

Research Innovations & Output



हैदराबाद विश्वविद्यालय
University of Hyderabad



प्रतिष्ठित संस्थान
INSTITUTION OF EMINENCE
राष्ट्रीय अपेक्षाएँ, वैश्विक मानक
National Needs, Global Standards

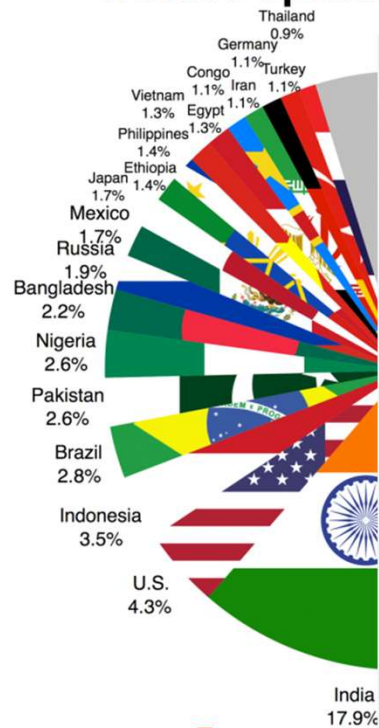
Prof. Samrat L. Sabat

Centre for Advanced Studies in
Electronics Science & Technology

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Where We Stand?

World Population Percentages



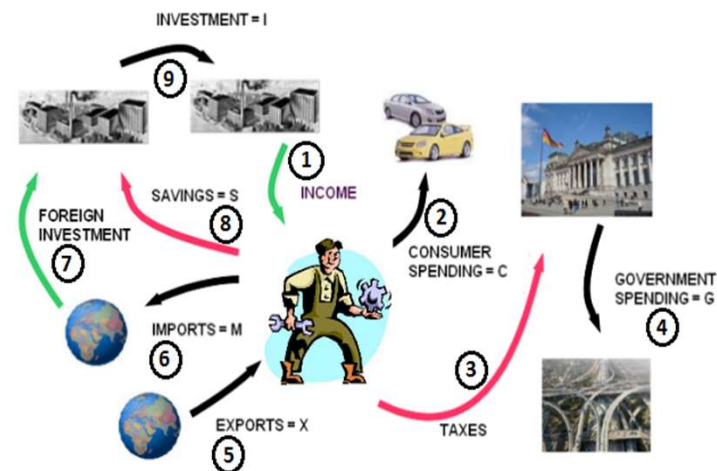
GDP: Gross Development

5th Largest Economy

$$Y = C + I + (X - M) + G$$



3,894 Billion USD



According to the World Bank Forecast, India will reach 5 Trillion USD

What does India need to do reach 5 Trillion USD Economy

GDP Formula

The diagram shows the GDP formula using icons: Personal & Public Consumption (stack of money) + Government Expenditures (bank building) + Public & Private Investment (bar chart) + (Exports (box with arrow) - Imports (box with arrow)) = GDP (dollar sign in a circle).



**Invest
Produce
Consume
Export**

Exports –Imports : Commodity wise Trade

Financial Year	Financial Year	<input type="radio"/> ₹ Rupees	Category	Sub Category	Products
Calendar Year	2021-22	<input checked="" type="radio"/> \$ Dollars	E & SW Products	All	All
\$ 14,959 M		40.53%	\$ 71,160 M		-\$ 56,200 M
Exports		YoY Growth	Imports		Trade Balance

Financial Year	Financial Year	<input type="radio"/> ₹ Rupees	Category	Sub Category	Products
Calendar Year	2021-22	<input checked="" type="radio"/> \$ Dollars	Chemicals & Allied Prod...	Multiple selections	All
\$ 66,904 M		29.29%	\$ 114,640 M		-\$ 47,735 M
Exports		YoY Growth	Imports		Trade Balance

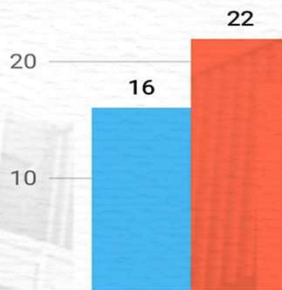
IMPORTS FROM CHINA IN 2022

ELECTRONICS, ELECTRICAL MACHINERY, MECHANICAL

ORGANIC CHEMICALS

IMPORT

2021 2022



**AATMA-NIRBHAR
BHARAT**

Electronics, electrical
machinery and parts

Machinery, mechanical
parts and appliances

Organic Chemicals

Plastics and articles
thereof

Iron and Steel

Note: Data for Jan-Aug period

Source: Ministry of Commerce and Industry



Self-Reliance in Strategic Sector



- Modernisation of Defence forces going on at full pace
- INS Arihant completed its first deterrence patrol, establishing India's Nuclear Triad, HAL- Tejas, Uttam

Track-50 targets >100km
Engage 4 targets simultaneously
95% indigineous



Self Reliance in Energy sector

Green Energy for green and sustainable economy



Building a Healthy India



Self-Reliance in Agriculture



Special focus on irrigation with the aim of **"Per Drop More Crop"**



Provision of quality **seeds and nutrients** based on soil health of each field



Large investments in **Warehousing and Cold Chains** to prevent post-harvest crop losses



Promotion of value addition through **food processing**



INFRASTRUCTURE FOR NEW INDIA

Railways Development



BEST EVER SAFETY
RECORD IN TRAIN ACCIDENTS

168% reduction in
consequential train accidents

Road Development

Machinery Development



New Technology

Optical Computing/ Communication

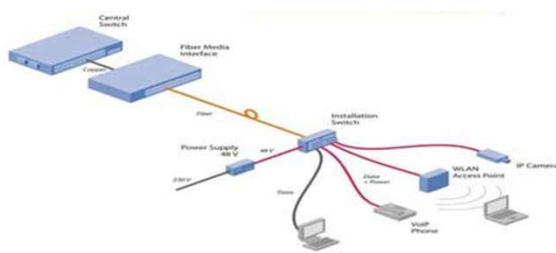
Quantum Computing



**Artificial
Intelligence**



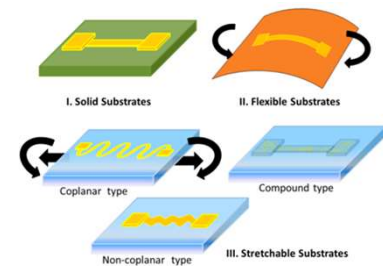
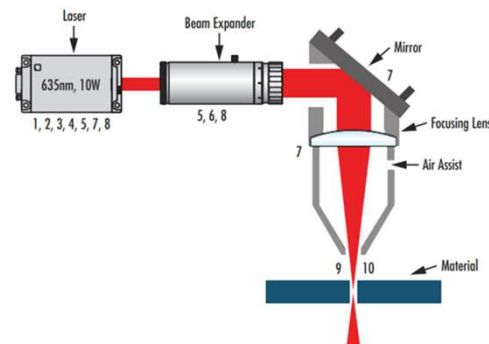
IoT



This figure displays the basic concept including the power injection for POE.



