

ICT: Emerging Technological Trends and Society

TuK



Btech Year IV term 3

005: THE 4TH INDUSTRIAL REVOLUTION

SUBJECT CODE: ECII/ECSI/ECCI 4204

AIMS & OBJECTIVES

- 1) To study the **ROLE** of the **4th** industrial revolution
- 2) To learn how new opportunities and challenges to the **ICT** industry as a whole will impact the **future** and the **development** of **society**
- 3) To know what technical characteristics of **ICT** systems cause **specific social challenges** when adopted and used

LECTURE OUTLINE

- 1) 4th Industrial revolution and shopping/Commerce/Business:- predictions for the future of retail shopping**
- 2) 4th Industrial revolution and Smart Cities In Africa:- automating the cities of tomorrow**
- 3) 4th industrial revolution and consumer food: how the internet is improving food services industry**

4th

INDUSTRIAL

REVOLUTION

COMPARING AND CONTRASTING THE 5 INDUSTRIAL REVOLUTIONS

1 ST INDUSTRIAL REVOLUTION	2 ND INDUSTRIAL REVOLUTION	3 RD INDUSTRIAL REVOLUTION	4 TH INDUSTRIAL REVOLUTION	5 TH INDUSTRIAL REVOLUTION
1760	1860	1960	2016	2020??

