



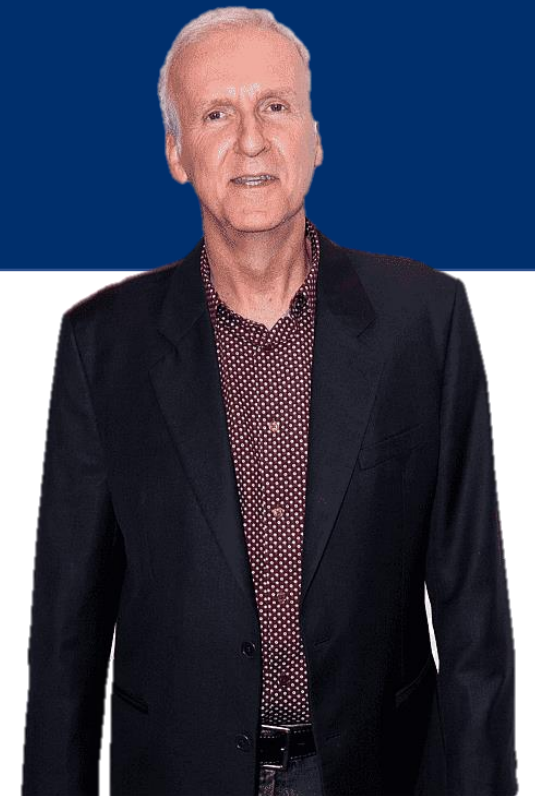
Community-Driven University  
for a Sustainable World

# RESEARCH & DISCOVERY: HARMONISING RESEARCHERS AND TECHNOLOGY IN RESEARCH MANAGEMENT

**LO MAY CHIUN**

“If you set your goals ridiculously high and it’s a failure, you will fail above everyone else’s success”

**James Cameron**



# Introduction

- Human factors, such as interaction, behavior, and values, are often overlooked in comparison to systems optimization and technological functionality
- Harmonising research means understanding the profound needs of all stakeholders and reframing the research activities according to their needs



# Research & Innovation Ecosystem

**Harmonising  
Research**

**Humanising  
Research Output**





# INDUSTRIAL REVOLUTION

## IR 1.0 – 4.0

1.



**MECHANISED  
PRODUCTION**

Steam engines

2.



**MASS  
PRODUCTION**

Assembly lines  
and electricity

3.



**AUTOMATION**

IT and  
electronics

4.



**CONNECTIVITY**

Smart  
technologies;  
Cloud  
computing; Big  
data; Networked  
machines and  
processes

# IR 5.0

A new and emerging phase of industrialisation that sees **humans working alongside advanced technology and A.I.-powered machines** to enhance workplace processes

It adds a personal human touch to the Industry 4.0 pillars of automation and efficiency.