Cyber Security



**Sensor
From materials to
systems**



Self Reliance in Semiconductor

~ 4 B\$ Imports

Shortage of components



Shortage of raw
materials



machinery



Shortage of gases



Shortage of trained
manpower

Research : What? Why? Who does it ?

Research is systemized careful effort of gaining new knowledge

Knowledge is acquired through education and skills

Research is a tool for building knowledge

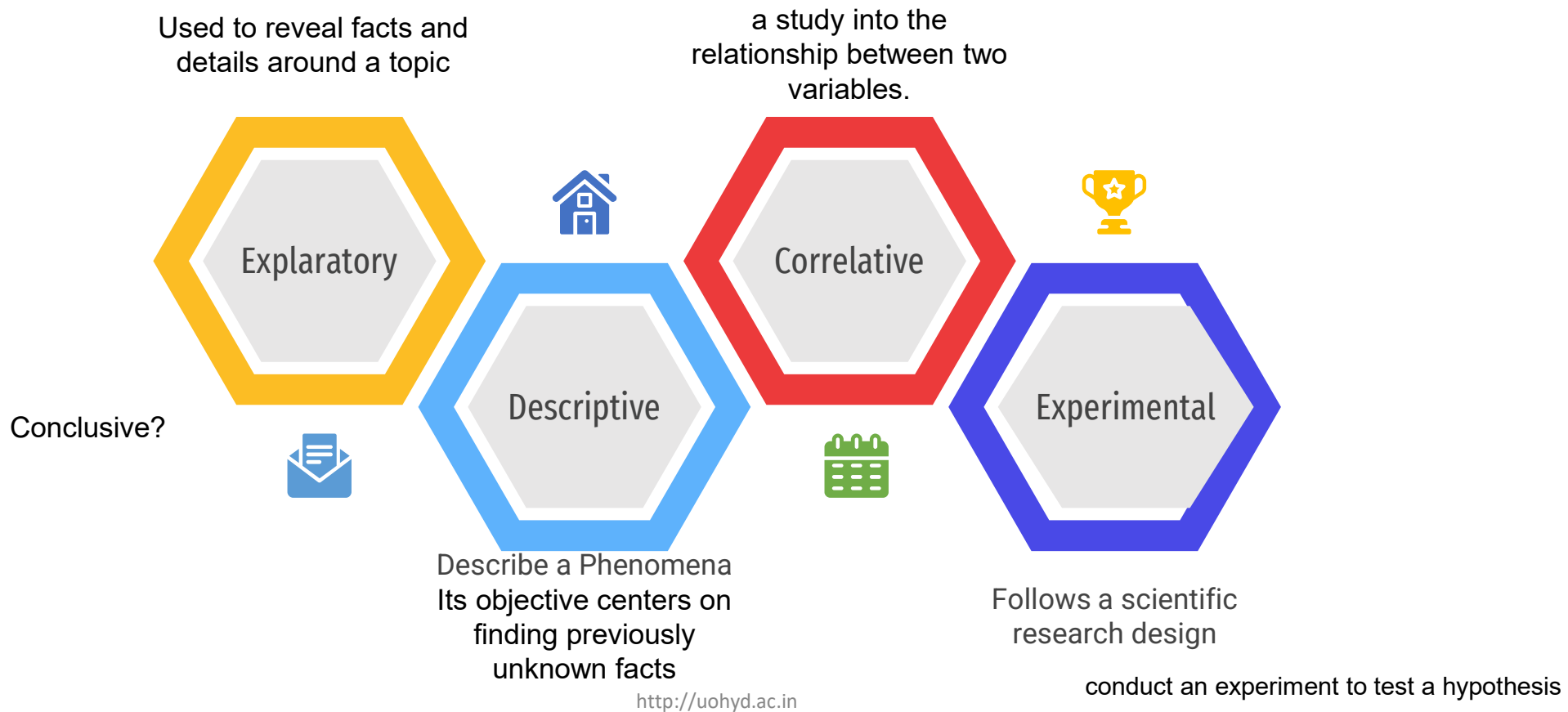
Research helps us to understand things better; improves life

Researchers: Professionally Curious Change Agents

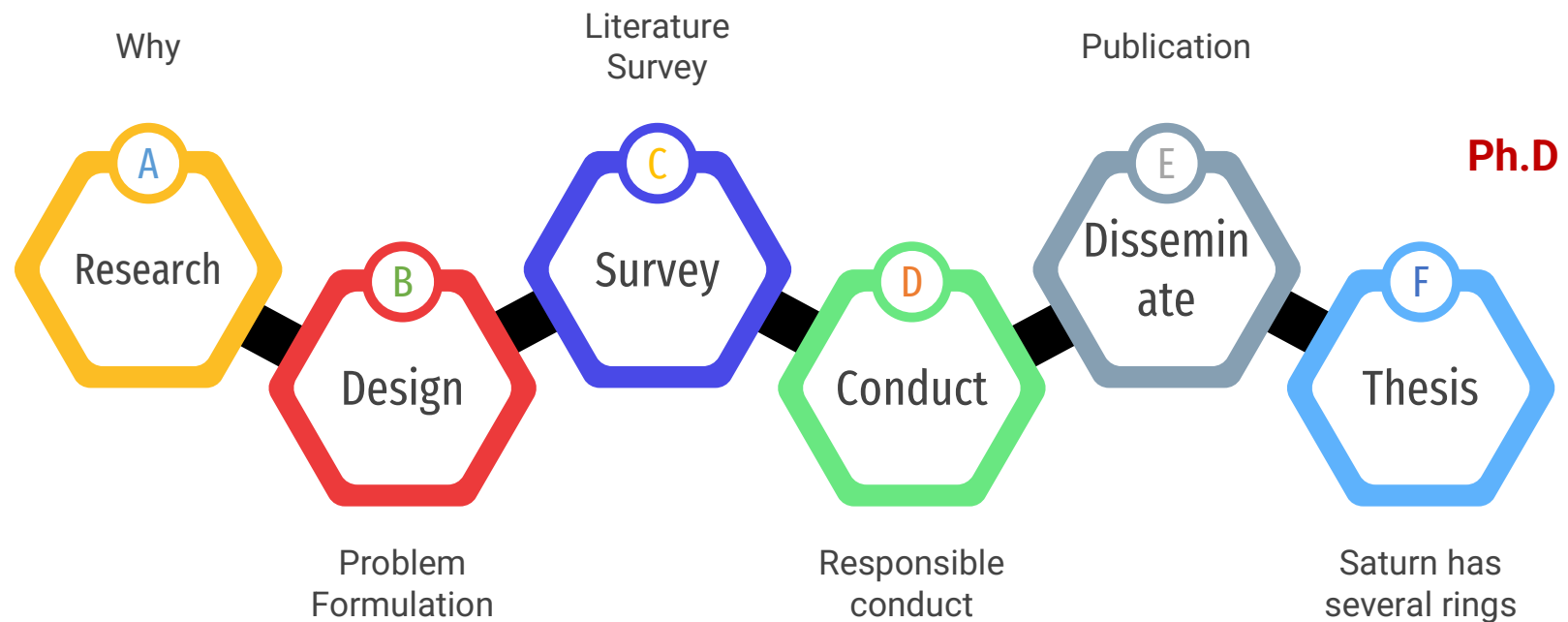
Why I should do??

