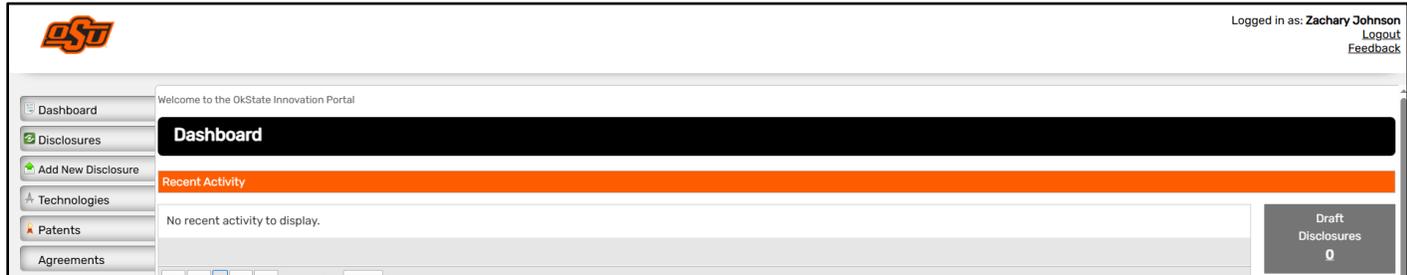
<https://patents.google.com/patent/US11045427B2/en?q=nanoparticles&oq=nanoparticles>

COMMENT: US11045427B2 covers hollow nanoparticles with double layers, but our work results in singular layers.

Now that *pre-Portal Preparation* is complete, we can move on to the Portal.

Innovation Portal

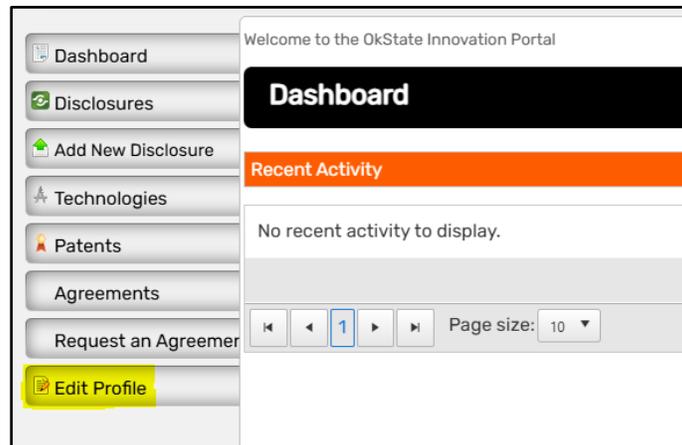
1. Go to <https://okstate.inteum.com/okstate/InnovationPortal/>



When entering the Innovation Portal for the first time, you may need to update your profile. If your profile is accurate and you are returning to the Portal, proceed to [step 2 Add New Disclosure](#).

Update User Profile

Navigate to **Edit Profile** tab on the left side of the screen and add or verify all required data denoted with an asterisk (*), including first & last name, citizenship, two emails and two physical addresses.



- Your *username* should be listed as your *email handle*. Do NOT modify this field.
- Enter your *first & last name* as seen on government-issued identification and include your *citizenship*. If preferred, include middle initial and generational suffix (I.e., Jr., II, III, IV).
- For credit to the department, include your *main department* by **using the link “Choose OSU Department” to the right of text field “Main Department” instead of typing into the field. The search field works best. The selected department/college will not be visible in the text field but has been selected and can be confirmed by again, clicking the “Choose OSU Department” link.**

Edit Profile

Please note that all fields marked with an asterisk (*) are required.

User Name: *
jeremy.kaplan

Gender: Male

First Name: * Jeremy **Middle Name:** D **Last Name: *** Kaplan

Prefix: **Suffix:** III **Citizenship: *** United States

Title: **Main Department: (Also use link to the right)** Choose OSU Department **Specialty:**

Employee No
A12345678

Additional Departments

Select a Department: chemi

- Center for Health Sciences
 - School of Biomedical Sciences
 - Dept of Biochemistry and Microbiology
- College of Agricultural Sciences and Forestry
 - Dept of Biochemistry and Molecular Biology
- College of Arts & Sciences
 - Dept of Chemistry
- College of Engineering, Architecture and Technology
 - School of Chemical Engineering

Additional Departments

Select a Department: Dept of Chemistry

Remove Selected Item

OK Close

- Add your OSU Employee/Student/Banner Identification number, entered as A + 8-digit ID number (i.e., A12345678), in the “Employee No” field.
- “Oklahoma State University” should be set as your default company. If not, inform innovationportal@okstate.edu.

- f. Enter your Oklahoma State University email address as your default by selecting *Set as default email*.
- g. Include a personal email address by selecting *Add another email* and choose *type*. This ensures we can connect with you should you leave the university.

Add another Email

EMAIL ADDRESS *Please provide both OSU (default) and personal email address especially for students.*

Type: University ▼

Set as default email

EMAIL ADDRESS *Please provide both OSU (default) and personal email address especially for students.*

Type: Personal ▼

Set as default email

- h. Enter your primary phone number and set as your default by selecting *Set as default Phone Number*. Mobiles are preferred to contact you should/when you leave the University.

Phone Number: * **Type:**

Mobile ▼ [Remove](#)

Set as default Phone Number

- i. Include both your work and home address in the *Mailing Address* section to comply with patent office requirements.
- j. Add missing addresses by selecting *Add another Address* at the bottom of the page.

MAILING ADDRESS
 Please provide both a work and residential address as both are required for patent filings.

Type: Work Remove Address

1201 S. Innovation Way Drive

City: Stillwater State / Prv: OK Postal Code: 74078

Country: United States

Set as default Address

MAILING ADDRESS
 Please provide both a work and residential address as both are required for patent filings.

Type: Home Remove Address

1234 Home Road

City: Stillwater State / Prv: OK Postal Code: 74075

Country: United States

Set as default Address

[Add another Address](#)

[Save Changes](#)

Once your profile is complete, you are ready to begin the IDF process using your *pre-Portal Preparation documents*.

