Value-based Software Engineering
Lessons Learnt from Sustainable Food Systems

30 September 2020
THE OPEN UNIVERSITY
The UK’s Largest University

173,927 formal students

34% enter with two A Levels or less

88% of the FTSE 100 have sponsored staff with the OU

3 in 4 students are already in work

61,000 STEM students
Our Mission:
Empower our students, industry and wider society, to leverage digital technologies to solve the problems of the future.

Our Vision:
Be the world leader in open, innovative distance teaching of computing and communications, founded on excellent research and scholarship.

We offer a range of undergraduate and postgraduate qualifications to >11,000 students.
Software in The World

We investigate and develop systematic approaches for engineering secure, adaptive and usable software systems in a complex and changing socio-technical World
HOW WE LIVE

SOFTWARE WITHOUT BOUNDARIES
Amel Bennaceur

Associate Professor in Computing, The Open University, UK

Research Areas
- Engineering Adaptive Software Systems
- Automated Software Engineering

Application Domains
- Collaborative Security
- Resilient autonomous systems
- Sustainability (Food Security)

Key Research Challenge:
- Defining methods and techniques that ensures interoperability and security in highly dynamic computing systems such as the Internet of Things
Why Responsible Software Engineering

• Why should we care?

• How can we/Software Engineers help?
Feed me, Feed me

An Exemplar for Engineering Adaptive Software

Trading off health benefits, costs, and consumption requirements

Food Security

Stock Management

Meal planning

Personal

Home

City

Nation
What properties does our systems need to have?

• Explores users’ reactions to futuristic or controversial technology
• Positive (utopian) and negative (dystopian) versions of the same story
• Elicit a wide spectrum of requirements

(*) Mancini et al., Exploring Users’ Reactions to Futuristic Technology, CHI 2010
• *Eliciting and modelling* ethical values of individuals and groups (social and business) in managing ICT resources

• *Matchmaking* ethical values between stakeholders’ as well as between their actions and desires

• Provide *recommendations* based on the ethical consequences of certain decisions and choices
THANK YOU