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Types of Research

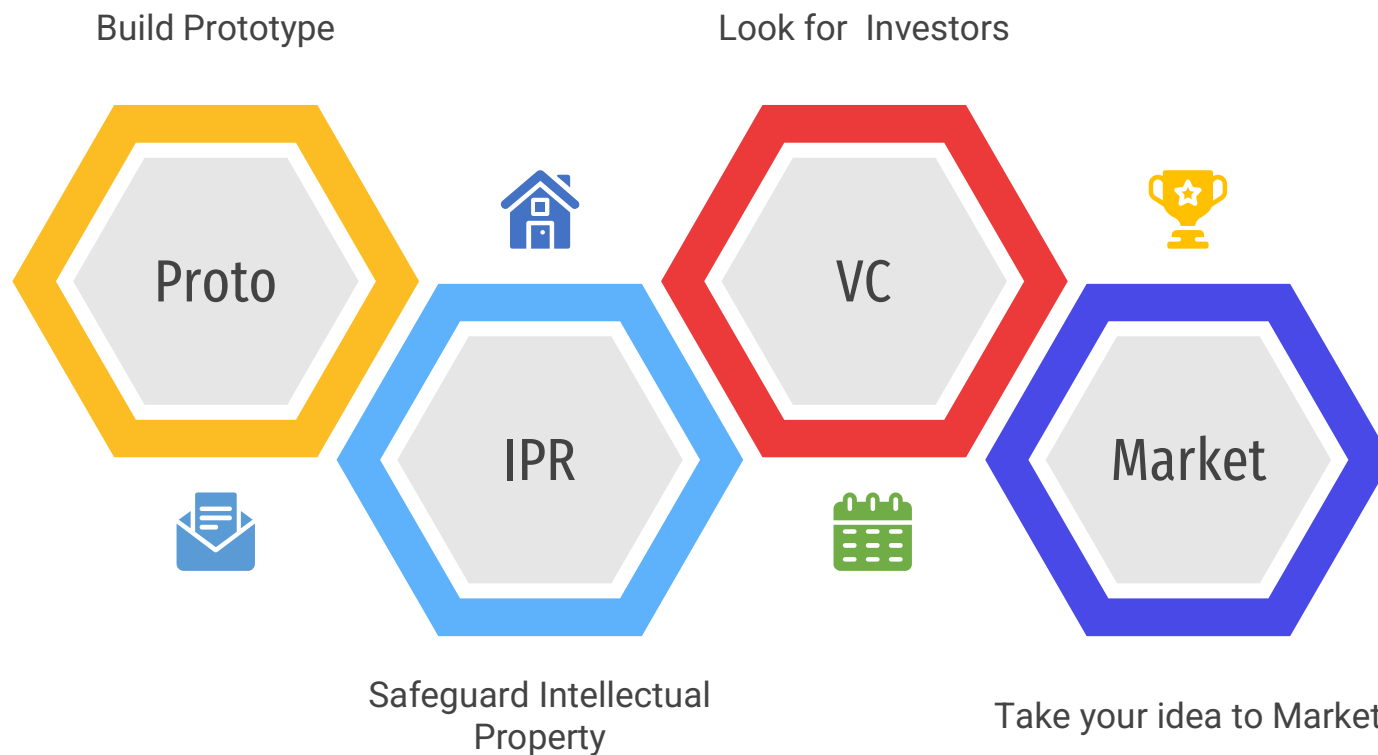


How to do Research?



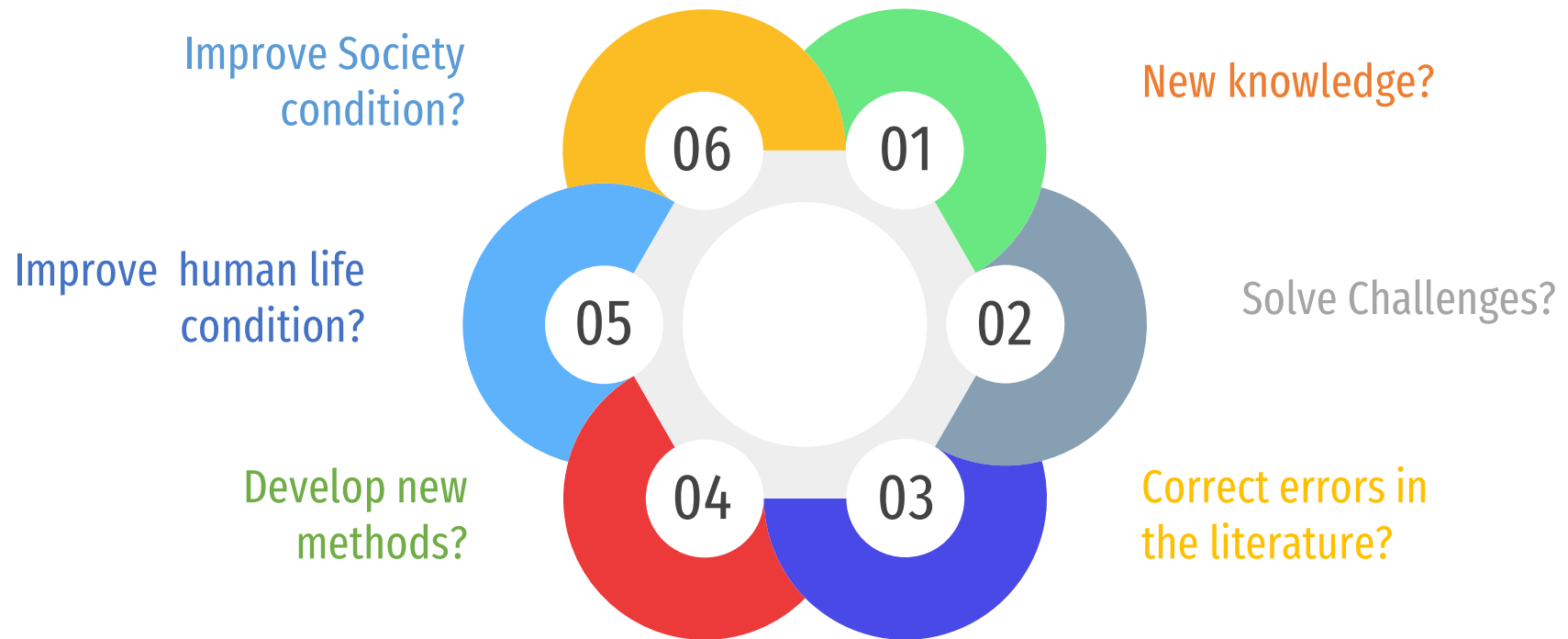
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Beyond Degree: Productization



