

# Revolutionising Capacity Building in Engineering for SDGs

**Prof. Francis Davis**

**TCC International Centre for Innovation, Manufacturing, Technology  
Transfer and Entrepreneurship - "TCC-CIMET"**

# Outline



Background – TCC

World Challenges – Africa's Perspective

Capacity Building – Targets Groups and Areas

Areas of Possible Collaboration

# About TCC-CIMET

Established in 1972 as the Technology Consultancy Centre (TCC) at KNUST, Ghana

TCC, served as the interface between R&D activities in the university and entrepreneurial aspirations

The centre was established to strategically approach industrialization from the grassroots level

The Intermediate Technology Transfer Model was used to gradually upskill local artisans.

## About TCC-CIMET Cont'd

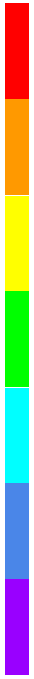


The Suame Magazine industrial cluster then was having a population of about 80,000 artisans

Suame Magazine became the first ground for grass root industrialization

In 1980, the Suame Intermediate Technology Transfer Unit (ITTU), was established

# Major Achievements Over the Years




Transfer of food processing, agriculture, and constructional technologies that created industries

Introduction and training on the use of machining tools for manufacturing.

Establishment of the Ghana Regional Appropriate Technology Industrial Service (GRATIS) Project

Parallel small scale industries development and transfer programme

# Major Achievements Over the Years Cont'd



Strong decentralized industries in agriculture, manufacturing, construction and artistry serving small communities and serving the local economies

Expanding the programme across sub-saharan Africa, and working within the African continent

Focused research on meeting SDG goals, especially in the space of clean energy and circular economy

# TCC to TCC-CIMET Under UNESCO





# VISION

To be the pre-eminent hub for innovation, manufacturing, technology transfer, and entrepreneurship in Africa, driving economic growth and social transformation through cutting-edge research, empowering entrepreneurs, and fostering industrial excellence



# MISSION

To pioneer and deliver transformative engineering solutions that empower Sub-Saharan Africa and beyond to harness cutting-edge technologies for sustainable socioeconomic development.

# OBJECTIVES

To undertake collaborative research to develop and transfer innovative engineering solutions and manufacturing technology for the sustainable development of the West African Sub-region and beyond.

To provide technical assistance to improve competencies and promote standards in manufacturing and technology.