COMPARING AND CONTRASTING THE INDUSTRIAL REVOLUTIONS

1ST INDUSTRIAL REVOLUTION

1760

MECHANICAL PRODUCTION

From Agrarian/Animal Power to Steam Engine

New manufacturing processes

Creation of new factories

COMPARING AND CONTRASTING THE INDUSTRIAL REVOLUTIONS

2ND INDUSTRIAL REVOLUTION

1860

SCIENCE AND MASS PRODUCTION

From Steam Power to Mass Manufacturing

Steel, oil, electricity

Light bulb and telephone

COMPARING AND CONTRASTING THE INDUSTRIAL REVOLUTIONS

3RD INDUSTRIAL REVOLUTION

1960
DIGITAL
REVOLUTION

From Mass Manufacturing to Digital Revolution

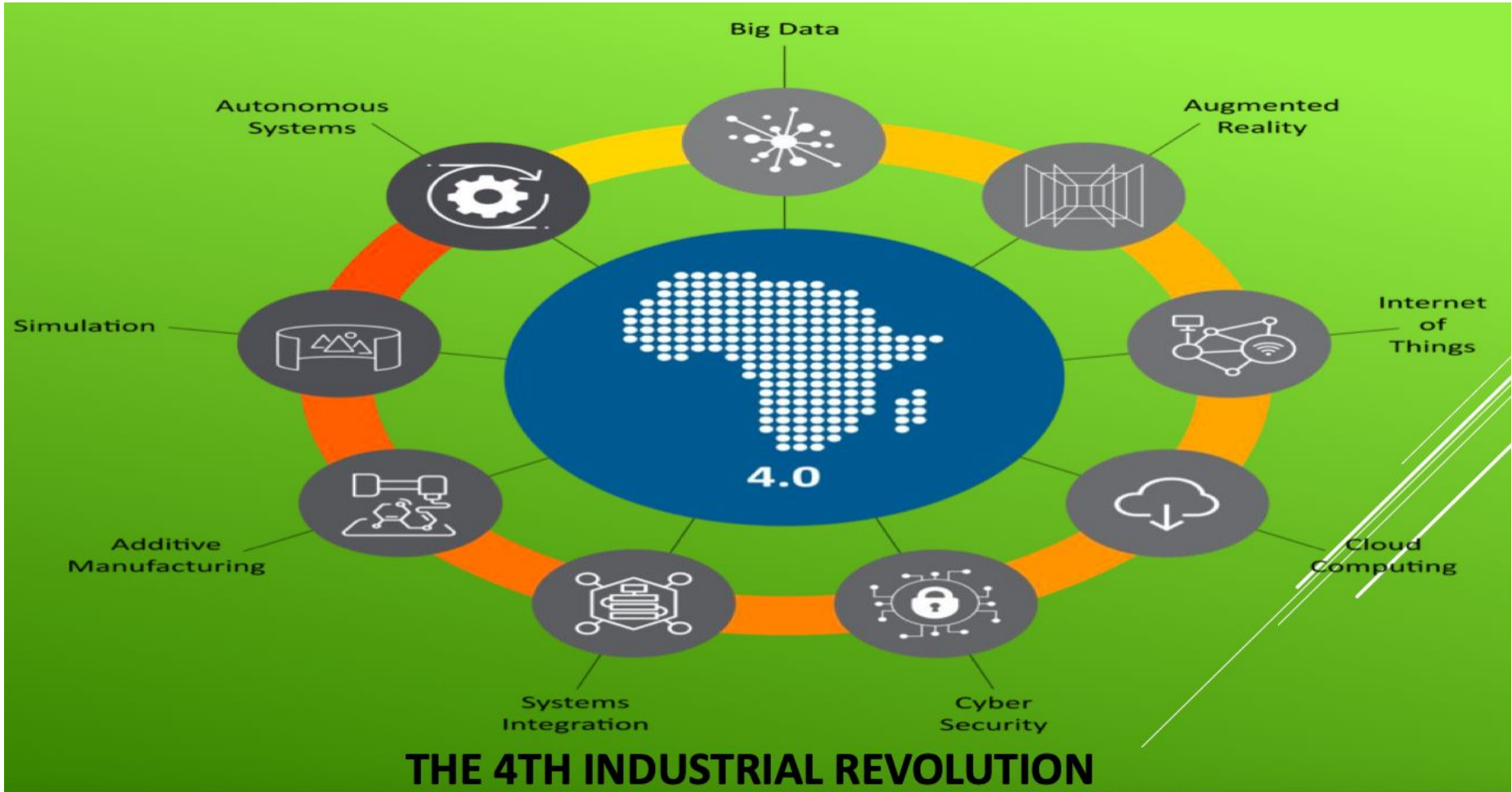
PC, Semiconductor, Internet

Made people digitally capable

COMPARING AND CONTRASTING THE INDUSTRIAL REVOLUTIONS

4 TH INDUSTRIAL REVOLUTION	5 TH INDUSTRIAL REVOLUTION
2016 SMART INTERCONNECTED TECHNOLOGY	2020? TECH FOR GOOD
Fusing physical, digital and biological worlds	
what does it mean to be human?	





The World's most valuable retailer has no inventory- Tom Goodwin

• 4TH INDUSTRIAL REVOLUTION AND COMMERCE / BUSINESS:- THE FUTURE OF SHOPPING



The World's most valuable retailer has no inventory- Tom Goodwin

- **4TH INDUSTRIAL REVOLUTION AND COMMERCE / BUSINESS:- THE FUTURE OF SHOPPING**

KEY QUESTION:-How do computers disrupt traditional buyer/seller business and commerce model? How do they connect customers and retailers?

The World's most valuable retailer has no inventory- Tom Goodwin

- **4TH INDUSTRIAL REVOLUTION AND COMMERCE / BUSINESS:- THE FUTURE OF SHOPPING**

1) **4TH INDUSTRIAL REVOLUTION IN RETAIL SHOPPING:-**using technology to disrupt traditional buying and selling models of customer vis-a viè brick and mortar buildings

-Data driven approaches

-Consumer centric products & strategies

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- **4TH INDUSTRIAL REVOLUTION AND COMMERCE / BUSINESS:- THE FUTURE OF SHOPPING**

2) Trends In Retail shopping -

- Just walk out technology,

- Virtual carts,

- Autonomous robots

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- **4TH INDUSTRIAL REVOLUTION AND COMMERCE / BUSINESS:- THE FUTURE OF SHOPPING**

3) JUST WALK OUT TECHNOLOGY

- New Trend
- Theft prevention
- Computer vision, deep learning algorithms, sensor fusion
- Smart shelves, Robots,

EXAMPLE:- Amazon:-Go stores just walk out technology

What Makes A City Smart?

• 4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY



• 4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY

1) 4TH INDUSTRIAL REVOLUTION SMART CITIES: Urban area where all processes (land, water, air) have been streamlined with data and technology for:-

- a) Efficiency and monetisation
- b) Reduced costs of compliance/consumption
- c) Competitiveness

- **4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY**

- **SMART CITIES IMPACT ON ENERGY AND ENVIRONMENT**

- ▶ **Environment:-impact of green/solar energy e.g.** solar can be used to power public charging ports where smartphones can be charged publicly thus improving living standards for everyone
 - ▶ **Energy:-modern electric grids.e.g.** smart grids, solar rooftops produce clean energy, allows integration of new technologies e.g. electric vehicles i.e. zero-emissions transportation, power storage in case of emergencies etc.

• 4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY

WHY AFRICA?

- ▶ **Limited Urban Infrastructure:** No previous urbanization, little/no infrastructure, no cost to of old amenities
- ▶ **Growing middle class:** 170 million of Africa's 1.3 billion people middle class
- ▶ **Fast urbanization:** Fastest urbanizing continent.
- ▶ **Entrepreneur spirit:** Entrepreneurs start businesses, generate jobs and wealth, growth opportunities.
- ▶ **Mobile connectivity:** 650 million mobile users in Africa >>>>>US or Europe.