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Research design? Answer to these Questions



SDG-2030

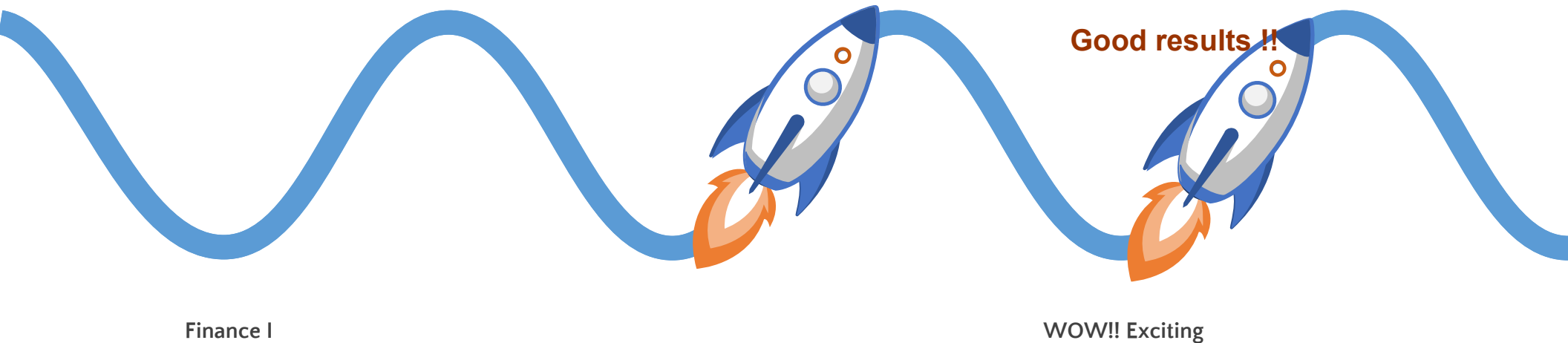
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Research Work Starts