Start New Disclosure

- 2. Click the  **Add New Disclosure** tab on the left icon menu. A popup window will start the IDF process.

New Disclosure

You are creating a new disclosure. Before you can edit your disclosure, you must first enter a title and choose the type of disclosure.

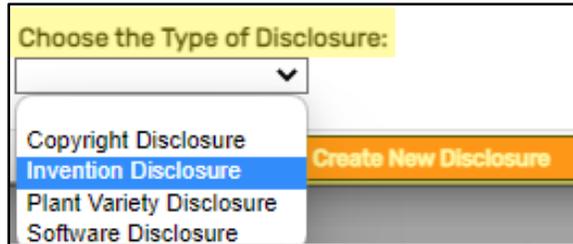
Non-confidential title of invention/software:

Choose the Type of Disclosure:

- Copyright Disclosure
- Invention Disclosure**
- Plant Variety Disclosure
- Software Disclosure

[Create New Disclosure](#) [Cancel](#)

3. Add a non-confidential title for the innovation/software disclosure.
 1. If the disclosure is CUI related or includes export-controlled material, begin the title with ****CUI**** or ****Export Controlled****.
4. Choose the type of disclosure you want to enter from the drop-down menu; general innovation, copywrite, plant, or software disclosure. The innovationportal@okstate.edu can assist you in choosing the correct form if needed.



1. Copyright Disclosure – for a [copyright](#) protection (other than software application).
 2. Innovation Disclosure – default disclosure when the other options do not match.
 3. Plant Variety Disclosure – for Plant and [Plant Variety Protection Certificate](#) (PVPC) filings protection.
 4. Software Disclosure – for software-based innovations.
5. Click **Create New Disclosure**.

Complete the blank fields by typing or cutting-and-pasting text into the Portal fields from the [Pre-Portal documents](#), as discussed earlier. All fields with an asterisk (*) are required to submit the IDF. Use the *Documents* section at the bottom of the IDF to upload [documents](#), prior art, and images relating to your IDF. Files cannot exceed 100 Mb. If a file is over 100 MB, email innovationportal@okstate.edu, noting your IDF submission number.

Innovation Details Section

6. *Abstract of Innovation*

This is a summary intended for a non-technical audience describing the highlights of your innovation. Cut-and-paste the Summary from your *pre-Portal Preparation* document. This summary should not contain controlled information.

7. *Estimated stage of innovation development*

Based on the Technology Readiness Level (TRL) system, provide your best estimate of the stage of your innovation's development. See [Appendix A](#) for more information.

- [Concept](#) – AKA 'ideation'- innovation prior to any experimentation. Reference TRL 1
- [Proof of Concept](#) – Experimentation first results or lab bench results. Reference TRL2
- [Prototype](#) – A model device or system that demonstrates the concept – AKA 'bread board', 'benchtop demonstrator' – short of real-world conditions. Reference TRL3
- [Working Model](#) – Prototype under real world conditions – AKA Minimum Viable Product is more robust & portable than the bench prototype. Reference TRL4-6

The screenshot shows a web form titled "Invention Details". The first field is "Abstract of invention: *" with a subtext "Provide a brief description of the invention." The text area contains the following text: "Internal combustion engine and how all the pieces fit together, what can go wrong and how to increase performance. The purpose of a gasoline car engine is to convert gasoline into motion so that your car can move. Currently the easiest way to create motion from gasoline is to burn the gasoline inside an engine. Therefore, a car engine is an internal combustion engine – combustion takes place internally. There are different kinds of internal combustion engines. Diesel engines are one type and gas turbine engines are another. Each has its own". The second field is "Estimated stage of invention development: *" with a dropdown menu currently set to "Prototype". The dropdown menu is open, showing the following options: "Concept", "Proof of Concept", "Prototype", and "Working Model".

SAVE IDF

Save As Draft

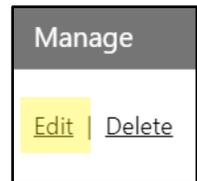
Inventors Section

8. *Inventors*

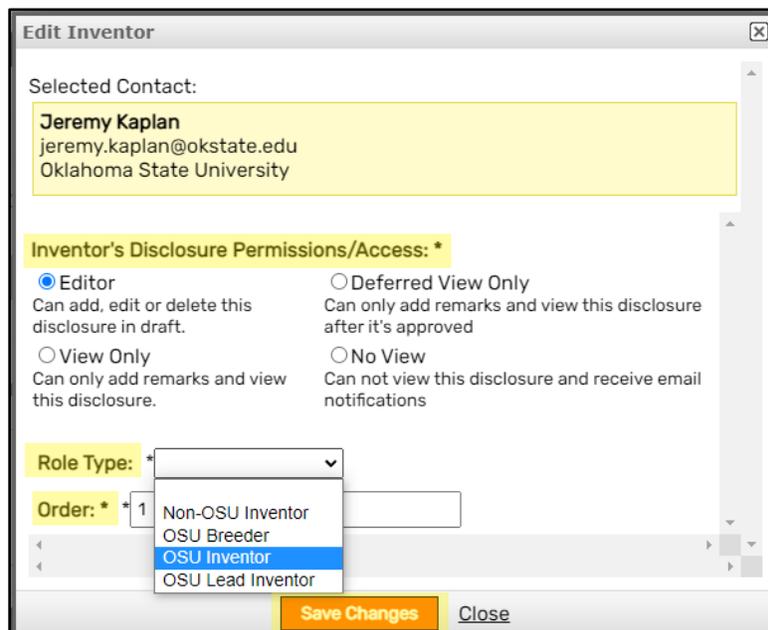
An inventor is an individual who significantly progressed the innovation in an unexpected way. Those who performed tests through another's direction without adding a 'eureka' moment to the conceptualization of the innovation, are not inventors. For more guidance, see our [Inventor page](#).