# Research & Innovation Ecosystem

## INPUT

Research

01



### Research Grants

Research activities,  
Progress, Research  
output, Indexed  
publication

## PROCESS

Innovation

02



### Intellectual Property

New findings,  
Protection  
Industry  
collaboration

## OUTPUT

Development

03



### Exposition

Prototype, R&D Expo,  
Industrial Matching,  
Incubator

## OUTCOME

Commercialisation

04



### Translational Outcome

Licensing,  
Commercialisation  
Product,  
Sales Outright,  
Spin Off Companies

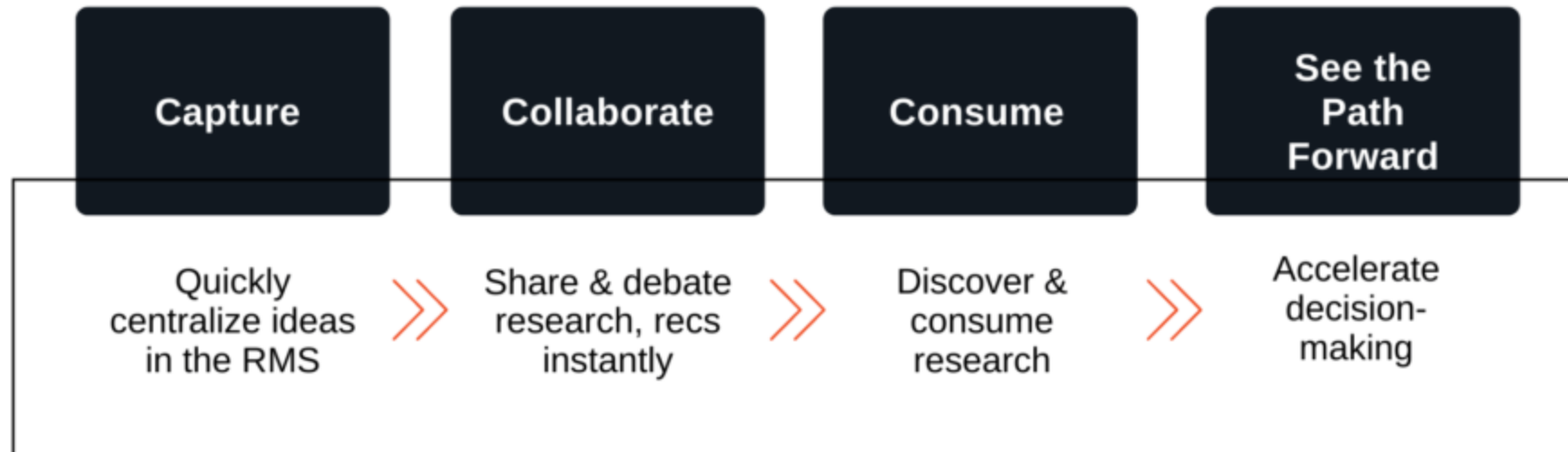
## STAKEHOLDERS

Industry/agency  
Communities



## Core Principles of a Research Management System

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# Current State of Research Management

## 1. Transition to Digital Infrastructure

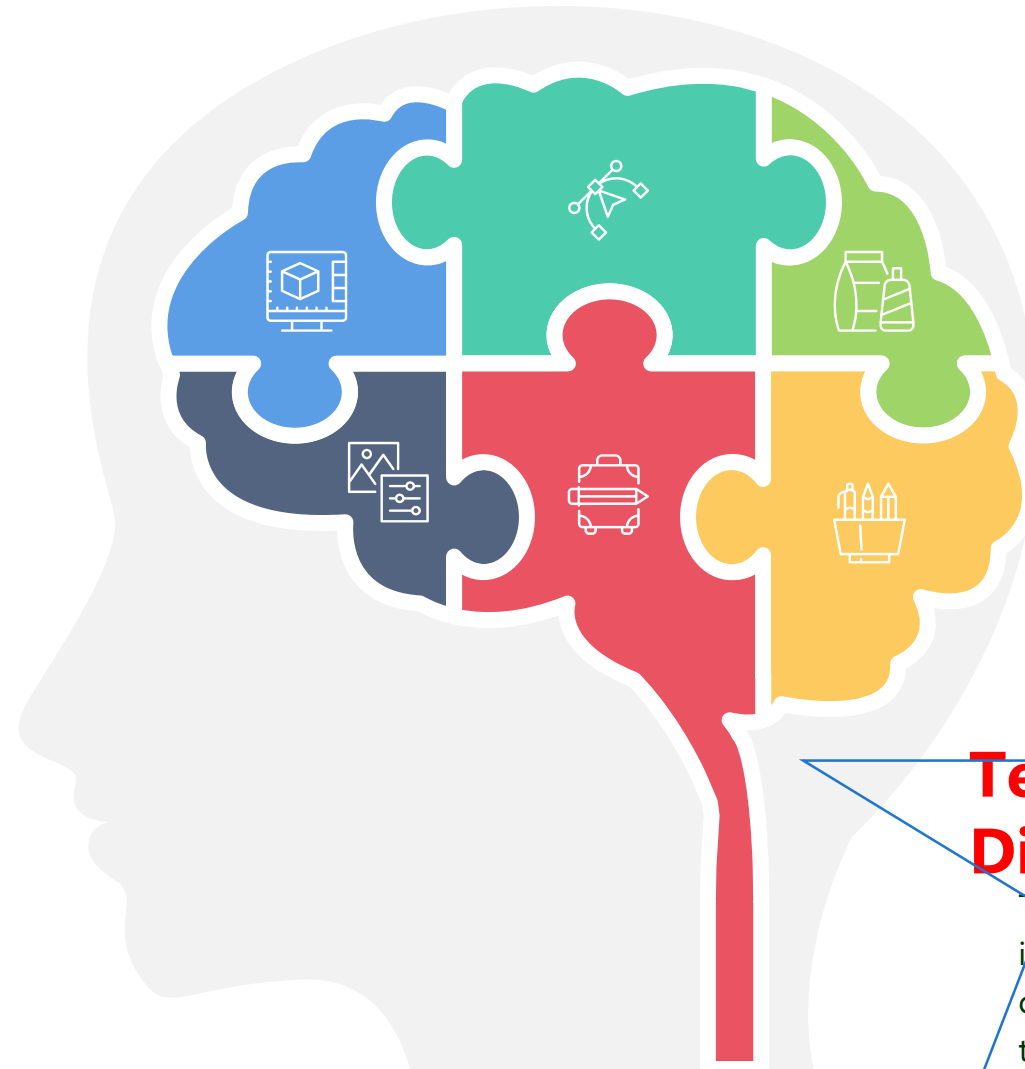
The widespread adoption of digital tools for research planning, execution, and reporting

