scale2save

- Working group: Carlos, Davide, Kevin, Pete, Michael, Nick, Maja, Mareen, Gert, Christophe, Melvin

- Work on a position – review paper (1st draft 31.12.2017)

- Potential journals:
  - SESMO (new journal)
  - Natural Sustainability (new journal)
  - Nature (check with 500 words first)

Key objectives/questions

- Why and when is an agent-based approach important/relevant in a 'global SES model'
- What are the needs of global SES models (gSESm)
- Do they exist, and how did they do it?
- Why to look at cross-scale dynamics in global SES, e.g. global change (water, land use, food-energy-systems)?
- How to identify/choose the (most) relevant actors in gSESm's, e.g. level of aggregation/ nested? (state-of-the art)
- What agents do we want to represent (simulate) at local…global level in gSESm's? (state-of-the art)
- (Who is & would be the audience for that?)

Potential roadmap/Discussion points/Suggestions/Way forward

- How to put (statistical, big data, data mining, global datasets) social actors into a gSESm's?
- How to implement (model challenges: design, software, data/information, computation systems, interpretation) cross-scale models of social-ecological complexity/systems?

- Keywords: Conceptualising, ABMs, cross-scale, global SES

Background/Statements

- Ecological models (e.g. climate change) focusing on global scale are more advanced in terms of function details then current (global) ABM‘s
- CGE models focus on ‘homo economicus’ but do not ‘mimic/represent’ the social behaviour/interactions
- Are simple cross-scale models vs. ‘the big global model’?
  - When is it appropriate to use ABM’s, at what level/scale/SES system?
- ‘Big data’ offer new avenues of data mining

Result needs

- To cross scales: Classification/taxonomy should identify ‘spatial-hierarchical’ levels, which could be switched on/off depending of focus on spatial-hierarchical levels; depending on actors involvement/ importance

Action points/Time line

- **All:** Upload references to shared Google folder → **Thu, 11.05.2017**
- **ML:** Propose list of categories for literature review and 'matrix', e.g. *literature type, purpose, model type, research question(s) covered, scales included, representation of human decision making/ecological system, level of aggregation of actors/processes/cross-scale…* → **Thu, 18.05.2017; → need: shared excel/doc**
- **All:** Add/feedback on category list & decide on 'tentative list' → **Wed, 15.06.2017; if necessary Skype/WebEx, Fri, 30.06.2017**
- **All:** Review 5-10 papers, categorise paper according to 'matrix list' → **30.09.2017**
- **Some:** Meet at Social Simulation Conference Dublin →**25.-29.09.2017**
- **All:** Cross-check contents of category list & refine (& reduce category list if necessary; requires potentially several rounds of refinement) → **Sun, 15.10.2017**
- **All:** Keep up momentum and work on manuscript → **31.12.2017**

Individual responsibilities & tasks

- Review (&put) papers to shared folder on:
  - Kevin: Global ABM SES models
  - Michael: Wicke et al (CGM and others), IAM, Limits to growth
  - Davide: Perspective of global-scale systems, e.g. interactions between different SES
  - Carlos: Representation of spatial features/entities in ABM's
  - Maja: Cross-scale natural resource management
  - Pete: Cross-scale ABM's focusing on 'S' only (e.g. social behaviour)
  - Mareen: Climate change impacts
  - Melvin: Land use change
  - Gert: Social behaviour
  - Gary: Global trade/Food security modelling
  - Christophe: Representation of spatially-explicit features of ABM
- Review/Feedback paper concept:
  - Nick, Gary (other Lorentz participants)
- Manuscript coordination:
  - Melvin