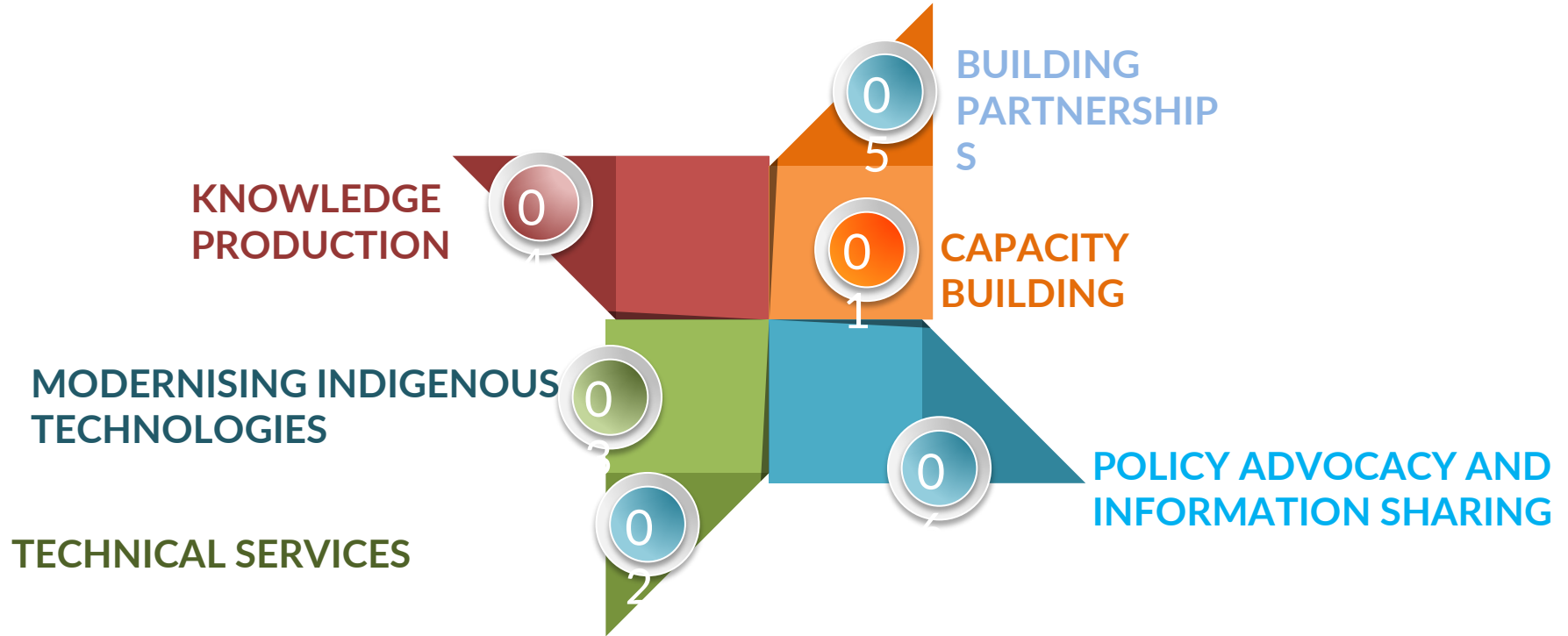
To promote modernisation and automation of indigenous manufacturing and industrial practices, using modern digital and smart technologies