Include inventors who are not affiliated with OSU. If assistance is needed in determining inventorship, contact innovationportal@okstate.edu.

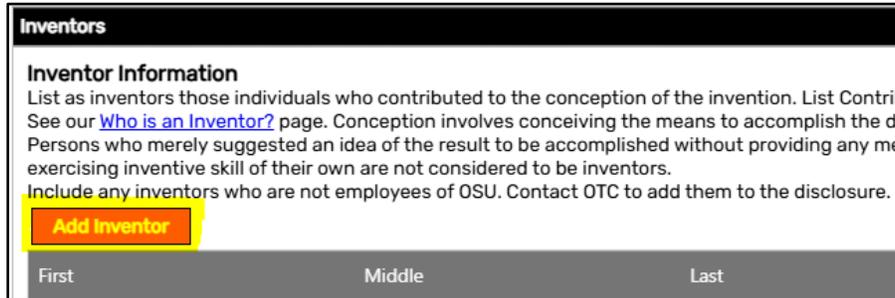
Edit/verify your information. Notice the Portal has entered you as inventor.



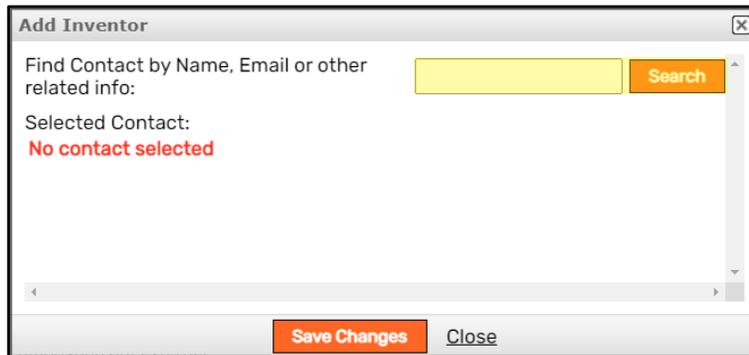
- Select *Edit* under *Manage* to the right of the *Inventors* section.
- Select/verify *Inventor's Disclosure Permissions/Access* (Questions? Contact OTC at InnovationPortal@okstate.edu)
 - a. Editor – Can add and edit disclosure in *draft* status,
 - b. View Only – Can only view and add remarks,
 - c. Deferred View Only – Can only add remarks and view after it is approved by the OTC,
 - d. No View – Cannot view this disclosure or receive email notifications,
- Select/verify *Role Type* from the drop-down menu
 - a. OSU Lead Inventor – OSU inventor who will be the primary contact for the OTC and outside counsel for all technical questions, review of drafts, etc.
 - b. OSU Inventor – OSU inventor that is not designated as the lead inventor.
 - c. OSU Breeder – Invents or discovers and either sexually (seed) or asexually (clonal) reproduces any distinct and new variety of plant.
 - d. Non-OSU Inventor – Inventor that is not affiliated with OSU. They will not be able to access the Innovation Portal.
- Select/verify the *Order* Inventor will appear on a patent application/patent. Order may be political but has no other value.
- *Save Changes*



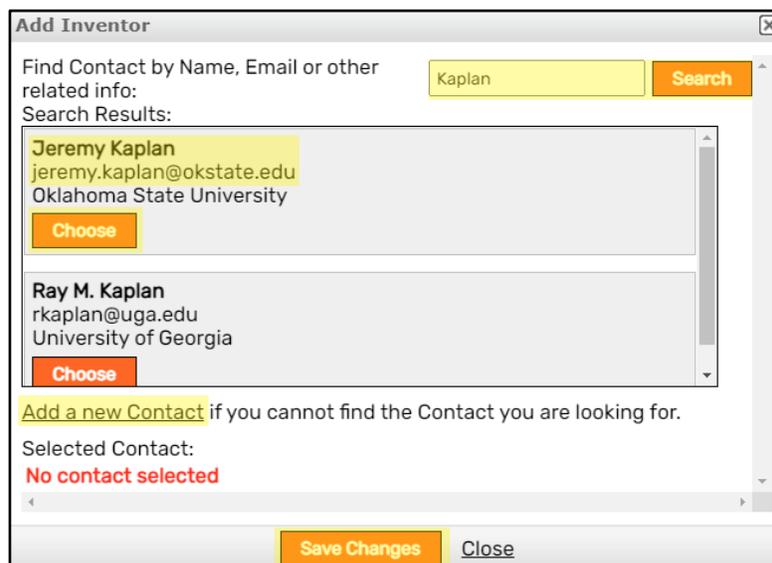
- **Add additional inventor(s):**
 - a. Click the **Add Inventor** button in the *Inventors* section.



- b. Enter the inventor's name or email in the search box and select *Search*.



- c. Choose the inventor from the results list by verifying the email address. If you cannot find an inventor under his/her legal or preferred name, contact innovationportal@okstate.edu.



- Select *Choose*. This may take several moments. Repeat the steps described above under the [Edit/verify your information](#), i.e. *Disclosure Permissions/Access, Role Type, Order*.

- *Save Changes* and repeat for remaining inventors.

9. *Inventor Contribution*

1. Enter each inventor's name.
2. Describe the nature of each inventor's contribution.
3. Describe the nature of each inventor's University duties and relation to this innovation.

Inventor Contribution *
 For each inventor listed above provide the following: (1) Enter each inventors' name and after each name describe (2) the inventor's INVENTIVE/UNEXPECTED contribution & (3) Univ duties and relation to this invention.

John D. Lingo: Conceived piston movement with crank shaft. Departmental Responsibility.
 Jeremy D. Kaplan: Integrated internal use of combustion (not external). Research PI.
 Taylor Crosby: Designed the crank shaft to which the piston will slide. GRA Assignment.

SAVE IDF

Save As Draft

Funding Support Section

10. *Funding Support* - Was innovation conceived and/or reduced to practice in the course of work under a grant, contract, Sponsored Research Agreement (SRA), Research Services Agreement (RSA), research collaboration agreement, or with the use of other University Funds, [OSU Policy No. 1-0202](#)? This includes Consortiums.