Personal Issues

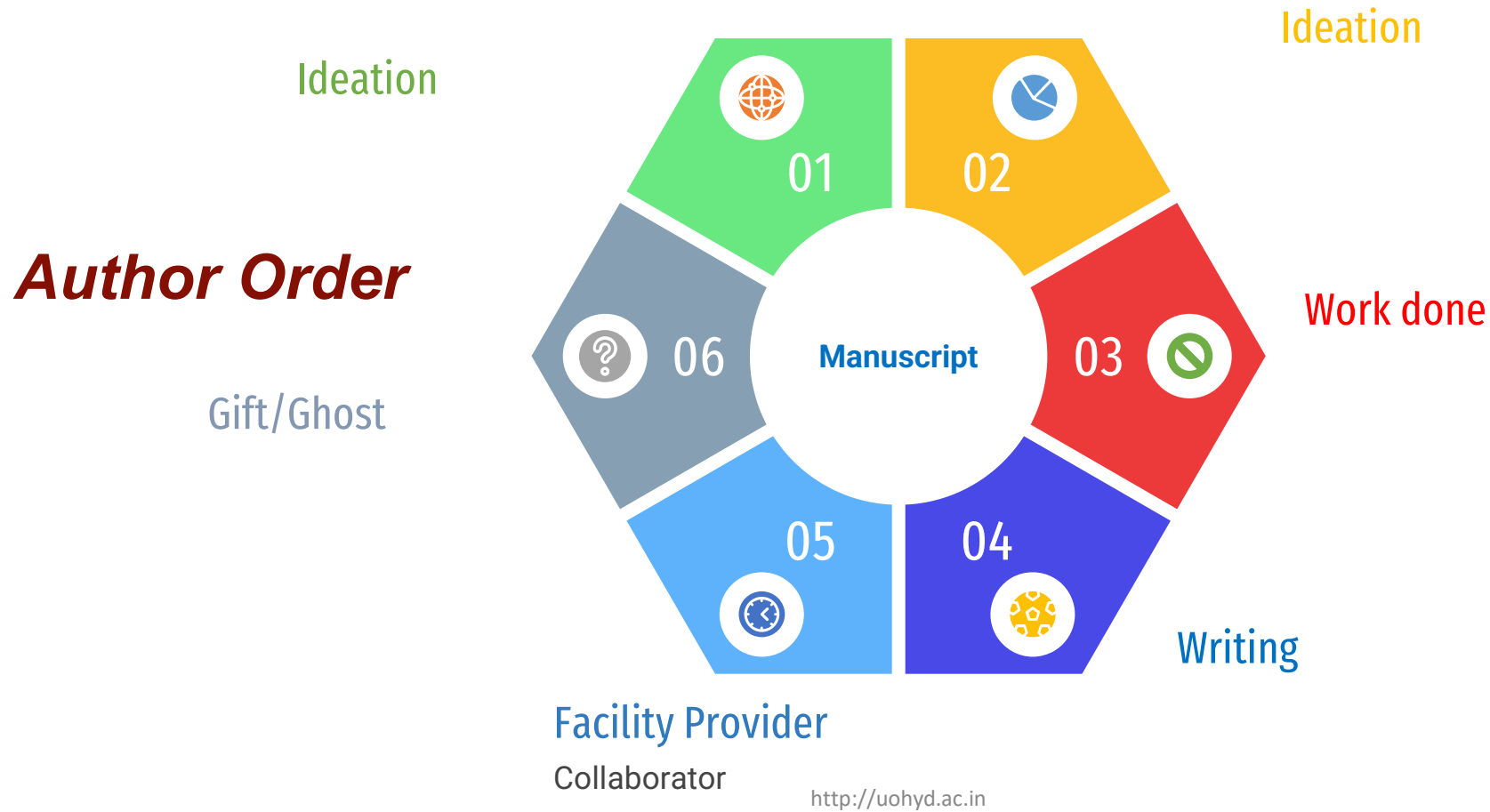
Equipment Down

Family issue



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Authorship & Collaboration

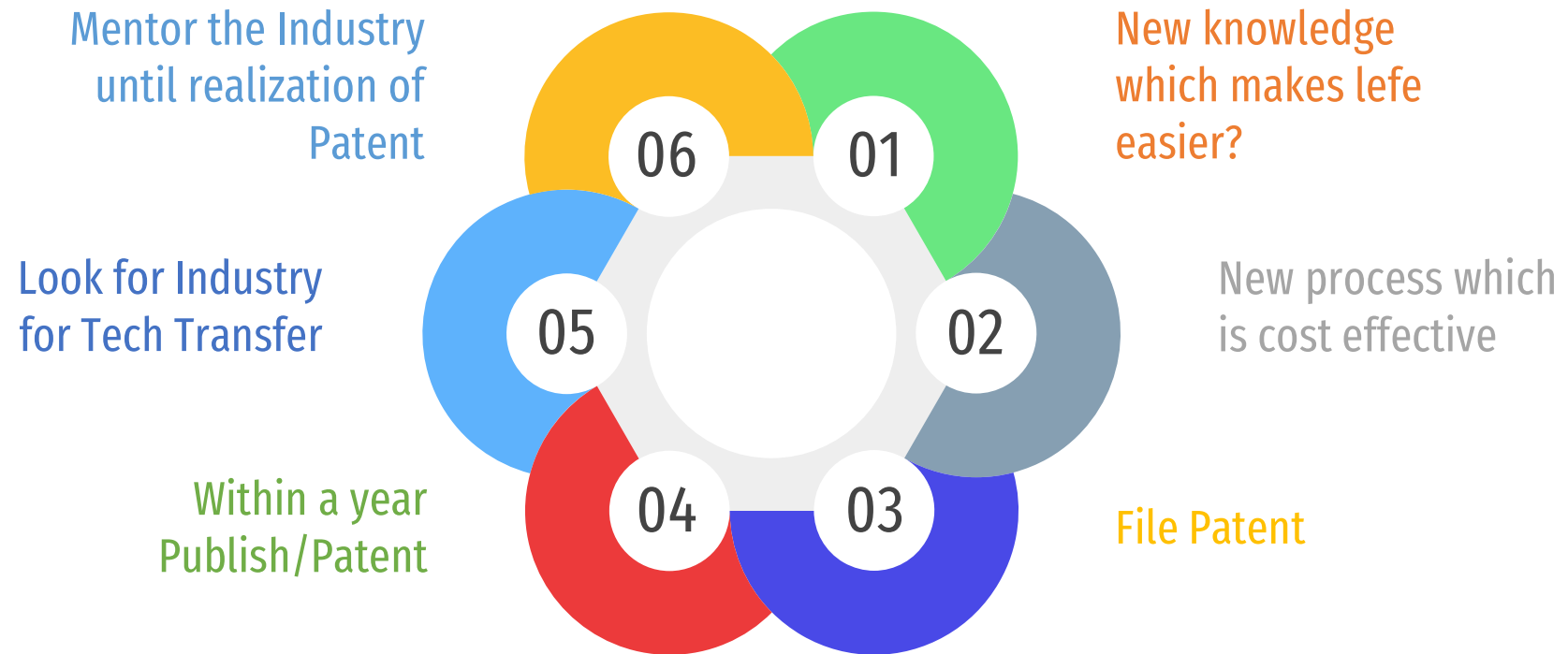


Journal Selection Guidelines

- Matching your work (Aim and Scope)
- Article –processing charge
- Editorial Board
- Quality of work (published)
- Indexing
- Metrics
- Review time
- Open Access vs. Predatory

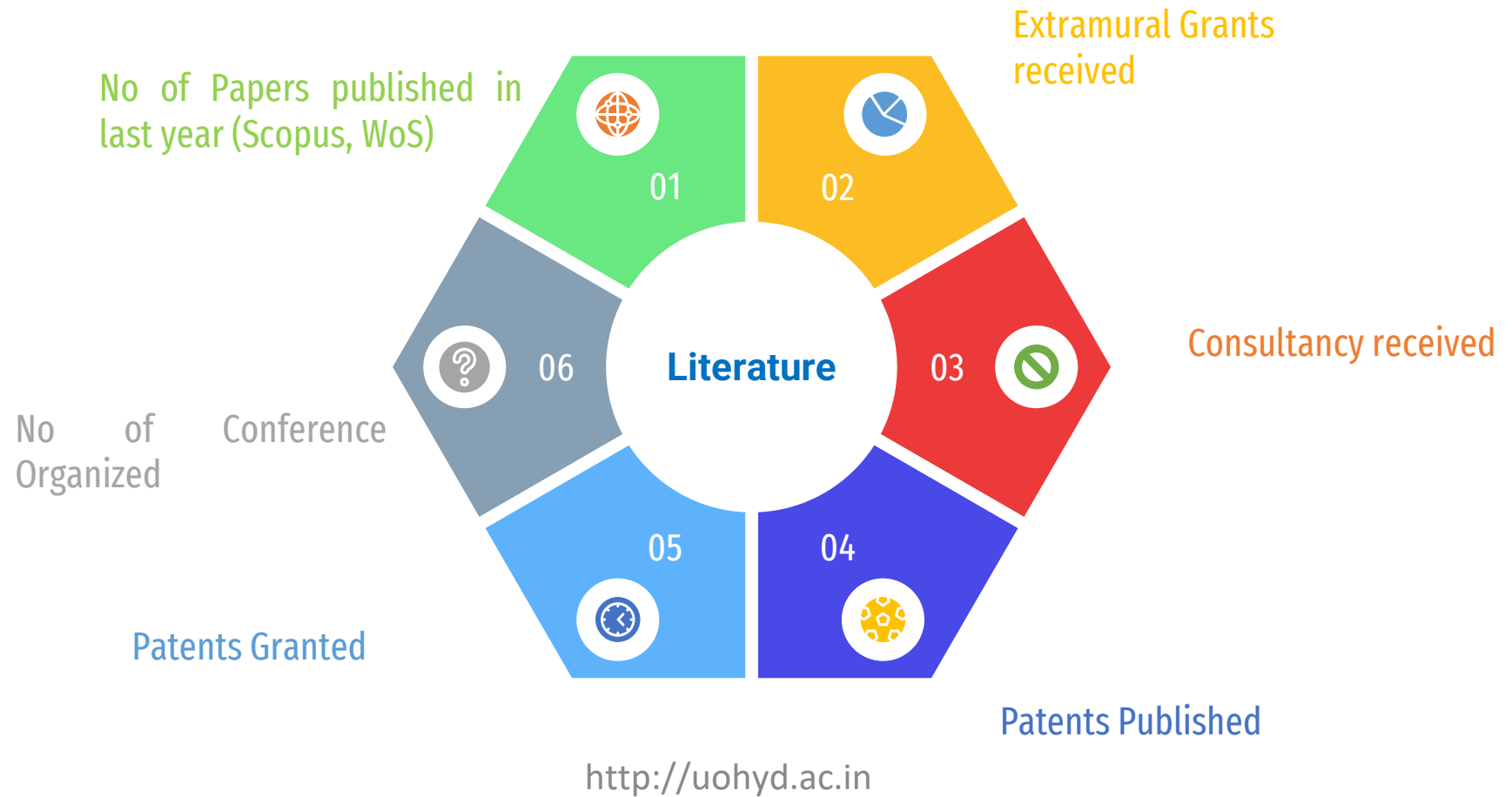
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IP Protection- Patent

