

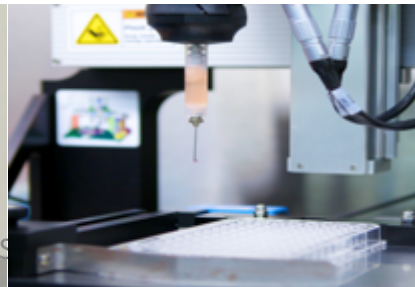
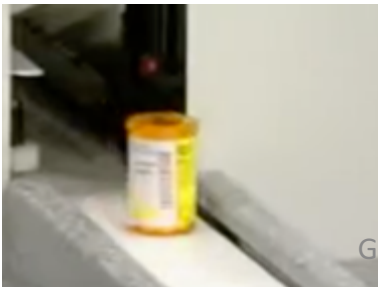
# Integrating the values of sustainable development, and of equality, into the vision of the 4<sup>th</sup> Industrial Revolution

*Elizabeth Pollitzer*

# The Future according to the (WEF) vision of the 4<sup>th</sup> Industrial Revolution: interconnected cyber-physical systems, and omnipresent advanced ICTs



- Improved productivity
- more efficient manufacturing
- new markets for ICTs
- new value chains
- new business models



# The WEF vision of the 4<sup>th</sup> Industrial Revolution is driven by the priorities of ICT technology executives. It has inherent bias that prioritises socio-economic advancement in the Global North

## When will the future arrive?

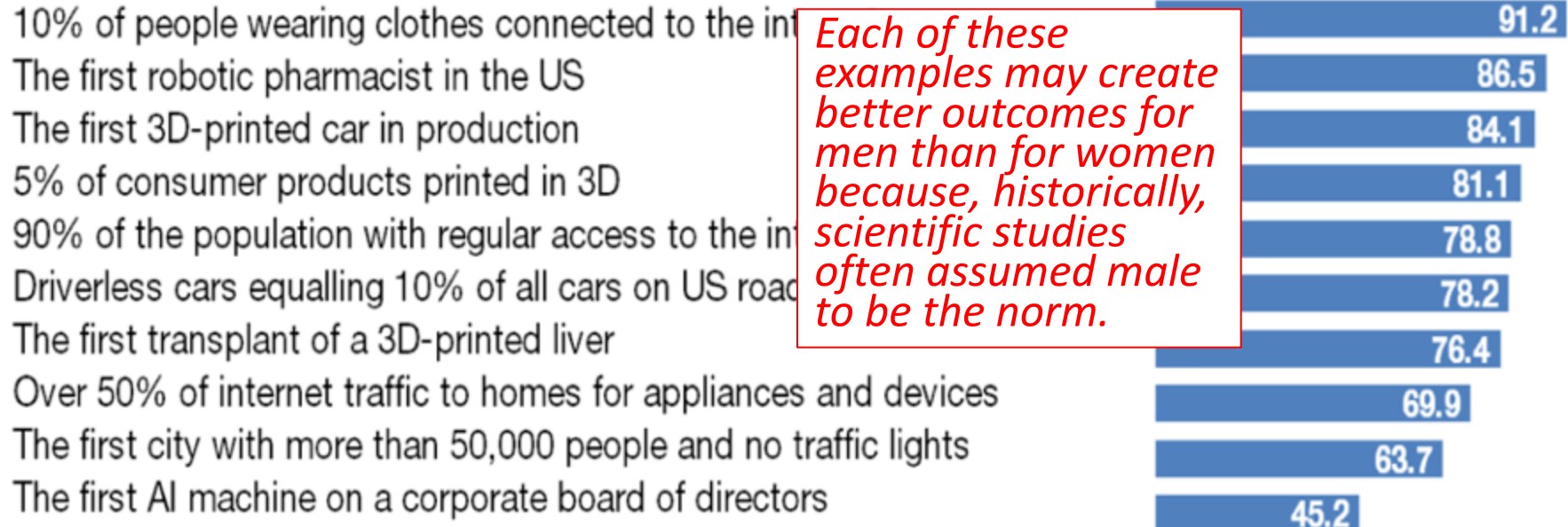
800 technology executives and experts from the information and communications technology sector were surveyed as part of our *Technology Tipping Points and Societal Impact* report



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OF THE WORLD

### Technology tipping points expected to occur by 2025

### Percentage of respondents





# The Present: according to the UN Sustainable Development 2030 Agenda (SDGs) – the majority of people have not yet benefited from the 2<sup>nd</sup> Industrial Revolution, or experienced the Internet



*The WEF vision of the 4<sup>th</sup> Industrial Revolution is not concerned with SDG targets. It is gender-blind, and poor-blind.*

# Will the 4<sup>th</sup> Industrial Revolution create an insurmountable digital inequality between the Global North and the Global South?