11. *Funding Support Info* – will open by choosing 'Yes' above.

- Click *Add Row* button to create as many entries as needed.
- Enter *Agency/Patron/Collaborative Partner, Grant Number & OSU Fund Number*.
- Click *Save* at the end of each row.
- **Upload PDF of the grant/contract in the [Documents](#) section later in the Portal.**

Funding Support Info
Use **Add Row** button to create fields as many fields as needed. Provide agency, sponsor, patron, or collaborative partner information below.
REMEMBER to upload copies of the grant or contract or agreement in DOCUMENTS.

Add Row

Agency/Sponsor/Collaborative Partner	Grant/Contract No.	OSU Fund No.	Manage
U.S. Army Night Vision and Electronic Sensors Dire	W909MY-04-C-00	RS-1-093432	Save Delete
National Institutes of Health	CA91959	RS-1-093433	Save Delete

SAVE IDF **Save As Draft**

Related Agreements Section

12. *Related Agreement(s)* - was the innovation related to any agreement?

- a. [Material Transfer Agreement](#) (MTA) – Agreement to receive or send materials.
- b. [Confidential Disclosure Agreement](#) (CDA) – Also called Non-Disclosure Agreements (NDA).
- c. Facilities Use Agreement (FUA).
- d. Memorandum of understanding (MOU).

- e. Other

13. *Related Agreement(s) Info* will open if you choose ‘Yes’.
- Click *Add Row* button to create as many entries as needed.
 - Enter *Agreement Type, Company Name, Contact Person & Address*.
 - Click *Save* at the end of each row.
 - **Upload PDF of the related agreement/contract in the [Documents](#) section later in the Portal.**

Related Agreement(s) Info
Use **Add Row** button to create fields as many fields as needed.

For Agreement Type enter Material Transfer Agreement (MTA), Commercial Development Agreement (CDA), Facilities Use Agreement (FUA), MOU, Consortium, etc.? **Add Row**

Agreement Type	OSU Fund Number	Company Name	Contact Person/Title	Address	Manage
SRA (G10003215 is a pas	Krishnan R Vaidyanathar	REMADE aka Sustainable	Ed Daniels	150 Lucius Gordon Dr Su	Save Delete

SAVE IDF Save As Draft

Prior Art Section

Prior Art is publicly known information at the time of conception which can determine the value of an innovation and [if it can be protected with a patent](#).

14. *Is this disclosure related to any previously submitted disclosure(s)?* – Many times an innovation may be an improvement upon a prior submitted IDF. Reference the earlier IDF here.
15. *Related Disclosure(s)* will open if you choose ‘Yes’.
- Click *Add Row* button to create as many entries as needed.
 - Enter *Disclosure ID* and *Disclosure Title*. Contact innovationportal@okstate.edu for help finding this information.
 - Click *Save* at the end of each row.

Prior Art

Is this disclosure related to any previous disclosure(s)? *

Related Disclosures
Use **Add Row** button to create fields as many fields as needed. **Add Row**

Disclosure ID	Disclosure Title	Manage
2023IDF0C	Top heavy boil nickel	Save Delete

SAVE IDF Save As Draft

16. *Have you published or otherwise publicly disclosed this invention?*

“Public disclosure” means a non-confidential disclosure to one or more individuals outside the University community. 1) Was the innovation published or presented with enough substance to allow someone skilled in the art to *make* and *use* the innovation? 2) Was the device observed publicly even if not turned on or discussed?

Publications include *submission* of a manuscript, a thesis or abstract or even some grant proposals.

Have you published or otherwise publicly disclosed this invention? *
 Consider the invention to have been published or publicly disclosed if enough of the substance of the invention has been disseminated to allow someone skilled in the art to make and use the invention. Publication would include a thesis or abstract (or sometimes even a grant proposal) even if it is not physically distributed to others, when such a document has been indexed and catalogued in a library where it is thus accessible to the public. A publication or public disclosure means a non-confidential disclosure to one or more individuals outside the University community.

Yes
 No

Background Literature/Patents:
 Provide a list of literature or patent search results, please list in order of relevance publications/products/patents found during your search (provide

- Click *Add Row* button to create as many entries as needed and record public disclosure events and dates.
- Click *Save* at the end of each row.
- **Upload publications and presentation in the [Documents](#) section.**

Public Disclosure Info
 Use **Add Row** button to create fields as many fields as needed.
 Provide list of when and in what manner (journal article, thesis, abstract, web post etc.), publication(s) occurred. Also include reference to any oral presentations made relating to the invention. **Add Row**
 Upload publications and presentation in the DOCUMENTS section, below.

Date	Event	Manage
2/2/2023	IEEE forum in OKC	Save Delete
4/1/2023	Demo at Endeavor lab to TITAN - under NDA	Save Delete

SAVE IDF **Save As Draft**

17. Background Literature/Patents:

Provide updated literature and patent search results by selecting those that are the closest/most relevant to your innovation, i.e. they define what the current state of the art is.

[From Pre-Portal Preparation](#)

Starting from publication reference list

Reference lists from a publication draft or project prior art search often contain lower value citations outside of the scope of innovation novelty; i.e. citations of general knowledge, like those that cover what might be found in a text book. Report only the most relevant publication/website citations and provide one-liner explanations of what the publication/patent covers and *how* your innovation differs.

Starting from scratch

Do not spend more than an hour searching.

Recommended patent search engines are Google Patents (www.google.com/patents) and FreePatentsOnline (www.freepatentsonline.com)

Also finding related products, publications and websites can be as simple as ‘googling’ the idea and with the right search terms. A good rule of thumb is to review three (3) pages of results. Track citations of the most relevant publication/website citations and the one-liner explanations of what the publication/patent covers and how your innovation differs.

DO NOT submit a screen capture page of Google results and annotate; DO NOT include a weblink to an entire Google results search.