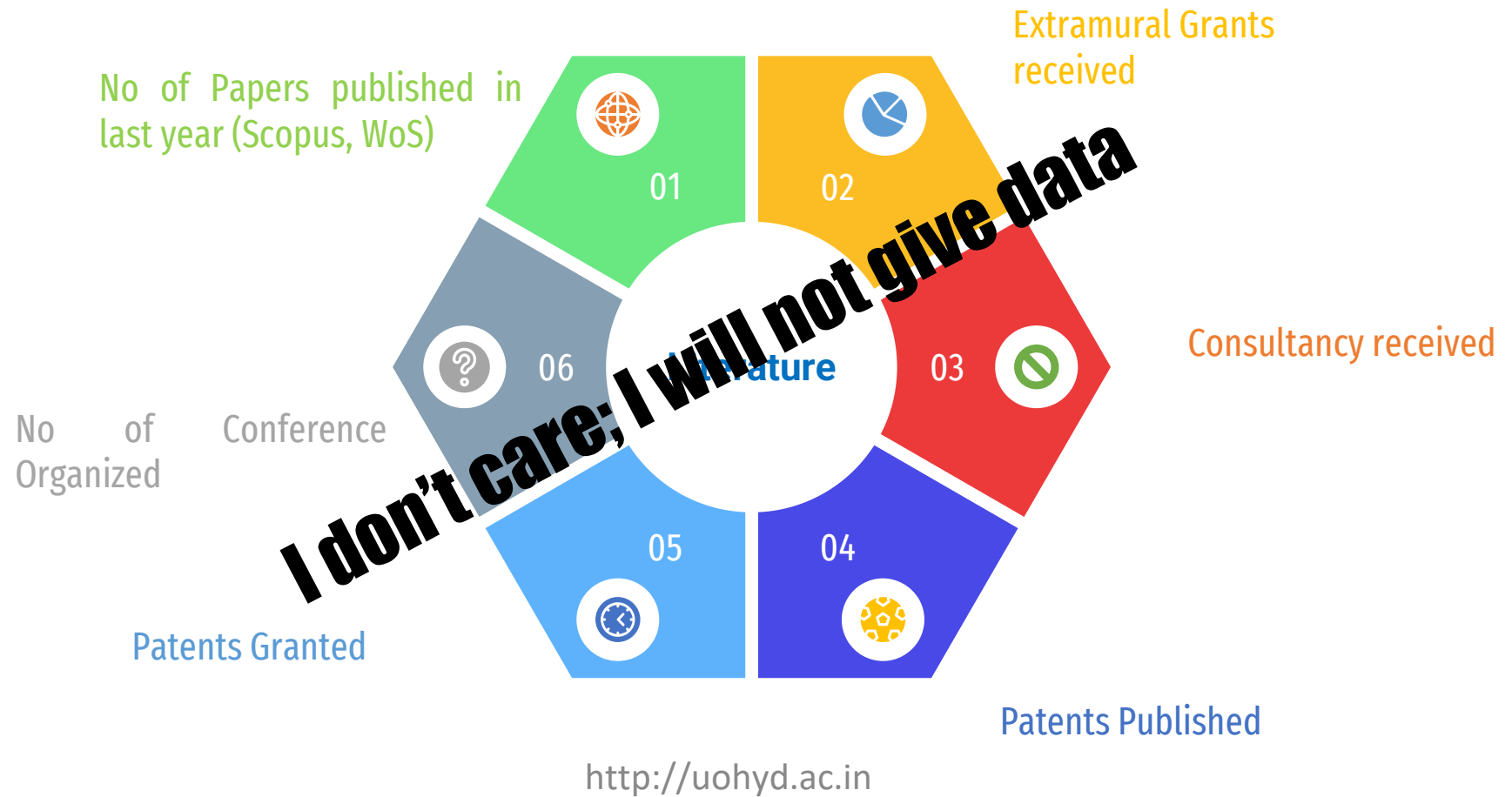


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NAAC Accreditation - R&D Inputs