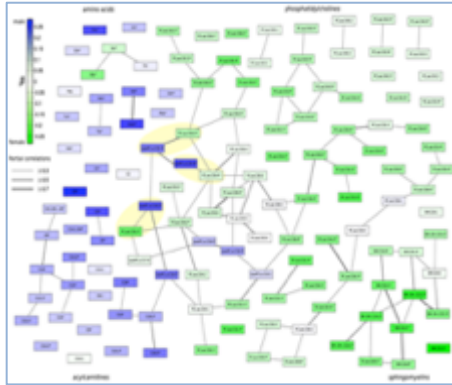




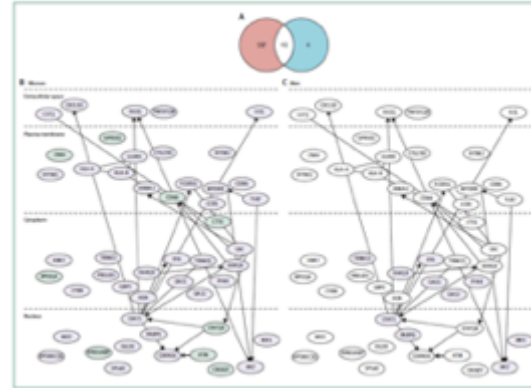
# We need a gender- and context-sensitive 4<sup>th</sup> Industrial Revolutions to tackle **societal and environmental challenges**

- Feeding the expanding world population
- Making mega cities more efficient, and human-friendly
- Responding more effectively to the more than 700 natural disasters that occur each year
- Preventing 6 million car crashes happening every year
- Preventing 5 million children dying from lack of safe water
- Dealing with new infectious diseases, and epidemics
- Preparing communities for climate change effects
- Stopping illegal trade in protected species, environmentally destructive land use, and loss of biodiversity
- Creating safe biotechnologies for agriculture
- Protecting the sustainability of natural ecosystem and services....

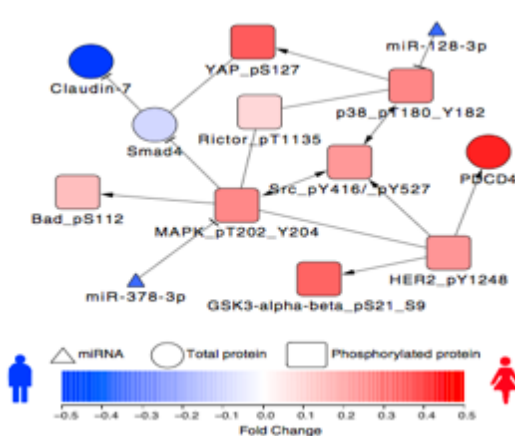
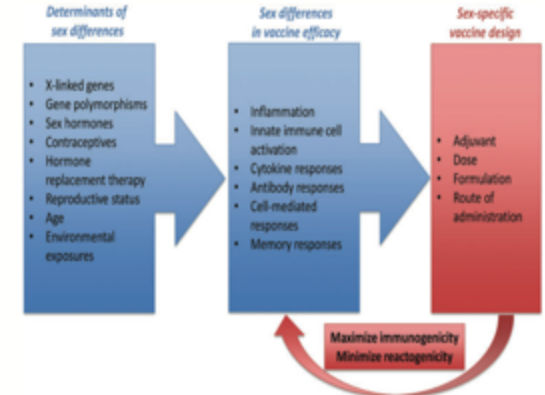
# Understanding basic biological differences between women and men will improve quality of medical diagnostics, treatment, and prevention



*Metabolic profiles of women and men are different, so they need separate biomarkers*



*Women mount a stronger immune response to vaccination. Therefore, vaccine design should match biological sex, and vaccination strategies may have to target women first*



*Protein expression in many cancer types is different in women and men, which suggests different approaches to diagnosis*