Save PDFs of the cited websites and publications for uploading to the IDF. The attorneys use them in reports to the patent office. **Upload non-patent documents and PDFs of website content to the [Documents section](#) at the bottom of the IDF.**

Example Citations – Note link provided and COMMENT with a one-liner comparison statement for each.

VanWijk, M. J., et al (2003). Microparticles in cardiovascular diseases. *Cardiovascular research*, 59(2), 277-287. <https://academic.oup.com/cardiovasces/article/59/2/277/287424>

COMMENT: VanWijk et al (2003) cover micro particles, but our work results in nanoparticles.

www.merrygoround.com

COMMENT: merrygoround.com covers merry-go-rounds but not flying merry-go-rounds

US11045427B2 “Hollow nanoparticles with hybrid double layers” Found on Feb 2, 2023 from:

<https://patents.google.com/patent/US11045427B2/en?q=nanoparticles&oq=nanoparticles>

If more searching needs to be completed, list keywords/phrases relating to your innovation that would aid the OTC in conducting a search for existing publications/patents.

<p>PRIOR ART: Background Literature/Patents</p> <p>If you have conducted a literature or patent search, please list <u>in order of relevance</u> publications/products/patents found during your search (provide link to citations, if available) AND provide a one-liner comment on what the citation covers and how your idea is different.</p> <p>Upload non-patent documents and PDFs of website content to DOCUMENTS section.</p> <p>If no search has been conducted, please list keywords/phrases relating to your invention that would aid the Office of Technology Commercialization in conducting a search for existing publications/patents.</p>
<p>"Internal Combustion Engine". US: Glenn Research Center, NASA, 13 May 2021. Retrieved 22 November 2021.</p> <p>Segaser, C. L. (1 July 1977). Internal combustion piston engines (Report). U.S. Department of Energy Office of Scientific and Technical Information. doi:10.2172/5315920. OSTI 5315920.</p>

SAVE IDF 

Innovation Detailed Description Section

18. Innovation Detailed Description

If you created a [Pre-Portal Preparation](#) document, cut-and-paste your detailed description into the box and save your IDF, then proceed to the [Commercialization Potential](#) section.

The [Detailed Description](#) should contain ample and specific detail to allow a peer to fully understand the innovation and reflect its use in practice. We suggest using a rough draft or publication in an editable format (Word) for later uploading to [documents](#). Include multiple industry application examples with details on alterations or modifications needed to meet industry needs. Provide estimated acceptable ranges and alternatives to broaden the publication draft. Include diagrams, drawings, and flow charts to allow others to understand the innovation as you do.

If controlled information like Confidential Unclassified Information (CUI)⁴, trade secret / internal proprietary⁵ or technical data/export-controlled technical data⁶, bookend the text with ****PROPRIETARY**** or ****EXPORTCONTROL****.

Example: ****PROPRIETARY****The sensor runs at 35°C. ****PROPRIETARY****.
****EXPORTCONTROL****The sensor uses poly-buoyant muslin filler. ****EXPORTCONTROL****

You can type a detailed description of your innovation directly into the box, but we highly encourage creating a Word document and uploading it in [Documents](#) in addition to copy-and-pasting into the text box. The Portal is an internet-based program and if your connection cuts out, *you will lose all work not saved* (no autosave). The Portal field will not retain images though they are vital to most descriptions, hence we upload, as well.

Can a PowerPoint Presentation (PPTX) be used as the Detailed Description? Use of a PPTX is a good start but requires further work to use as the detailed description because details are missing. Create a usable Word document by:

- 1) Save the slides as images and insert them into a Word document.
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With the Word document, entering the text into the Portal will be a simple copy/paste operation.

⁴ Government created or owned UNCLASSIFIED information that must be safeguarded from unauthorized disclosure.

⁵ Trade Secrets or Internal Proprietary are innovations that cannot be reverse engineered. These may be the property of OSU or the industry partner from a Sponsored Research Agreement.

⁶ Any information or related data that cannot be released or transferred to foreign countries or representatives of a foreign nation, without first obtaining approval or license.

SAVE IDF

Save As Draft

Invention Details

Invention Detailed Description
Provide a detailed description of the invention, including any drawings or sketches necessary for understanding the invention. It is helpful to explain the prior attempts (successful or unsuccessful) by others to solve the problem. Then explain how your invention works in comparison to the other known solutions. If you have a patent, PowerPoint or other presentation, poster, etc., add the text to this field and *include verbal material that would be presented with the presentation or presentation* DOCUMENTS below.

Detailed Description *

Text from Prepared Word Document.docx
Have you ever opened the hood of your car and wondered what was going on in there? A car engine can look like a big confusing jumble of metal, tubes and wires to the uninitiated.

You might want to know what's going on simply out of curiosity. Or perhaps you are buying a new car, and you hear things like "2.5-liter incline four" and "turbocharged" and "start/stop technology." What does all of that mean?

Commercialization Potential Section

Provide information you are currently aware of or at most spend an hour reviewing the market for your input. Data from your [I-CORPS™ program](#) will provide the commercial potential and opportunity of the innovation for this section should you choose to participate.

- 19. *Are you considering a startup opportunity to commercialize this material?* – By selecting ‘yes’ or ‘I want more information’, a member of Cowboy Technologies will be in touch after submission.

Commercialization Potential

Are you considering a startup opportunity to commercialize this material? *

▼

Yes
No
I want more information.

Do you want to participate in NSF discovery through I-CORPS? *

business.okstate.edu/i-corps

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- 20. *Do you want to participate in NSF discovery through I-CORPS?* – By selecting ‘yes’ or ‘I want more information’, a member of Cowboy Technologies will be in touch after submission.

OSU’s [National Science Foundation’s Innovation Corps \(I-Corps™\) Program](#) helps researchers find the commercial potential of their technology.

This four-session program focuses on customer discovery and understanding the unique values your technology brings to customers. Through weekly coaching feedback and 30 discovery interviews, you will take the first step towards developing a commercialization plan to get your technology out of the lab and into the marketplace. To learn more about this opportunity, visit: <https://business.okstate.edu/i-corps/>.