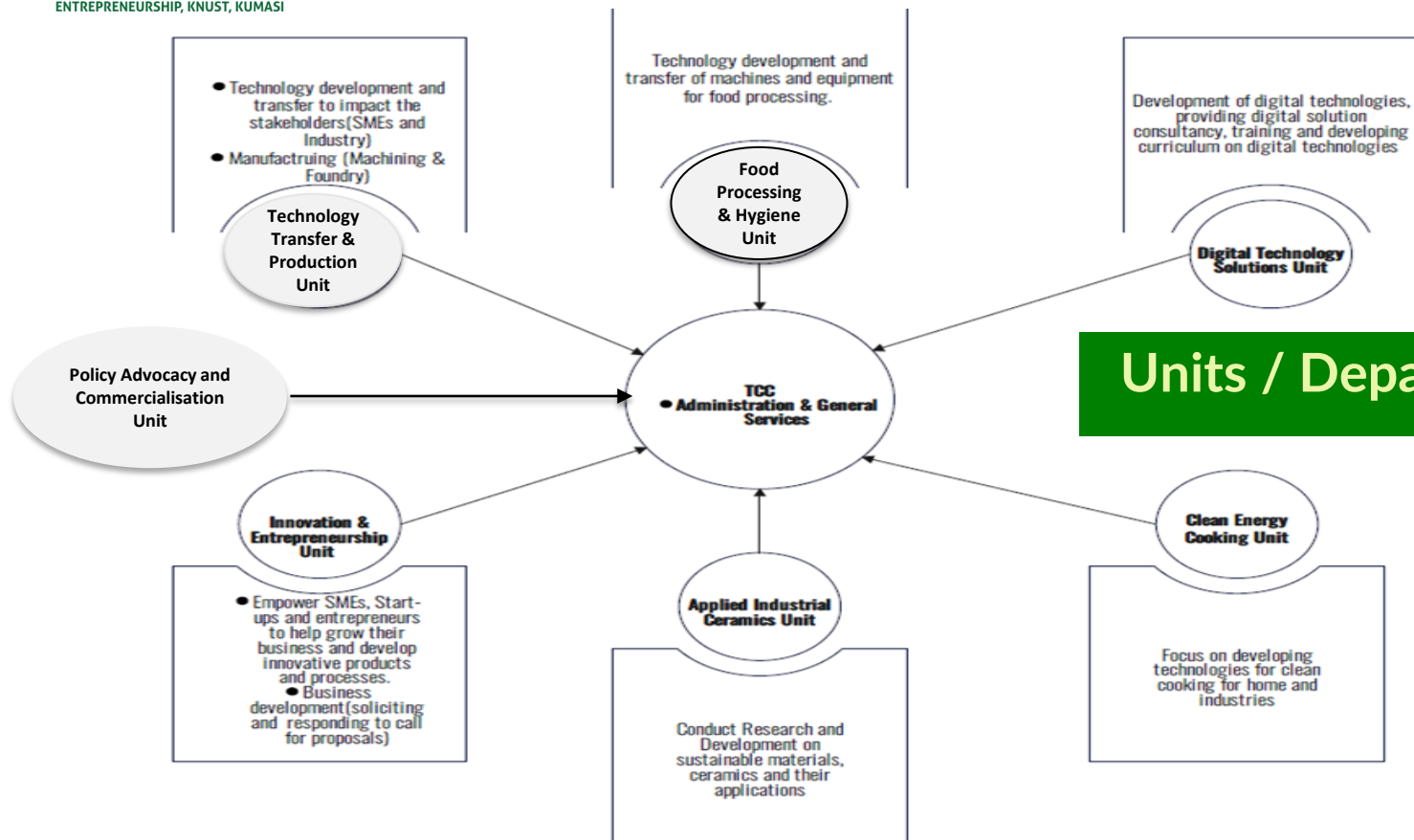
# OBJECTIVES Cont'd

To provide space for product development, dissemination and knowledge uptake, and facilitate continuous professional development in relevant areas of engineering and technology within the West Africa Sub-region and beyond.

To develop policy briefs to inform (and influence) national and sub-regional policy direction on engineering innovation, manufacturing and technology transfer