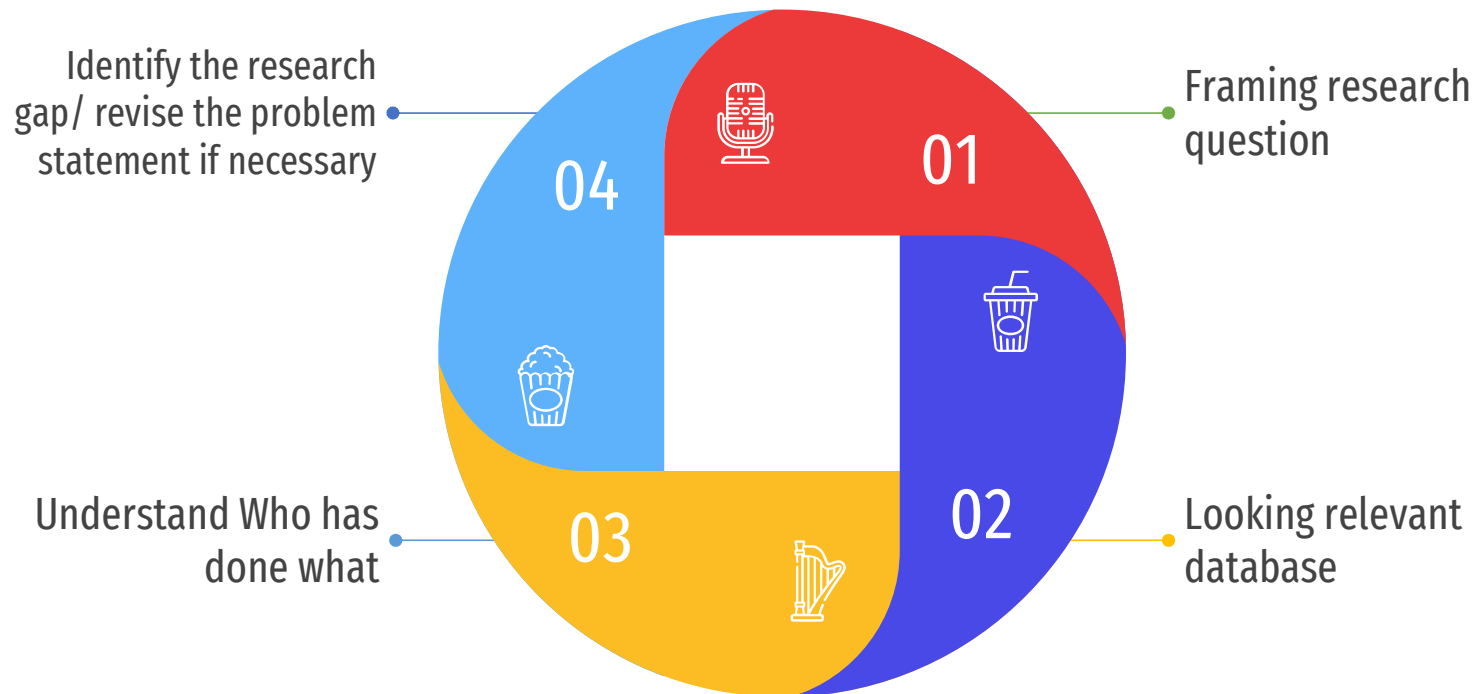
NAAC Accreditation - R&D Inputs



Thank you



Literature Survey - Why?



Reliable and high quality

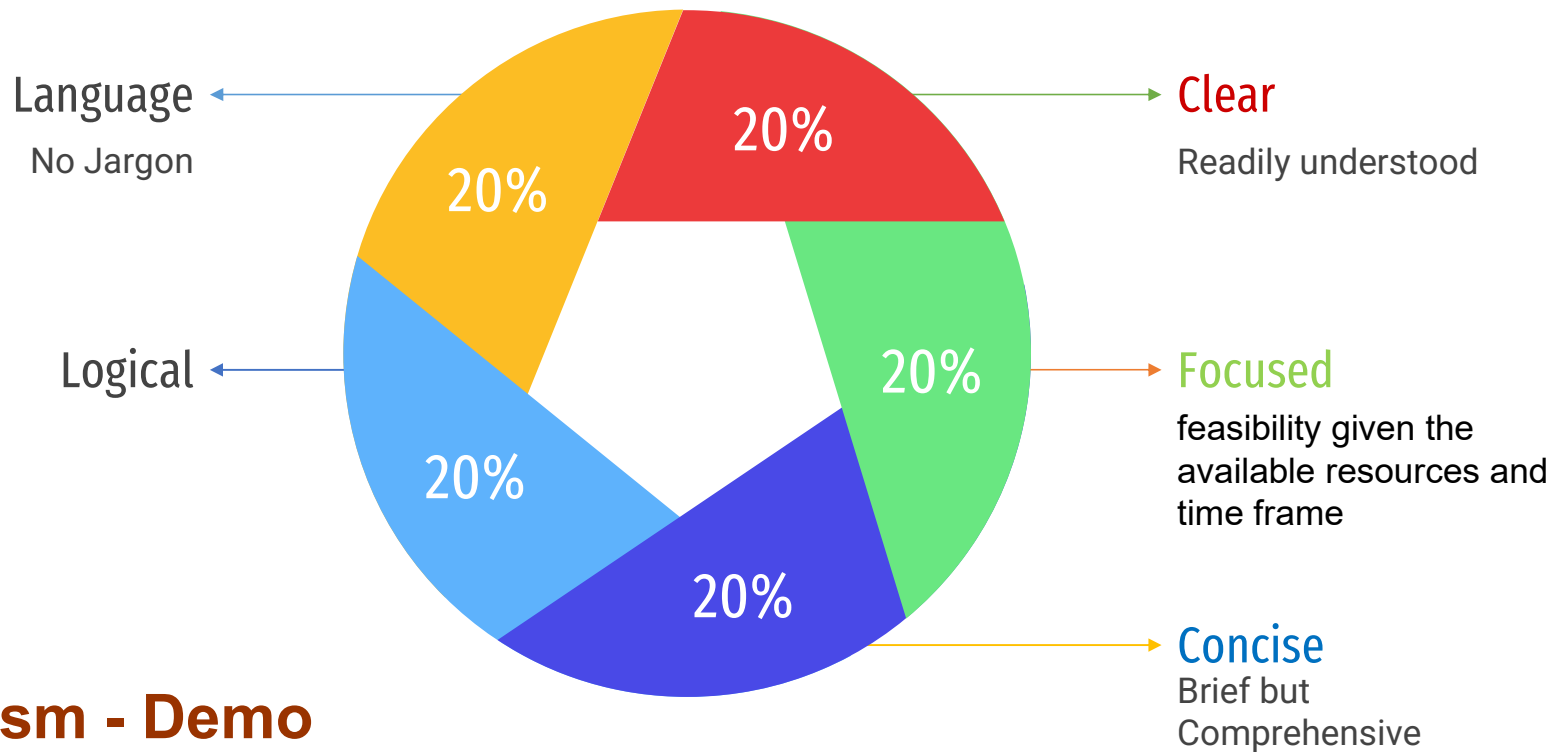
Scopus/Google Scholar Demo

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Prepare Research Proposal – viability ???