Commercialization Potential

Are you considering a startup opportunity to commercialize this material? *

▼

Do you want to participate in NSF discovery through I-CORPS? *

business.okstate.edu/i-corps

▼

Yes
No
I want more information.

Industry Partner(s) *

Industry partner(s) and industry partner(s) you are aware of with contact in

21. *Potential Licensee(s) & Industry Partner(s)* – Who can you imagine utilizing this innovation? Provide a list of potential licensee(s) and industry partner(s) you are aware of with contact information, if available.

Potential Licensee(s) & Industry Partner(s) *
Please list potential licensee(s) and industry partner(s) you are aware of with contact information if available.

Ford Motor Company, Detroit Michigan, Henry Ford, 800-392-3673
Toyota, Aichi, Japan, Kilchiro Toyota, 800-331-4331

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22. *What are the advantages of the invention versus present technologies? **

Provide the novelty of your innovation and describe the specific benefits regarding how your work has advanced to meet the demands of the technology as compared to what is already available presently.

What are the advantages of the invention versus present technologies? *

Horses are slow and steam is explosive

23. *What are the potential commercial applications for the invention/material? **

Evaluation of your innovation including examining factors such as potential commercial applications, competitive technologies, feasibility of development and manufacturing, and patentability (if applicable). Some innovations may require additional development or information before commercialization can be pursued, and together we can develop a plan for moving forward. This assessment will also guide a potential business strategy.

What are the potential commercial applications for the invention/material? *

When the piston reaches the top of its stroke, the spark plug emits a sparks to ignote the gasoline. The gasoline charge in the cylinder explodes, driving the piston down.

24. *Additional development needed **

What are the limitations that must be overcome prior to practical application? What additional research or development, if any, is needed to commercialize the innovation?

Additional development needed *
What are the limitations that must be overcome prior to practical application?
What additional research or development, if any, is needed to commercialize the invention?

The spark plug supplies the spark that ignites the air/fuel mixture so that combustion can occur. The spark must happen at just the right moment for things to work properly

25. *What are the limitations that must be overcome prior to practical application?* – Limitations require a critical, overall appraisal and interpretation of impact.

The limitations of an innovation are its flaws or shortcomings. Limitations can exist due to constraints on research design, methodology, materials, and other factors. These factors may impact the findings of your study and feasibility of your innovation. Researchers are often reluctant to discuss the limitations of their study in published papers. Providing limitations will allow transparency of your innovation development process and allow the OTC to understand what milestones must be overcome prior to commercialization.

What are the limitations that must be overcome prior to practical application? *

Environmental impact of fossil fuel use

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Controlled Information

Oklahoma State University (OSU) has an obligation to implement an export control compliance program to reduce the risk of export control violations. All employees and students must be aware of and are responsible for the export control and implications of their work and must ensure their activities conform to export control (including laws and regulations). There are severe institutional and individual sanctions for export control laws and regulations violations, including the loss of research funding and export privileges, and criminal and civil penalties. It is important for the OTC to understand if the technology detailed in this disclosure is controlled by export regulations.

26. *Export Controlled? ** – Review questions (see below) and choose ‘Yes’ if any one question is true. If you have questions, contact the [OSU Exports Control Officer](#).

Evaluation Questions

Does this innovation involve or might it be employed to design, develop, produce, stockpile, or use:

- ✓ High performance computing or encryption technology?
- ✓ Nuclear materials, explosive devices, chemical or biological weapons, or missiles?
- ✓ Satellites or other space-related technology? Military intelligence or defense-related hardware, software or technical data?
- ✓ Are there any restrictions on publication of the information generated in the course of the research that led to this innovation, beyond a brief review (< 90 days) for patent protection and/or inadvertent release of a third party's proprietary info?
- ✓ Are there any restrictions on participation in the underlying research by citizens of a foreign country (including students)?
- ✓ Have you received information identified as export-controlled from a third-party relative to this innovation or the underlying research?
- ✓ Is your innovation or the underlying research covered by or using material covered by the Federal Select Agent Program (see OSU Institutional Biosafety Committee)?
- ✓ Do you have any other reason to believe that your innovation might be export-controlled?

If Oklahoma State University considers the information or material as technical data/export-controlled technical data⁷, choose 'Yes'. **Add (Export Controlled) to the beginning of the IDF title and affected filename(s).**

27. *Export Control Details ** – By choosing 'yes' to *Export Controlled*, an *Export Control Details** box will open. Indicate which of the questions trigger 'yes'. If you have questions, contact the [OSU Exports Control Officer](#).

⁷ Any information or related data that cannot be released or transferred to foreign countries or representatives of a foreign nation, without first obtaining approval or license.

Export Controlled? *

Yes

Export Control Details *

Please indicate which of the question above are true and provide details as to how they apply

28. CUI? *

If Oklahoma State University considers the information and material as Confidential Unclassified Information (CUI)⁸, trade secret / internal proprietary⁹, choose 'Yes'. **Add (CUI related) to the beginning of the IDF title and affected filename(s) intended to be uploaded to the [Documents](#) section.**

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Documents

Upload any documents such as non-patent prior art, documents with images used in the detailed description, *pre-Portal Preparation* Word documents, external development contracts, company-internal documentation related to the innovation (e.g. design reviews, proposals, power points, etc.) etc. **The OTC needs an editable form of your detailed description, if possible.**

FILENAMES: Please use descriptive filenames, e.g. *Infrared upconversion disclosure Dr Smith 2023.docx*. If document includes information/data that Oklahoma State University considers Confidential Unclassified Information (CUI)¹⁰ start the filename with **(CUI Related)**. If document includes information/data that Oklahoma State University considers *technical data/export-controlled* technical data¹¹, start the filename with **(Export Controlled)** and contact [Exports Control Officer](#) to determine Jurisdiction & Classification of disclosure and files.

⁸ Government created or owned UNCLASSIFIED information that must be safeguarded from unauthorized disclosure.