## 2. Prevalence of Interdisciplinary Research

The emerging trend towards interdisciplinary projects that merge diverse fields to solve complex problems

## 3. The Metrics-Driven Approach

The emphasis on metrics such as publication count, citation indexes, and impact factors for evaluating research success



## 4. The Funding Landscape

The competitive nature of research funding, with grants becoming more challenging to secure

## 5. Compliance and Regulatory Burden

The increasing complexity of compliance with regulations, ethical standards, and data protection laws

## Technological Disparities

The existence of gap between institutions that can afford cutting-edge technologies and those that cannot

# Key Factors in Overcoming Challenges in 2024



Overcoming the talent shortage

Sustainable technologies

Improve security

The digital transformation will continue

Outsourcing

# RESEARCH CHALLENGES

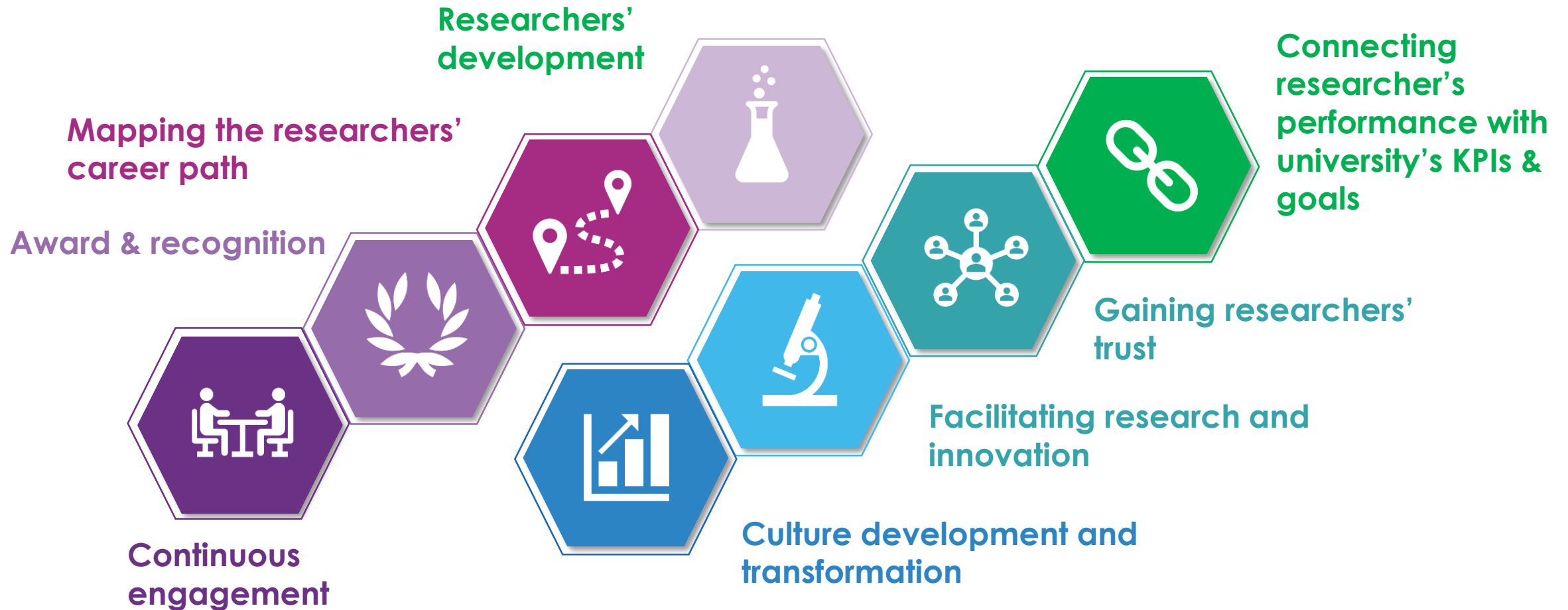
Managing Research  
**VS**  
Managing People