• **4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY**

**HOW TO BECOME A
SMART CITY IN AFRICA**

- 4 pillars of a smart city:-**
 - Digital infrastructure**
 - Digital inclusion**
 - E-government**
 - Digital economy**

• 4TH INDUSTRIAL REVOLUTION AND SMART CITIES:- VILLAGE TO SMART CITY

EXAMPLES OF SMART CITIES:-

- ▶ Waterfall City South Africa
- ▶ Konza City, Kenya
- ▶ Eko Atlantic City, Nigeria
- ▶ Vision City Rwanda



• 4TH INDUSTRIAL REVOLUTION & CONSUMER FOOD SERVICES TECH STARTUPS:- HOW THE INTERNET IS IMPROVING THE CONSUMER FOOD SERVICES INDUSTRY

FOOD TECH STARTUPS -KUNE CASE STUDY

SHOW ME THE MONEY

A white founder's \$1 million Nairobi food startup aims to fix a problem Kenyans say doesn't exist

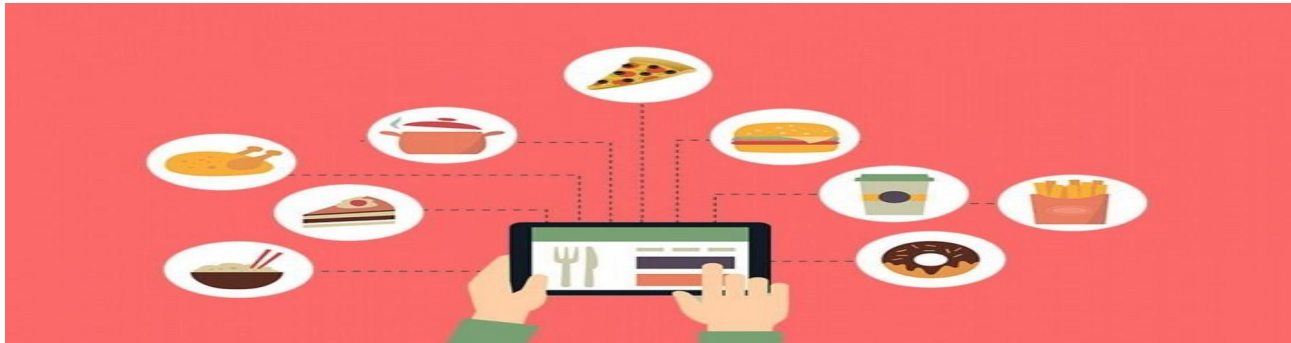
FOOD TECH STARTUPS -

- Kune is a recent food-tech startup, which has earned \$1 million pre-seed round funding.
- Founded by French CEO Robin Reecht in December 2020, Kune delivers freshly made, ready-to-eat meals at affordable prices in Nairobi

• 4TH INDUSTRIAL REVOLUTION AND CONSUMER FOOD: HOW THE INTERNET IS IMPROVING THE FOOD SERVICES INDUSTRY

1) DEFINING 4TH INDUSTRIAL Food Tech Startups:

- Agricultural technology investment combining food science and technology to enhance food preparation, quality and service delivery
- New and innovative novel systems
- Consumer driven demand
- Meal kit distribution processes



• 4TH INDUSTRIAL REVOLUTION AND CONSUMER FOOD: HOW THE INTERNET IS IMPROVING THE FOOD SERVICES INDUSTRY

FOOD TECH STARTUPS:

- innovation in food tech
- Improve business models i.e:-
 - ordering,
 - Ready/Cooked/Pre-cooked meal,



- Consumer food
- Restaurant aggregators,
- Shared kitchens,
- Food discovery
- Ordering etc.

• 4TH INDUSTRIAL REVOLUTION AND CONSUMER FOOD: HOW THE INTERNET IS IMPROVING THE FOOD SERVICES INDUSTRY

› Kune goal?

› Kune meals cost ?

› Kune sold how many meals ?

› Kune meals shelf life?,

› Customer base ?

› Kune meals distribution model?

› Operations ?

› Orders?

Did not manage to raise \$6M to expand across Africa

› Pre-seed funding raised?

› Forced to close June 2022

› Tried to source for funds/ sell to strategic buyers;

• 4TH INDUSTRIAL REVOLUTION AND CONSUMER FOOD: HOW THE INTERNET IS IMPROVING THE FOOD SERVICES INDUSTRY

►WHAT WENT WRONG?

FOOD TECH STARTUPS -KUNE CASE STUDY

Kune faced backlash in the context of the gap between Local And Expat Founder Funding in Kenya's tech scene.

"After three days of coming into Kenya, I asked where I can get great food at a cheap price, and everybody tell me (sic) it's impossible," Reecht, who is French, told Techcrunch [in a June 17 interview](#). "It's impossible because either you go to the street and you eat street food, which is really cheap but with not-so-good quality, or you order on Uber Eats, Glovo or Jumia, where you get quality but you have to pay at least \$10."



• 4TH INDUSTRIAL REVOLUTION AND CONSUMER FOOD: HOW THE INTERNET IS IMPROVING THE FOOD SERVICES INDUSTRY

▸ **WHAT WENT WRONG?**

▸ **Did Kune have a clear problem statement?**

▸ **Who was their target market?**

▸ **Was there an actual problem with access to cheap food for the ordinary Kenyan?**

▸ **Some of their challenges included packaging**

QUESTION & ANSWER SESSION

ANY
QUESTIONS
?