# FUNCTIONS





## Units / Departments

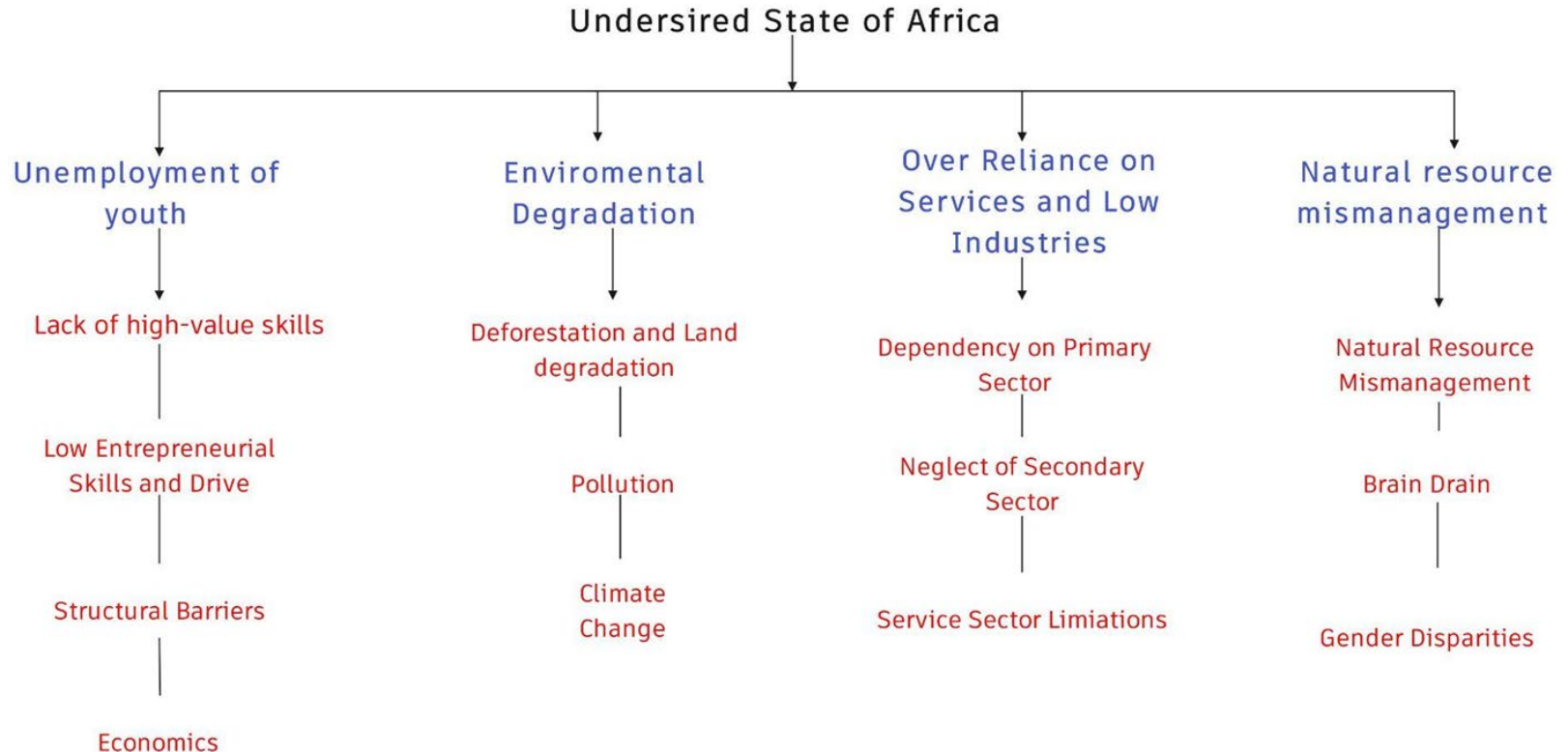
# Unprecedented Challenges Facing the World



These challenges are complex and interconnected, and they demand innovative solutions.