# HARMONISING RESEARCHERS AND RESEARCH

## RESEARCHER LEVEL

## UNIVERSITY LEVEL





# HARMONISING RESEARCH MANAGEMENT

Research/Funding Opportunities

Communication

Engage

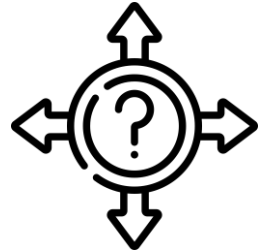
Move Forward

How to effectively manage our researchers and resources?

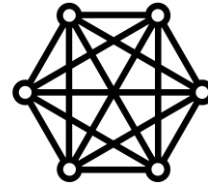




**VOLATILITY**



**UNCERTAINTY**



**COMPLEXITY**



**AMBIGUITY**

THE NEW  
**NORMAL**



WAY FORWARD  
**FOR RESEARCH**

**APPROPRIATE**

**AFFORDABLE**

**ACCESSIBLE**

**SOCIAL**  
*Inclusive Society*



# The Iceberg Journey of Research

**Research Achievement**  
**ICEBERG**

**SUCCESS!**

*What people see*

Persistence



Failure



Sacrifice



Disappointment



*What people don't see*

Dedication



Hard work



Good habits





# UNIMAS Innovation Open Day 2023

20 October 2023  
8.30am - 3.30pm

Level 5, Research, Innovation and Enterprise Centre (RIEC)