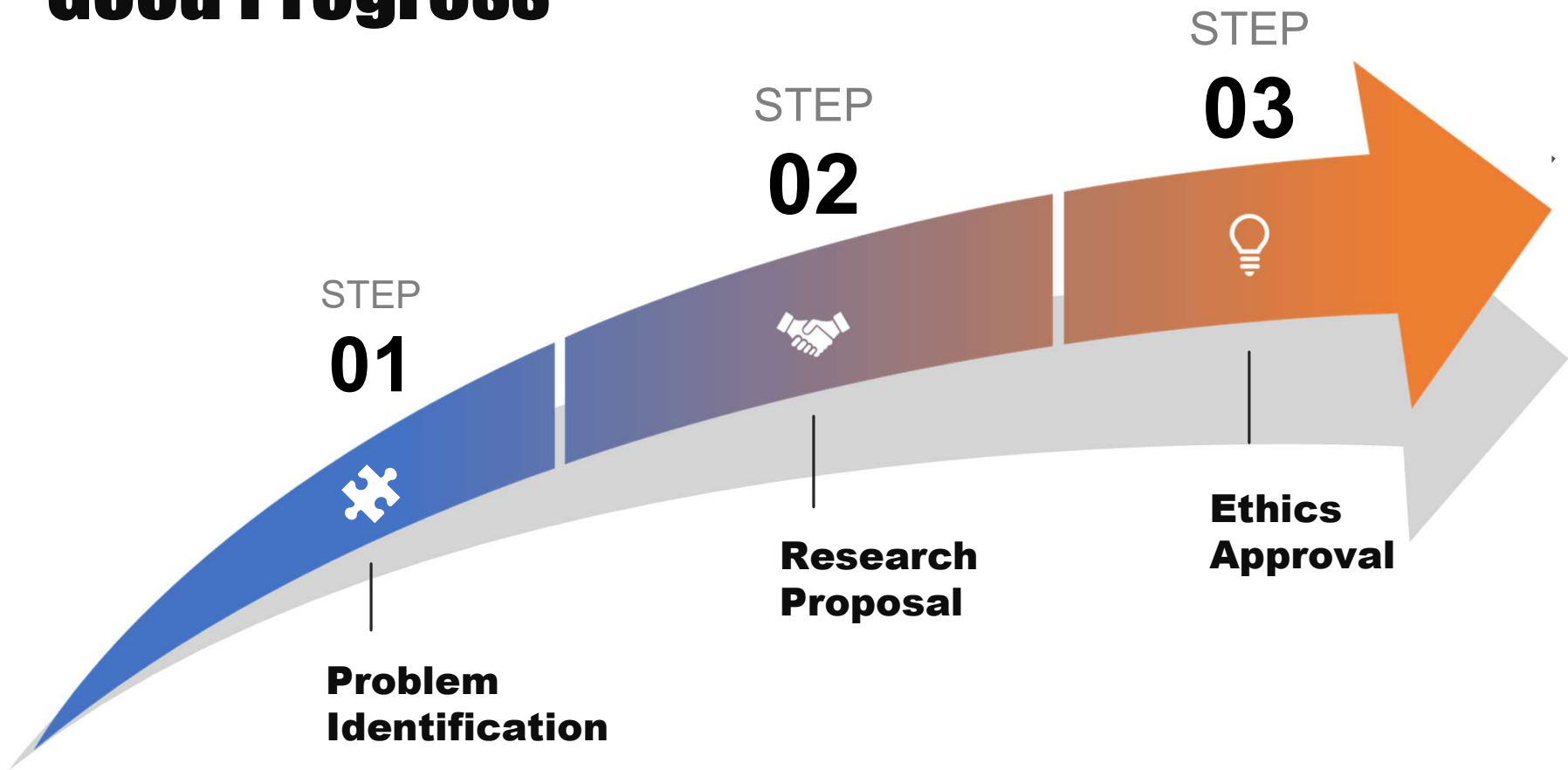
Proposal Characteristics



Plagiarism - Demo

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Good Progress

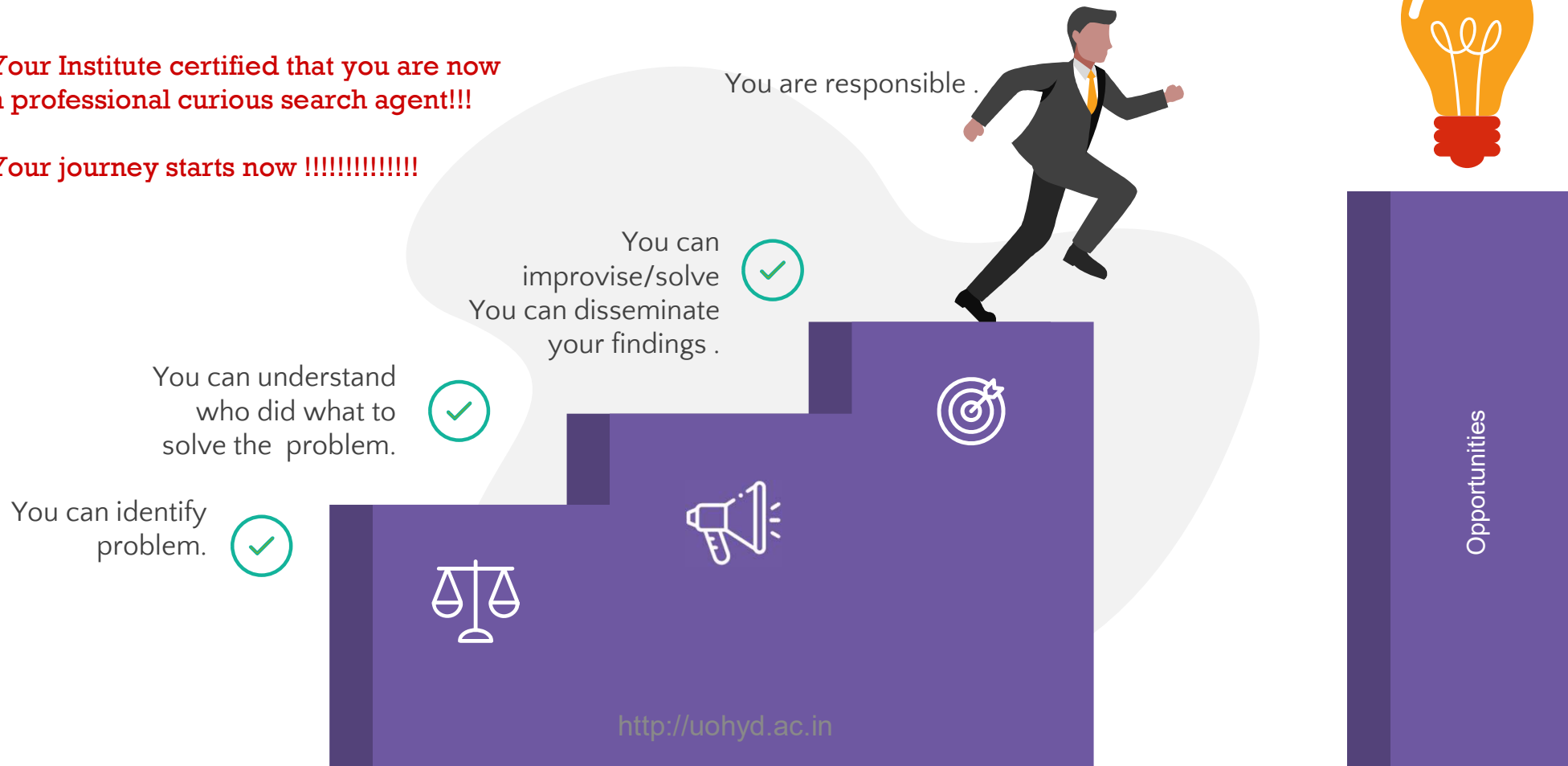


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Congratulations!!! Now you became Dr.....

Your Institute certified that you are now
a professional curious search agent!!!

Your journey starts now !!!!!!!!!!!!!!!



References

1. <https://simonatta.medium.com/data-architecture-intro-e425ec411426>
2. Guidance Document- Good Academic Practice : UGC -2022
3. A guide to manuscript writing for scholars in the biomedical sciences by Robert H. Glew et al.



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