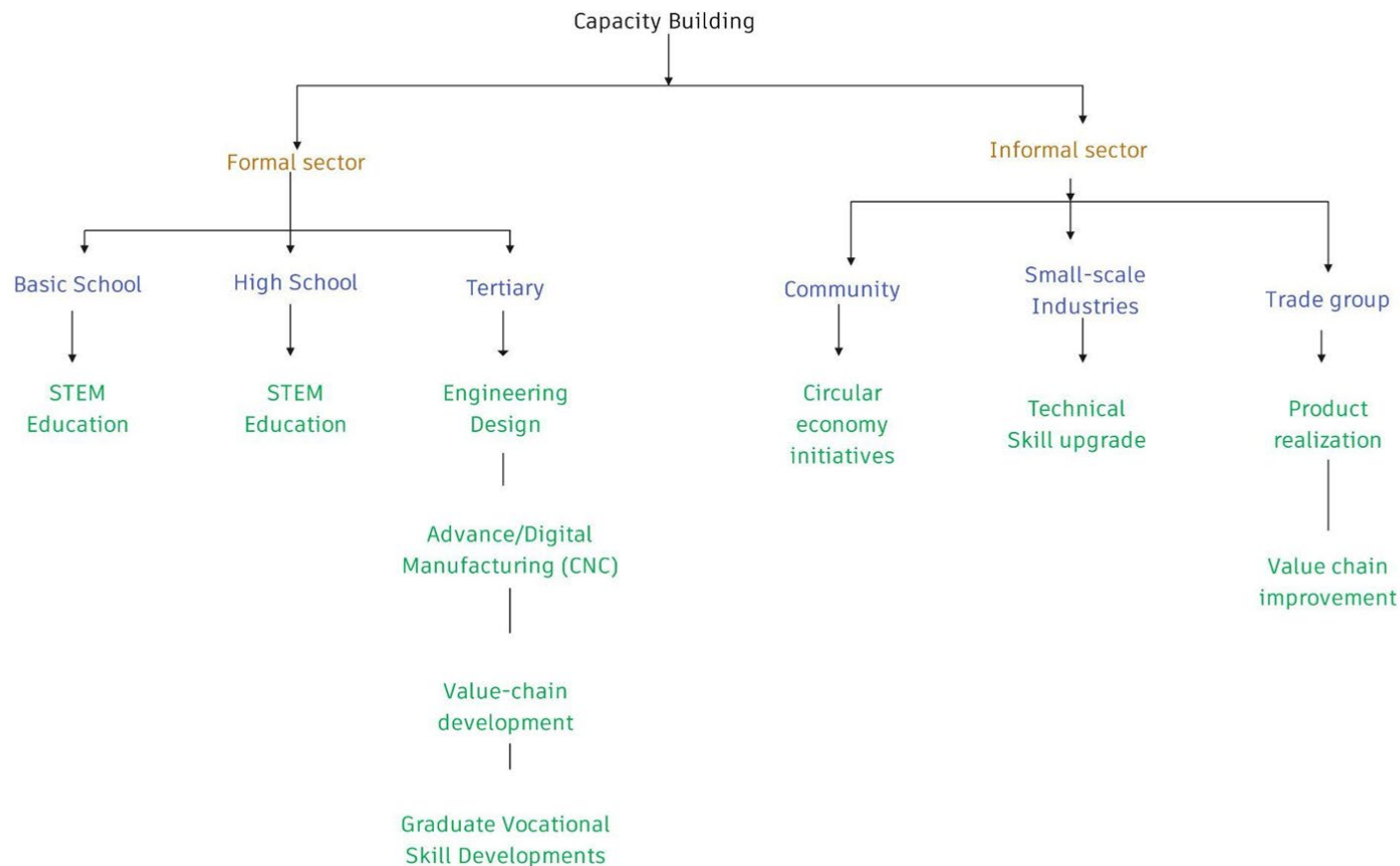


# A perspective on Africa





# Capacity Building Approach



# Working Towards the SDG's

- **Quality Education (SDG 4):** By providing girls with access to high-quality STEM education.
- **Gender Equality (SDG 5):** By encouraging girls to pursue careers in STEM fields, which are traditionally male-dominated.
- **Decent Work and Economic Growth (SDG 8):** By equipping girls with the skills they need to get jobs in STEM fields.
- **Industry, Innovation and Infrastructure (SDG 9):** By fostering innovation and developing new technologies.
- **Sustainable Cities and Communities (SDG 11):** By promoting sustainable technology solutions.

# Working Towards SDGs Cont'd

Simple Pyrolysis System for Conversion of Plastic waste into useful products

Biocharring techniques for Briquette production

Clean Energy Cooking Technologies

Encouraging Females in STEM

Graduate Vocation Education training

Climate Change adoption Materials

✓ Sustainable Building Materials

✓ Water Filtration



# CREATIVE CAPACITY BUILDING AND FABRICATION OF CORN SHELLING AND CORN COB CHARRING FOR CLEAN ENERGY AT AKROFONSO





# COMMUNITY CREATIVE ADVOCACY & CAPACITY BUILDING IN BIOCHAR PRODUCTION FOR CLEAN ENERGY AND REGENERATIVE AGRICULTURE AT MFENSI