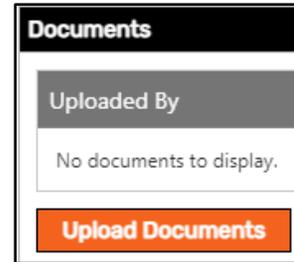
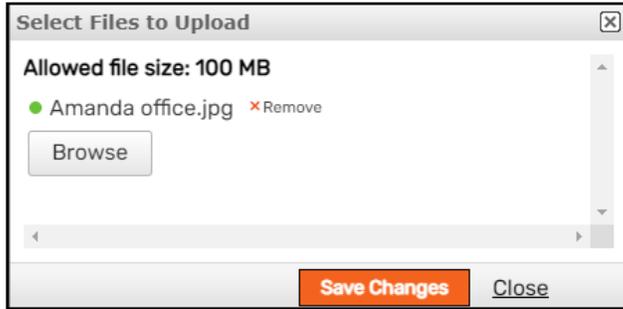
⁹ Trade Secrets or Internal Proprietary are innovations that cannot be reverse engineered. These may be the property of OSU or the industry partner from a Sponsored Research Agreement.

¹⁰ Government created or owned UNCLASSIFIED information that must be safeguarded from unauthorized disclosure.

¹¹ Any information or related data that cannot be released or transferred to foreign countries or representatives of a foreign nation, without first obtaining approval or license.

Uploading Documents

- Click *Upload Documents*.
- Select and choose the file from popup explorer window and click **Open**.
- Select *Save Changes* following an upload.



- Repeat for all [documents](#).

The Portal has a 100 MB limit per file. If a file is over 100 MB, email innovationportal@okstate.edu, noting your IDF submission number.

SAVE IDF

Subscribers

Subscribers				
Associate Dean of Research Review				
Please list your respective Dean or Associate Dean of Research who will sign off on the Invention Disclosure.				
<input type="button" value="Add Subscriber/ADR"/>				
First	Last	Email	Type	Role
Jeremy	Kaplan	jeremy.kaplan@okstate.edu	User	Preparer

Dean or Associate Dean of Research: For Review/Signature

Adding your Associate Dean of Research (ADR) is required for IDF submission.

- Choose *Add Subscriber/ADR*.
- Enter ADR's first & last name, and email (not a general email box).
- Click *Save Changes*.

Add Subscriber/Dean/ADR

Subscribers do not need to be users of Inventor Portal. Add individuals that you would like to be notified by email of events and actions that take place for this disclosure.

First Name: **Last Name:**

Email Address:

Subscriber Role:

- Subscriber: View Access & Email Notifications. No Signature collected.
- Preparer: Notation of Entry Individual
- Dean or Associate Dean of Research: For Review/Signature

Signature Terms:

Save Changes

Repeat steps for additional subscribers as *Subscribers* (vs Preparer or ADR) for those who want to follow the Innovation Disclosure submission and help with the approval process and/or limit public disclosure until a patent is on file. This may include any innovation advocates, supervisors, PIs, etc. **Oklahoma State University employees only, please.** Only Oklahoma state University employees can access the Innovation Portal.

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Remarks

Remarks are optional. Remarks are retained notes from inventors, ADRs, the OTC, and subscribers. Examples include updated disclosure dates, questions, or clarifications, export control (JC) classification, support statements, disclosure dates information, known deadlines, urgency information, and instructions.

Remarks

By	Comment
	No remarks to display.

Add additional information you believe is relevant to this innovation disclosure.

Save Remark

To add a remark, enter your comment into the text field and select, *Save Remark*.

Remarks		
By	Comment	Created
Jeremy Kaplan	Ready to submit IDF Draft 8:49am	2/1/2023
Jeremy Kaplan	Disclosure material Internal Combustion Engine document attached	2/1/2023

SAVE IDF [Save As Draft](#)

Viewing Technology, Patents, and Agreements

OFFICE USE ONLY

The OFFICE USE ONLY section contains Technology, Patent, and Agreement information regarding the progress of the disclosure/patent. Come back to this disclosure at any time to see where the innovation is in the patent process. The Patents section provides Serial/Patent number, OSUID number (used to request updates), filing title, country, application type, and status.

Submit the Disclosure

Draft

This disclosure is in draft status. When you are finished editing, Submit the disclosure for administrator review using the button below.

[Save As Draft](#)

[Submit for Review](#)

Second to last step

When your IDF is complete, click **Submit for Review** at the top or bottom of the page to submit for cursory review by the OTC.

Submit Disclosure ✕

 Once submitted, this disclosure will no longer be editable (except remarks) and an administrator will be notified to review the disclosure. Are you sure you want to submit this disclosure?

Yes
No

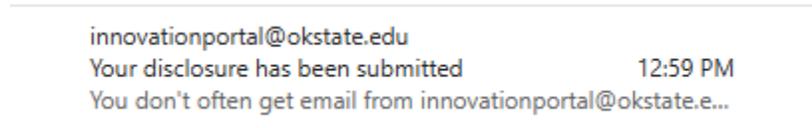
These buttons can be slow. Click once and wait for the window to refresh.

Sign Disclosure

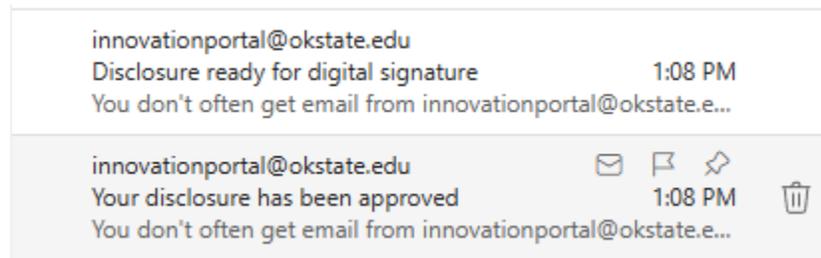
Last Step

The IDF will go through an initial review by the OTC to ensure all questions are complete, and the document is ready for signature.