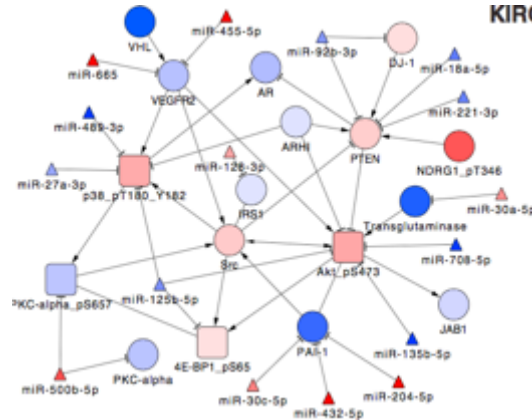
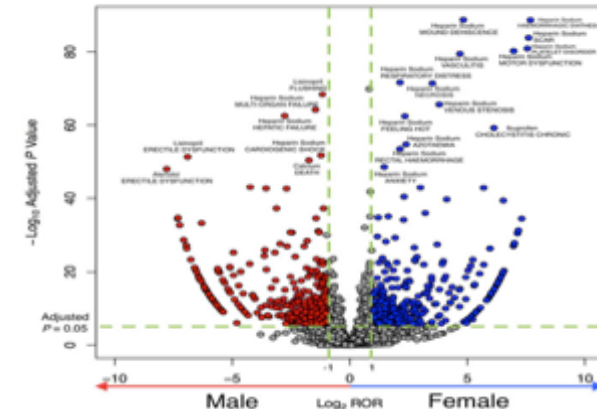
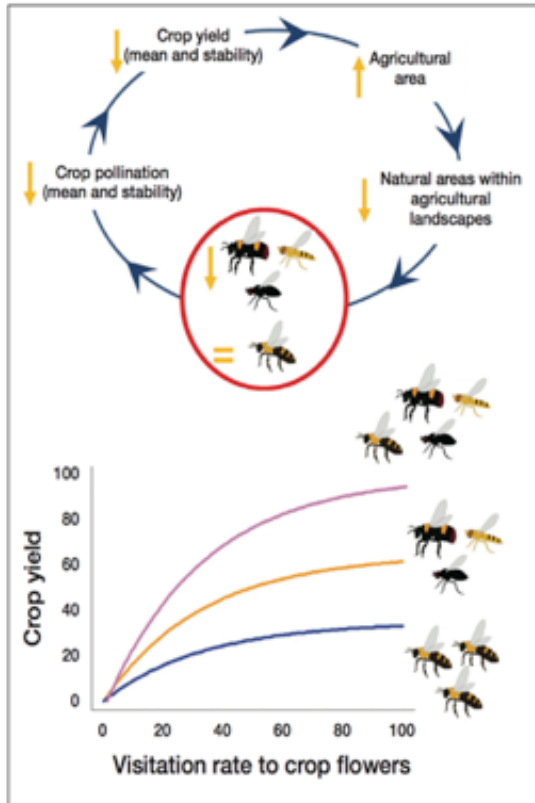


Figure 2: Volcano Plot of Significant Adverse Drug Event (ADE) Signals.



*Many drugs produce different adverse drug effects in women and men, often with worse outcomes for women*

# Understanding plant reproduction can improve resilience and yields of food crops, and protect biodiversity



*Pollinators improve yields and quality of plant food – knowing how plants attract pollinators can improve these effects. Beekeeping can be a source of income for women farmers.*



*Sex determination in flowering food plants has to wait until the plant flowers. In the multi-use kokum tree this can not be done until the tree flowers at 10-12 years.*



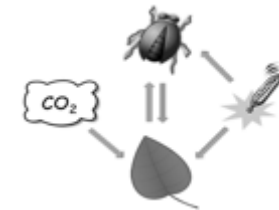
*Understanding pathogen resistance of male and female flowers help maintain healthy crops.*

GS12-LAC, 6-7 Dec 2017, Chile

**Figure 1: Maize Production in Nigeria- 1984-2008**



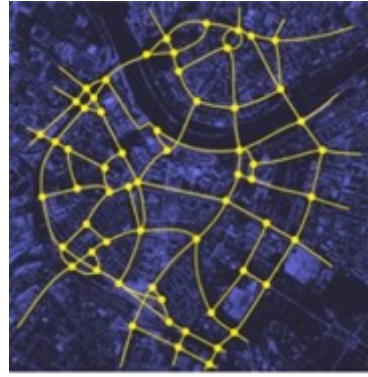
*Hybrid maize gives higher yields and is produced by crossing two different parental lines. Increase in temperature due to climate change will reduce fertility by making males sterile*