# EMPOWERING ARTISANS AND STUDENTS WITH SMART MANUFACTURING TECHNIQUES USING CNC TECHNOLOGIES AT SUAME





## 22

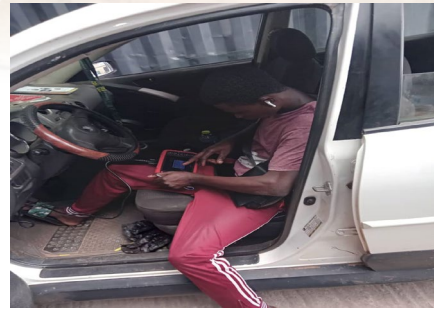




# STEM EMPOWERMENT & INSPIRING ENGINEERING CURIOUSITY AMONG SHS STUDENTS AT 2024 WORLD ENGINEERING DAY CONT.D



# AUTO DIAGNOSTIC TRAINING SESSION





# SOME ACTIVITIES IN NEWS



- News Feed
- Politics
- Business
- Entertainment
- Sports
- Health
- Technology
- Opinion
- Lifestyle
- Gallery
- Obituary
- Google Podcast
- TuneIn

TV Radio Podcast Videos

## KNUST Technology Consultancy Centre marks Women in Engineering Day with Serwaa Nyarko Girls' SHS

Source: Emmanuel Kwasi Debrah Mon Jun 26 2023 3:59:16 PM

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KNUST Technology Consultancy Centre | UNESCO... @knust... · Jun 23 ...

#WomenInEngineeringDay: @knusttcc is grateful to the headmistress, Mrs. Esther Gyasi and the students for opening their doors to be inspired. #knusttcc

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## KNUST Technology Consultancy Centre | UNESCO... @knust... · Jun 3 ...

This is why we're happy for the establishment of the Suame Auto Diagnostics Centre. #tcctech #autosolutions

With this cutting edge auto diagnostic equipment facility being commissioned today, we are provided with numerous benefits relevant to provide volume solutions, diagnose complex vehicle systems, analyse big data and deliver precise recommendations to our potential clients.

Prof. Mrs. Rex Akosua Dekson  
Vice-Chancellor of KNUST at the commissioning of the Suame Auto Diagnostics Centre.

Visit us at [www.tcc.knust.edu.gh](http://www.tcc.knust.edu.gh) | Premil Building/Behind Jubilee Mall, KNUST  
Email: [tcc@knust.edu.gh](mailto:tcc@knust.edu.gh) | Phone: 0322000017 | Follow TCC-UNESCO on: [Social Media Icons]

KNUST Technology Consultancy Centre | UNESCO C2C

2 followers

Here is a feature on the #Cookstove Testing and Expertise Lab. Enjoy: <https://lnkd.in/d3ypkMyH>

### COOKSTOVE TESTING & EXPERTISE LAB (C-LAB)

TCC SPECIAL

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MICHAEL COMREH  
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For domestic and industrial applications: Watch how @knusttcc produces water #filter, here [youtube.com/watch?v=YynXpp...](https://youtube.com/watch?v=YynXpp...)

## TCC WATER FILTER

### HOW WE MAKE IT

Voice Of Knust

3:59 PM · Jun 28, 2023 · 172 Views

# SOME ACTIVITIES IN NEWS CONT'D.

## Other news stories



**MIT's Coby Unger leads training of TCC-CIMET staff on smart manufacturing technologies**

📅 Published: 18th Mar 2024



**World Engineering Day: TCC-CIMET to create hub for digital innovative solutions**

📅 Published: 05th Mar 2024



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Ing. Yaa Obenwaa Okutszetso, Rep. from the Ghana Institution of Engineers.



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# Areas of Collaboration

- Research initiatives focusing on engineering sciences and technology, particularly in areas such as sustainable development, disaster risk reduction, intelligent cities, and artificial intelligence
- Develop training programs and workshops aimed at enhancing the skills and knowledge of engineers, researchers, and technicians, especially in developing countries.
- Exchange expertise and resources for knowledge sharing, engineering solutions, policy advocacy, and joint course creation and teaching
- Connecting innovation centres of C2C - Utilizing Centre's infrastructure to facilitate the development and dissemination of engineering technologies.

# Contact Information

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THANK YOU