FRUGAL INNOVATION

(MT5912)

by
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FRUGAL INNOVATION

Program Information

- Every Monday from 11th Jan
- Open to all graduate students at NUS, Lifelong Learners & qualified Y4 Undergrads
- 1 semester (13 week program)
- Runs once a year
- Programme allows for teams to visit the local setting

Example Problem Statement

Aqua wastes at the bottom of prawn farms.
It's a bio-waste in places such as Sabah and Indonesia.
How can we use it for a sustainable solution?

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The Real World is Ambiguous …

Visiting Farmers in Maharastra, India

MAP

The Problem

Plastic injection molding processes:

- Highly Labour intensive processes for:

- Solely reliant on humans

- Prone to Errors which results in:
  - Lots of paper used, huge storage space for records
  - Human negligence, Traceability errors,
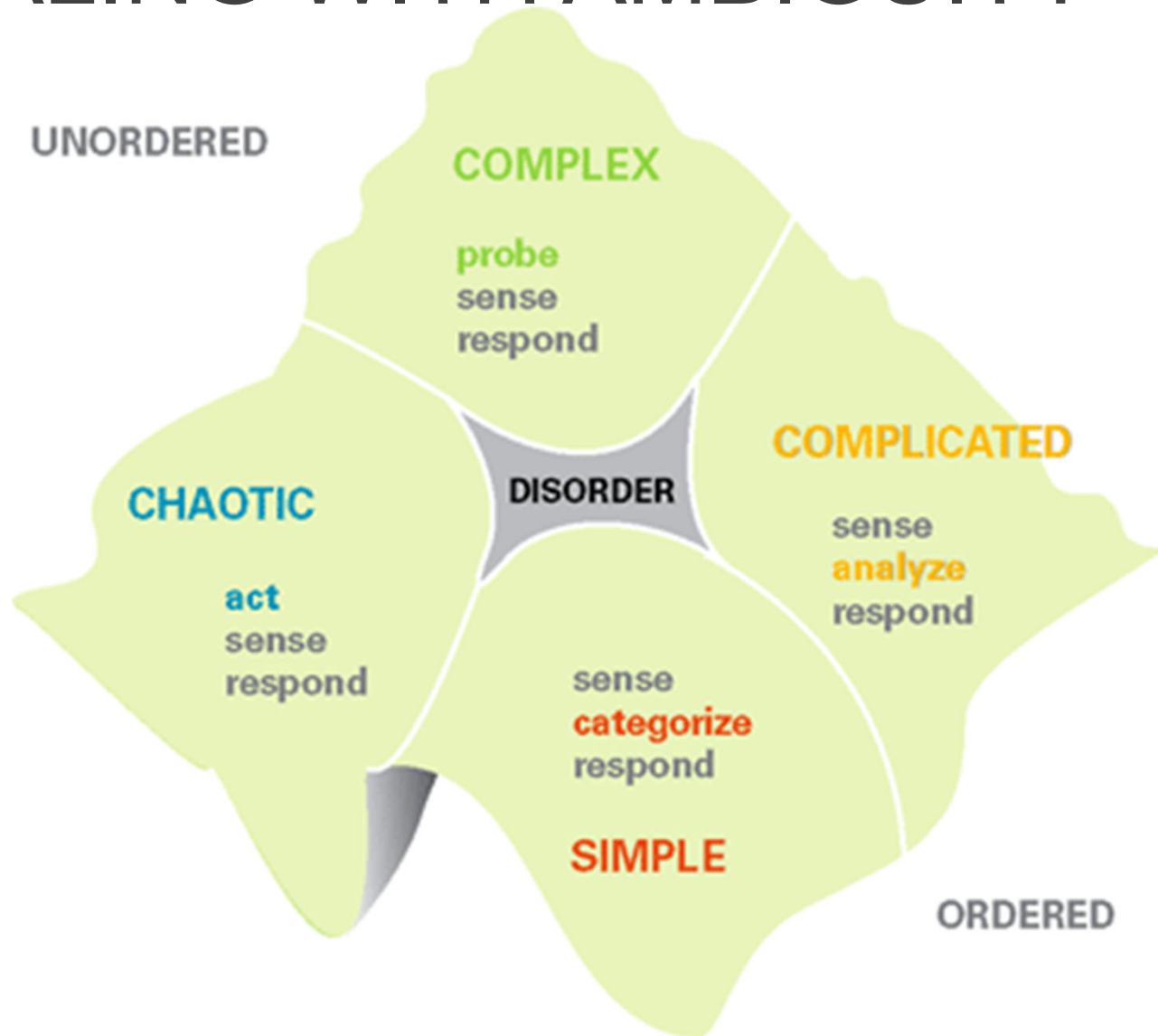 - Discrepancy during delivery

3

Prawn Farmers in Indonesia

Making sense of Multiple Stakeholders means …

… solutions are always about People + Technology

DEALING WITH AMBIGUITY

Accommodating every viewpoint ...

...needs many Thinking Hats

EXAMPLE OF A PAST PROJECT

Paper Breath

- Initiated by Medical Students
- Project won the Medical Grand Challenge in 2019

- Project is now a startup in Singapore

PROJECTS FOR THIS SEMESTER

- **Easy EPR** (Extended Producer Responsibility)

New law needs producers to recycle their own packaging waste. Need to have hardware and systems level design to make EPR compliance easy.

- **MIMOKnee** (Knee problem affecting11% of women and 8.8% of men)

Need a total system level solution with cheap robust wireless sensors to monitor the patient and help them recover while they are at home.

- **ChipSafer** (Tracking of Livestock for Sustainability)

Livestock monitoring market is growing to $2.5B by 2025, at 10.9%. Need a system to reduce environmental impact and providing cattle traceability

- **HckR** (A self sensing Auto body part for safety measures)

Vehicle accidents lead to ~1.35M deaths each year. Need to create a self-sensing body panel that can actuate safety measures to reduce crashes.

- **SurgiTrain** (Frugal Advanced Trauma Life Support Training)

SAF's current ATLS trauma patient simulators are expensive to buy & maintain. Need a cheaper and better possibly robot assisted training.

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WHY TAKE FRUGAL INNOVATION?

- Address "bigger" challenges that impact Singapore, companies and society at large

- Design Frugal innovations fit for modern societies and companies

- Exposure to a different environment while creating viable solutions
    - not in your average engineering or science modules

- Experience and overcome challenges in team management.

- Transferable skills increase employability

WHAT NEXT?....   STEP 1:

For All Students - If you are interested then:

- Sign up for the course and your projects by clicking on the QR code

Frugal Innovation

https://nus.syd1.qualtrics.com/jfe/form/SV_enBjhnYHH8PMK1f

Attend the first class on Zoom

- MT5912 (Frugal Innovation)   – 6pm on 11th Jan 2021

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STEP 2

For ISEM Students:

- Sign up for the course on http://www.nus.edu.sg/ModReg/
  - 1st round was open on 30th Dec and closes on 31st Dec at 5pm

For all other Students:

- Utilize the **[Submit Module Requests]** function to request for non-programme requirement modules (i.e. cross-faculty modules).
  - 2nd round is open today 4th Jan & closes on 5th Jan at 12noon
  - The request will go through a two-step approval process: it is first routed to the home department for decision before approved requests are routed to the module host(s) for final assessment

- Round 3 – starts on 7th Jan at 9am & closes on 8th Jan at 12noon
- Appeals are done on the 3rd round

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Q & A

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