*Climate change increases CO<sub>2</sub> levels, which impacts on the metabolism of plants and insects and their interactions including reproduction*

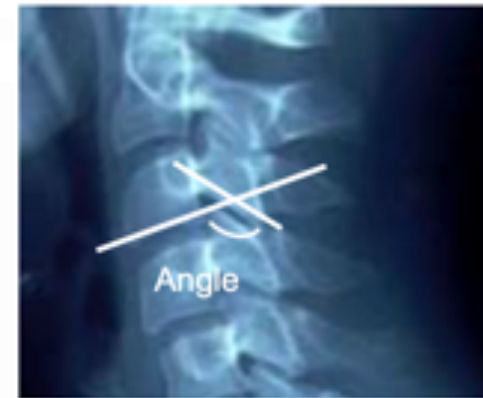
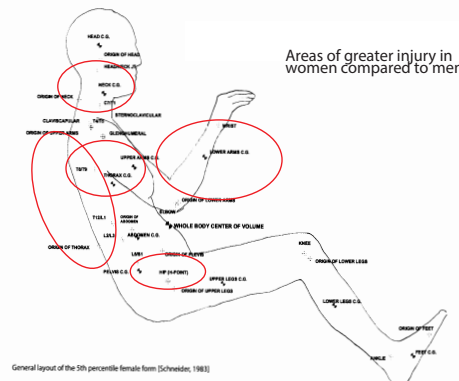
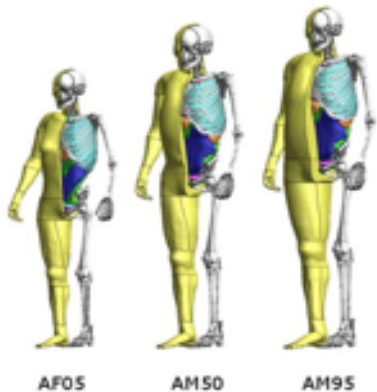


# Understanding different mobility needs and behaviours of women and men can **improve quality and safety of transport**



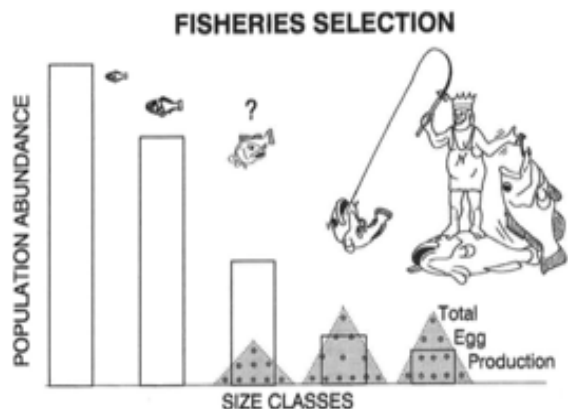
*Men used to drive and women did not. Roads were designed for men, to get fast from home to work.*

*Transport should support different mobility needs of women and men, and of the elderly. Women tend to make more stops when using a car.*



*Women have 47% higher risk of injury than men in a car crash. Bio-fidelity between female injuries in real and laboratory crashes is poor. Biomechanical response models do not account for morphological differences between women's and men's bodies.*

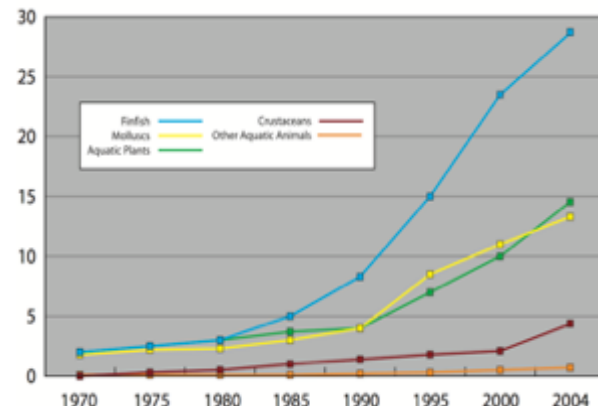
# Understanding reproduction and maturation of fish will improve sustainability of marine ecosystems, aquaculture methods, and create socio-economic opportunities of women



*Managing fish stocks and protecting marine biodiversity. Old female fish produce lots of high quality eggs, which is important for maintaining population size.*

