

Strategic Technology and Innovation Management Programme 2019

MAKEathons for Grand Challenges: problem identification & definition

Curie Park
cp538@cam.ac.uk

Letizia Mortara
lm367@cam.ac.uk

Shima Barakat
sb679@cam.ac.uk
Ravi Sikhwal
rks50@cam.ac.uk

Background

Grand Challenges are intractable problems (yet potentially solvable) with a large-scale societal impact potential^{1,2}.

Their solutions could help create new industries and jobs of the future, expand the frontiers of human knowledge on issues of societal concern such as energy, health, education, the environment, national security, and global development³.

The definition of a Grand Challenge could encourage collaboration between the public and private sectors.

Aims

MAKE-it! aims to develop makeathons to improve food value chains. Within STIM, the underpinning principles of how they are setup is investigated.

Year 1: to compare the process of Grand Challenge Identification to support a makeathon (when a product idea needs to be prototyped in a short time)

Year 2: to review the impact of the problem definition process during the MAKEathon

Methodology (Y1)

1. Case studies: study the grand challenge identification mission of 9 makeathons
2. Cross analysing the results

Progress

- Nine partners selected their Grand Challenges and shared their materials.
- Two workshops arranged for Cambridge Grand Challenge Identification
- Cambridge and Zurich Grand Challenges were tested through MAKEathon events
- Survey and interviews were conducted to understand their approaches and justification
- Project is continuing in 2020

Deliverables

- **The process of Grand Challenge Identification and definition**
- **MAKEathon Manual Draft v1:** on how food and beverage industry can design and deliver MAKEathon to address their food value chain challenge.

¹ Gould, M., 2010. GIScience grand challenges: How can research and technology in this field address big-picture problems. *Arc User*, 13, pp.64-5.

² Gustetic, J.L., Friedensen, V., Kessler, J.L., Jackson, S. and Parr, J., 2018. NASA's Asteroid Grand Challenge: Strategy, Results, and Lessons Learned. *Space Policy*, 44, pp.1-13.

³ Washington DC: The White House; c2012-17, 21st Century Grand Challenges. [Internet]. [accessed on 07th November 2019]. Available from <https://obamawhitehouse.archives.gov/administration/eop/ostp/grand-challenges>



Fig 1. An Example of Grand Challenge Identification Process