# HUMANISING RESEARCH OUTPUT



**HUMANISING  
ENGINEERING &  
TECHNOLOGY**





**RICE TUNGRO RESEARCH**  
A dot-blot assay for detection



**CRAB HOUSING**  
An innovative system for healthier harvest



**ORAL CARE SERUM**  
A natural oral care alternative

**HUMANISING RESEARCH IN  
SCIENCES FOR THE BENEFIT  
OF RAKYAT**





# HUMANISING MEDICINE & HEALTH SCIENCES

## MOZZHUB

A dengue hotspot  
detector



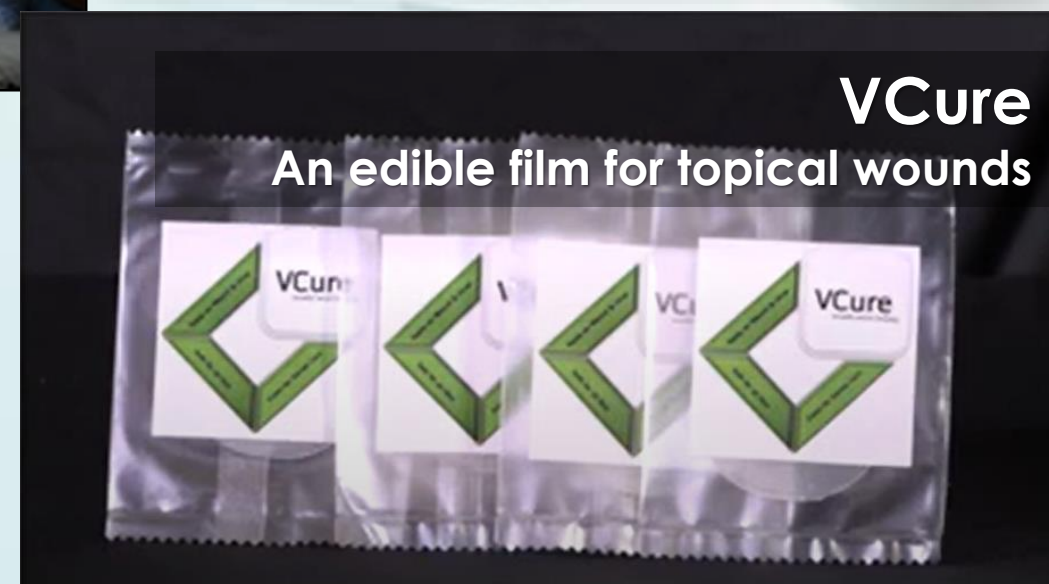
## REtrain

Portable Motorised Exchangeable  
Arm Rehabilitation



## MALARIA STUDIES

Educating locals on  
malaria



## VCure

An edible film for topical wounds



# HUMANISING ARTS & HUMANITIES MANAGEMENT



**Income  
Generation  
through  
Community  
Engagement**

**SEMARAK PERTIWIKU**  
Musical theatre to enlighten the community  
about the importance of upholding integrity





# RESEARCH IS ABOUT... GIVING BACK TO THE COMMUNITY

- **MICRO HYDRO PROJECT:** A series of continuous projects that strive to supply electricity to villages in rural areas and train villagers to sustain the electro-mechanical devices.
- **UNIMAS TELECENTRE (e-Bario):** Applying Information and Communication Technologies (ICTs) for the development of our dispersed communities. The project started in Bario, in 1998, in the midst of the Borneo highlands.
- **ULU BALINGIAN WATER SYSTEM:** A mini water treatment plant to supply continuous treated water to students and staff at Sekolah Menengah Kebangsaan Ulu Balingian, Selangau, Sarawak. The boarding school has been experiencing issues with clean water supply for almost a decade.





# Biodiversity & Environmental Conservation Research



# Discoveries of new species

Discovery of *Hipposideros kunzi*, from Peninsular Malaysia after comparison with the specimen from Borneo.

BBC one

Acta Chiropterologica

Volume 20 • Number 1 • 2018

# Acta Chiropterologica



Discovery of *Lygosoma samajaya*, described this year from the Sama Jaya Nature Reserve, Kuching.





**BORNEAN RAINBOW  
TOAD**



23rd - 29th Oct : Rooted In Toughness Pop Up Tour Malaysia



### MASTER OF G FROGMAN

A special model of the G-SHOCK FROGMAN series uses a Borneo rainbow toad color theme and comes equipped with an ISO-standard 200 m waterproof diving function to support underwater missions.

The Borneo rainbow toad is a species of toad native to Borneo, Southeast Asia, and was rediscovered in 2011 after not being sighted for around 87 years. This model expresses the skin texture and color of the Borneo rainbow toad using a stainless steel bezel made bumpy via etching and treated with rainbow ion plating, and a multi-colored dial. Additionally, the color of the rainbow ion plating is different for every product to express the rarity of this type of toad. Furthermore, specifications are precise down to every detail, including combining the urethane translucent



**HUMANISING RESEARCH IN  
Information, Communication &  
Creative Technology**





*Menu*

- HOME
- A BRIEF HISTORY OF SEMBAN RING LADIES
- BIDAYUH EMBHAN TRADITIONAL COSTUME
- THE MAKING OF RUYAK'NG AND RASUK'NG
- SUSEN: A TRADITIONAL FOOD

*Bidayuh Embhan Traditional Costume*

Labels: BULANG SEBI, SIBU TEMBUN, BALU PUTANG, SORING'NG S'BI, TUMBUN'NG SAKO, JEMOH SULAM, TUMBUN'NG ERUH, TUMBUN'NG SEHENDU, TUMBUN'NG KILANG, KAIN NGUMBAN, RUYAK'NG, JEMOH ROOT, ERUH, RASUK'NG



# Digitalisation of Cultural Heritages







# Water Desalination by Membrane Bioreactor



**Community Livelihood  
via Technology Transfer**



**Clean & Treated Water  
Supply Project – MOE**



# Community Livelihood via Capacity Building



**Bung Jagoi Eco-Tourism**

**Digital Talent Development**





# Accountability & Responsibility in Research and Innovation Ecosystem

R&I addresses  
societal  
expectations  
and needs

Align R&I with  
national agenda,  
wellbeing, and  
advance  
sustainability

Involvement of  
stakeholders



**Accountable**  
Research &  
Innovation




# CONCLUSION

The driving actors  
are the people  
involved

- Harmonising research is an increasingly important trend and increasingly present in forward-thinking organisations, in line with market needs.
- Communication is one of the best ways to humanize research, as it connects people to a single goal.



**COMMUNICATION, ENGAGEMENT  
AND INTERACTION**

A scenic landscape featuring a calm lake in the foreground, surrounded by lush green trees and bushes. In the background, there are rugged mountains under a dramatic, cloudy sky with warm, golden light. The overall mood is peaceful and inspiring.

Choose a job you love,  
and you will never have  
to work a day in your life.

Confucius





Thank you