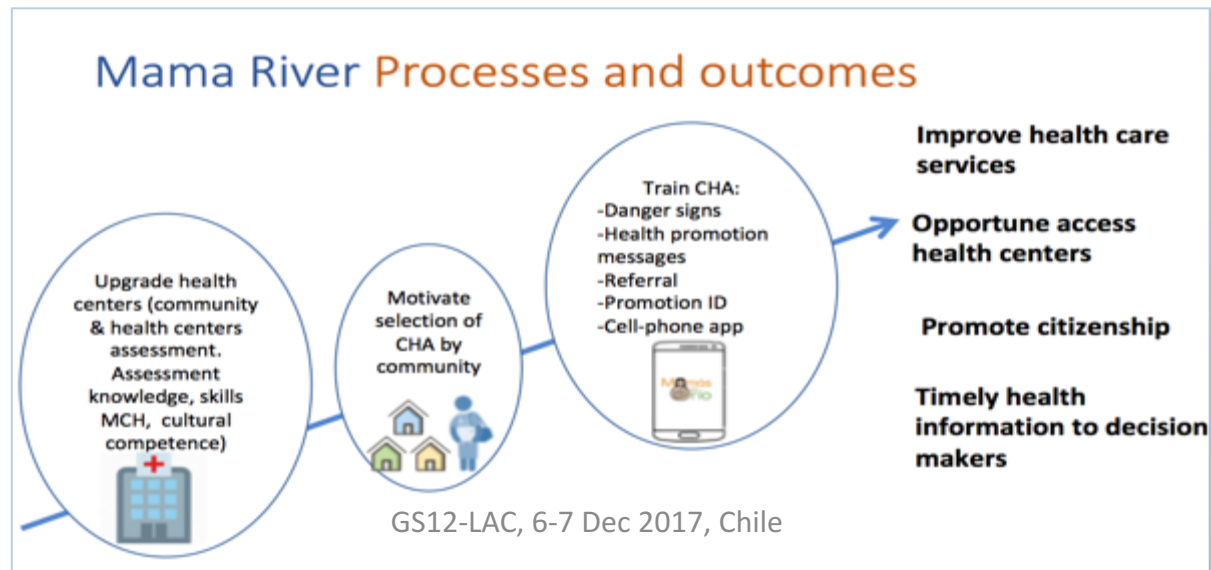
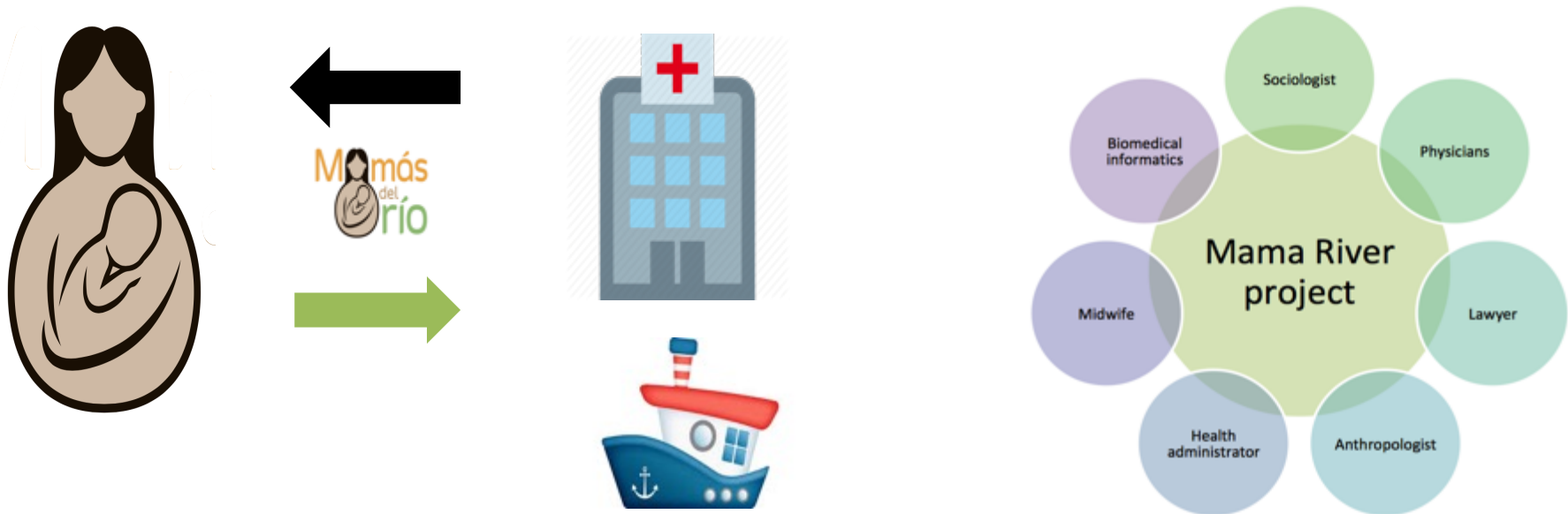