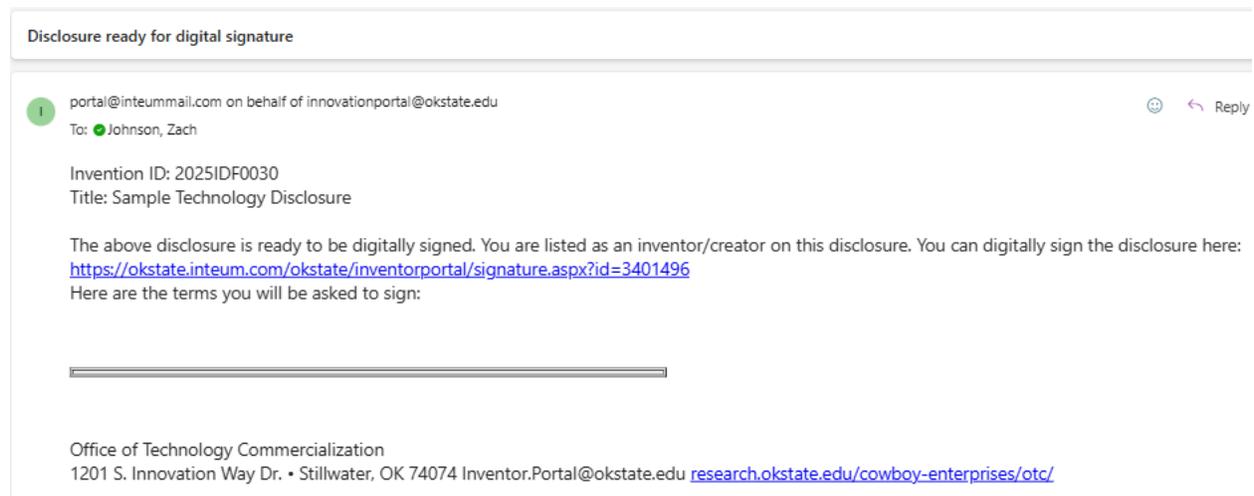
During this process you will receive emails including 'for your information/notification' emails.



Once approved, you will receive the following emails to obtain your signature and that of the ADRs.



Use the link in these emails to sign the disclosure.



1. Click on the link in the email.
2. Sign into the Portal.
3. The Signature page will open.
4. To view the disclosure, click *View Full Disclosure Details Here* and a new tab will open for viewing.
5. In the original tab, review the signature terms and click the box.
6. Type your name as written to the right of the box.
7. Click “*Sign this Disclosure*” button.

Disclosure Details

Invention ID: **2022IDF0002**
 Disclosure Title: **Test Plant**
[View Full Disclosure Details Here](#)

By digitally signing this document, I agree to the terms listed above and the disclosure information presented.

Amanda Aker

Signature Received

You have successfully digitally signed this disclosure. An administrator has been notified of your signature and will contact you if there are any further steps.

Your disclosure has been successfully submitted to the OTC and a licensing associate will be assigned and in touch with you shortly.

If you are the included Associate Dean of Research (ADR), this is the signature form you will see:

Signature Terms

Read the terms below carefully, then check the box to agree to these terms:

I approve this disclosure for consideration by the Technology Commercialization and the University IP Screening Committee (UIPSC).

By digitally signing this document, I agree to the terms listed above and the disclosure information presented.

Amanda Aker

Non-Oklahoma State University employees will need to sign a hardcopy created by the OTC for distribution. Please contact InnovationPortal@okstate.edu.

Questions relating to the IDF process can be directed to the Office of Technology Commercialization or OTC Commercialization Officers, InnovationPortal@okstate.edu.

<p>Amanda Aker Licensing Associate Office: (405) 744-1450 amanda.aker@okstate.edu</p>	<p>Russell Hopper Sr. Licensing Associate Office: (405) 744-6872 russell.hopper@okstate.edu</p>
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Appendix A TRL and Estimated Stage of Development

Stage	TRL(s)	Comment
Working Model	6+	Industry use or testing; issued patent preferred at 7-9
Prototype	4-5	Stage when industry can see product road map application; patents should be in play
Proof of Concept	2-3	Earliest time to file patent and start marketing to meet industry need (SRA and companies who accept low TRLs)
Concept	1	Often too early to market, may file to protect against publication prior art or may remove application conclusions from publication to reduce need to speed up work

Technology Readiness Level (TRL)



Technology Readiness Level (TRL) *Material/Engineering Example*

Proven, customer ready device/system	9	Application in final form and under real conditions	RMat brake pad available for purchase on auto parts distributor's site
Device/system ready for industry, real-life testing	8	Technology in final form for testing under expected conditions; final development stage	RMat on new brake pad prototype on pilot program to test common commuter use
Limited customer product prototype for demo in operational setting	7	Prototype near or at operational stage, operation in real environment, customer beta tests	RMat on new brake pad prototype on test car to test/demo performance on test track
Integrated prototype testing in relevant conditions outside lab	6	Integrated prototype in near real system; tested against relevant conditions; well beyond TRL 5	RMat on standard brake base on test buggy to show adhesion, abrasion, and heat resistance
Component Prototype testing in lab conditions and size	5	Component tech prototype testing at reasonably realistic scale and lab simulated environment	RMat on standard brake base to show adhesion, abrasion and heat resistance
Component Prototype testing in lab conditions and size	4	Component tech prototype testing under lab conditions with other system components, ad hoc test	RMat on ideal lab substrate to show adhesion, abrasion and heat resistance
Proof of Concept of critical function /characteristics	3	Active R&D; analytical study to validate critical function and characteristics	RMat created at volume to measure abrasive texture and stability
Technology concept formulated	2	Invention begins; analytical studies; basic principles observation; practical application inventions	R theoretical composition formulation: RMat
Principles observed & reported	1	Scientific research begins to translate to applied research. Paper studies of tech's basic properties	Material for increase abrasion under high heat using R