*Women make at least half of the inland fisheries workforce. Their involvement in value chains can provide much needed socio-economic improvements for them and their family*



*Health benefits of fish consumption. In some species males grow faster in others it is the female. Farmers use hormones to control sex of the fish, which is bad for health and the environment*

# Best Practice 1: Mama River project – interdisciplinary approaches to improve maternal health in the remote Amazon regions





# Best practice 2: GREAT project – interdisciplinary approaches to improve resilience of crops and promote food security

## Gender-Responsive

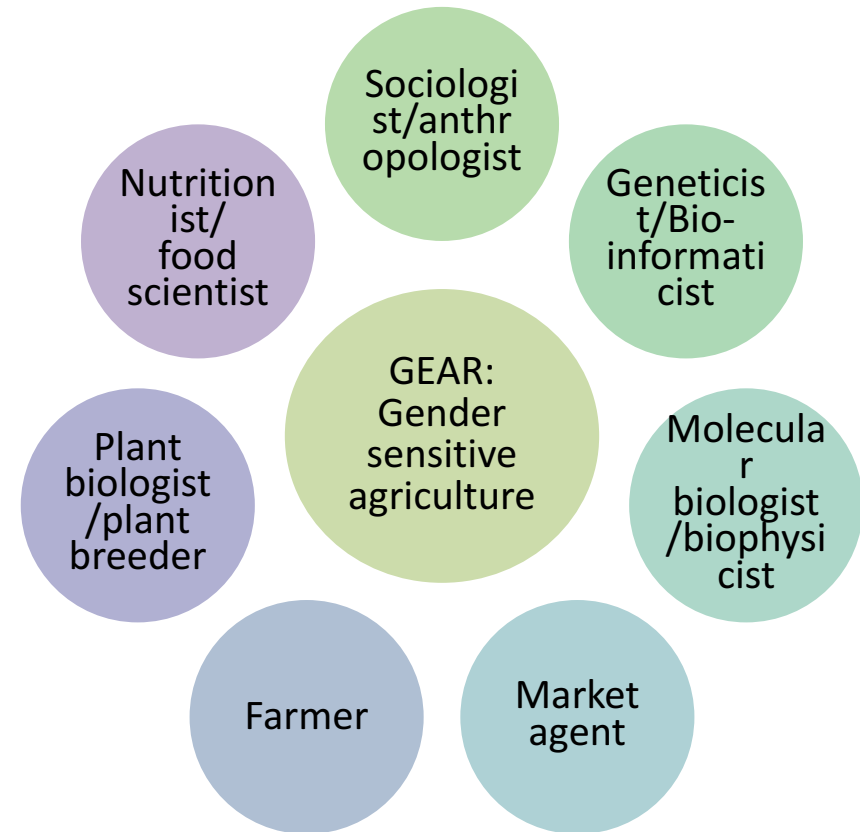
## Agricultural Research Courses

### Overview

GREAT is a multi-year project aimed at equipping agricultural researchers with the skills, tools and theory to address gender issues in their research projects. The GREAT approach is centered on training courses that are tailored to specific disciplines and value chains, offering gender training linked to practice in agricultural research, drawn from attendees' own ongoing projects. Through these courses, GREAT equips research teams with tools and skills to act, and move beyond "gender sensitization." Researchers attend GREAT courses in project teams, from research institutions across Sub-Saharan Africa.



*GREAT equips researchers to create more inclusive and effective agricultural systems by addressing the priorities of both women and men in sub-Saharan Africa (SSA).*



# Limiting the influence of gender to 'empowerment' and 'human rights', overlooks the role of gender in achieving all the SDG targets



The way indicators are selected means that gender is restricted to a small number of targets. **Need other ways of monitoring progress on the SDG agenda for women**, e.g. local data and case studies



2016, The Gender Summit **experts have shown that gender issues are relevant to achieving the targets of all 17 SDGs**, and that much of good knowledge is already available

IDAB 20 October 2017



2017, the ICFS experts' report focused on the interconnections between SDG 5 and SDGs 2, 3 & 7, from a gender equality, equity, and empowerment perspectives. **No recognition of the full scope of sex/gender influence**

# Creating the GS Coalition to improve *Knowledge* and *Know How* by connecting research and development communities

Research Communities




**Gender Summit**  
community:  
Europe, Africa,  
Asia Pacific,  
North America,  
Latin America,  
Arab World –  
6000 experts



**Member of  
Sustainable  
Development  
Solutions Network  
(SDSN)**

*BETTER EVIDENCE*



*BETTER PRACTICE*

**CREATING THE COALITION IS  
MADE POSSIBLE THROUGH  
THE SUPPORT FROM THE  
ELSEVIER FOUNDATION**

GS12-LAC, 6-7 December 2017, Santiago,  
Chile

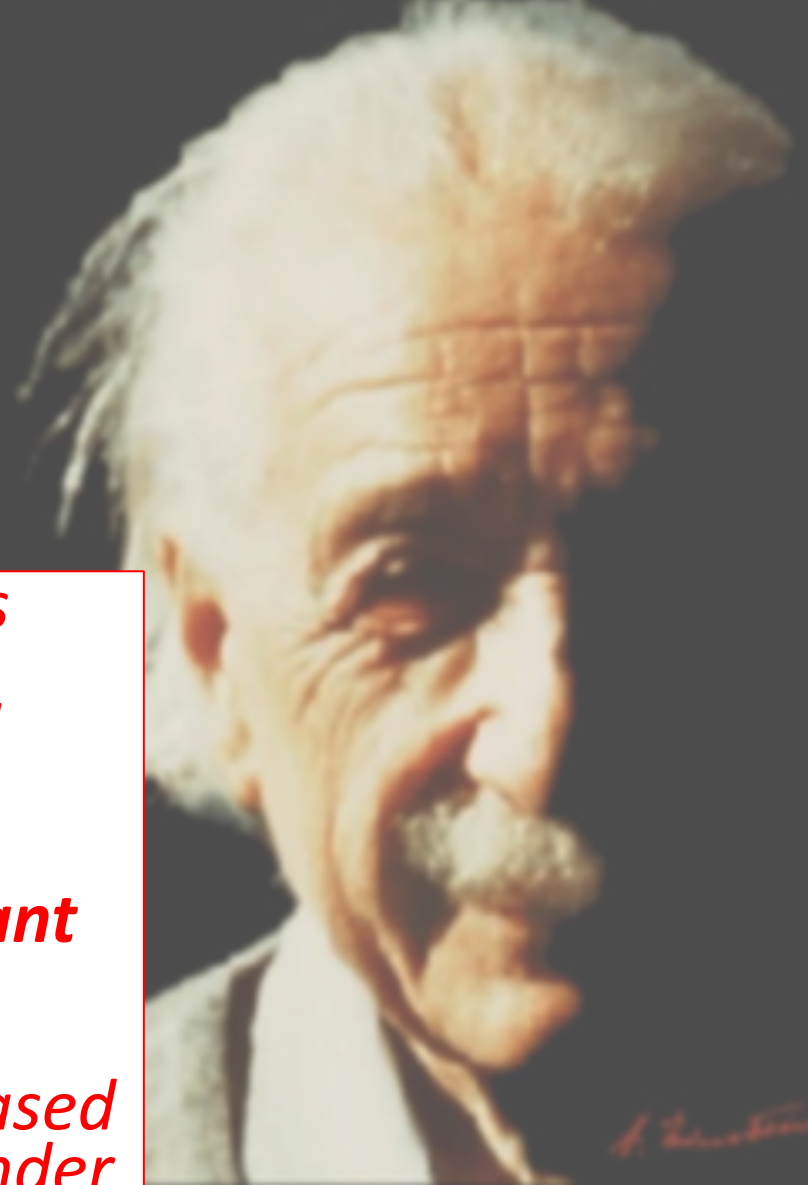


Development Communities



# CONCLUSIONS & THANK YOU

"We cannot solve our problems with the same thinking we used when we created them"



*We need technological revolutions based on:*

- 1. Gender-sensitive, socially and environmentally responsible research and innovation;*
- 2. More women making important socio-technical decisions;*
- 3. Interdisciplinary and inclusive approaches to intervention based on understanding how sex/gender impact on quality of outcomes*