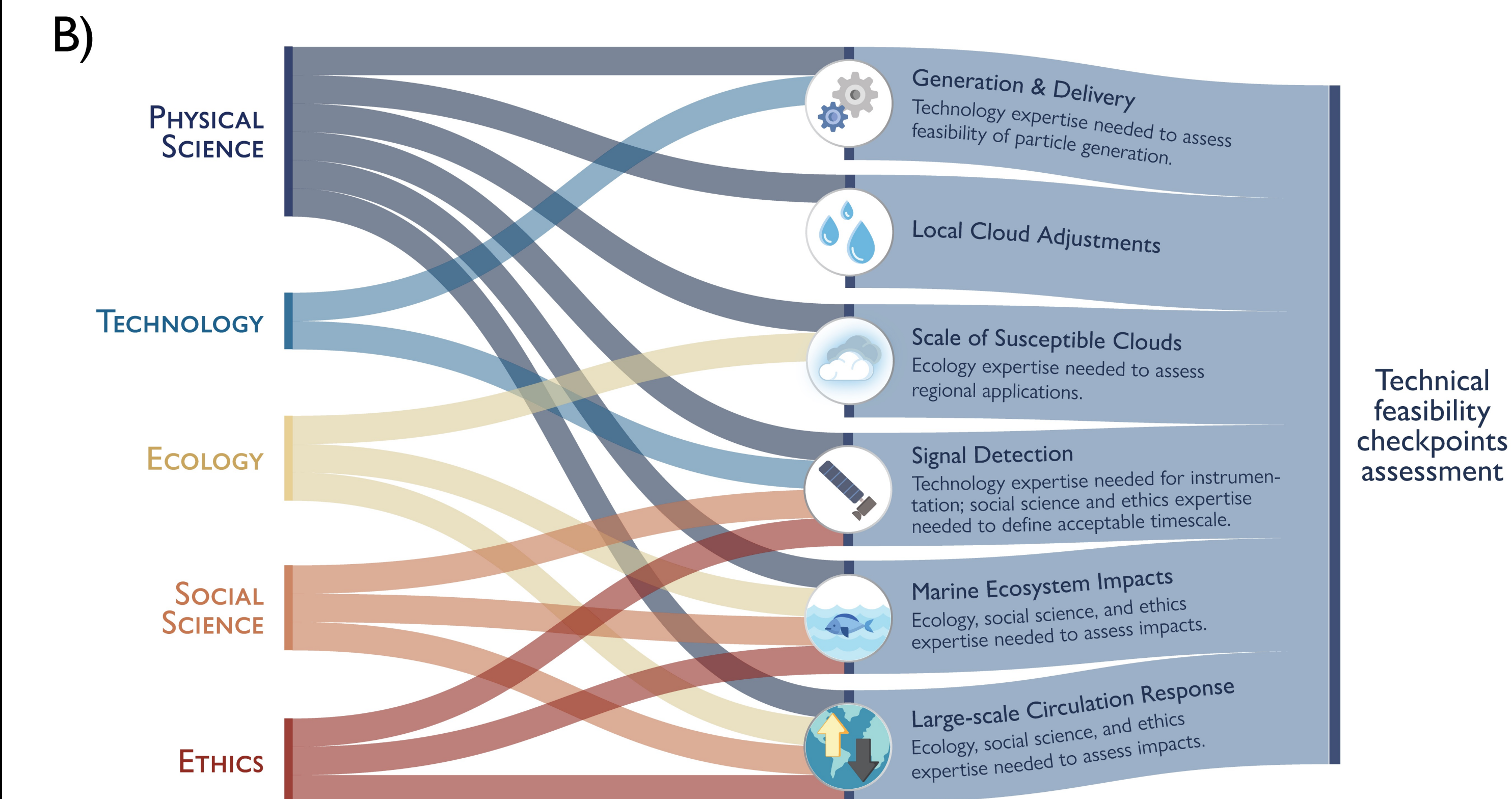
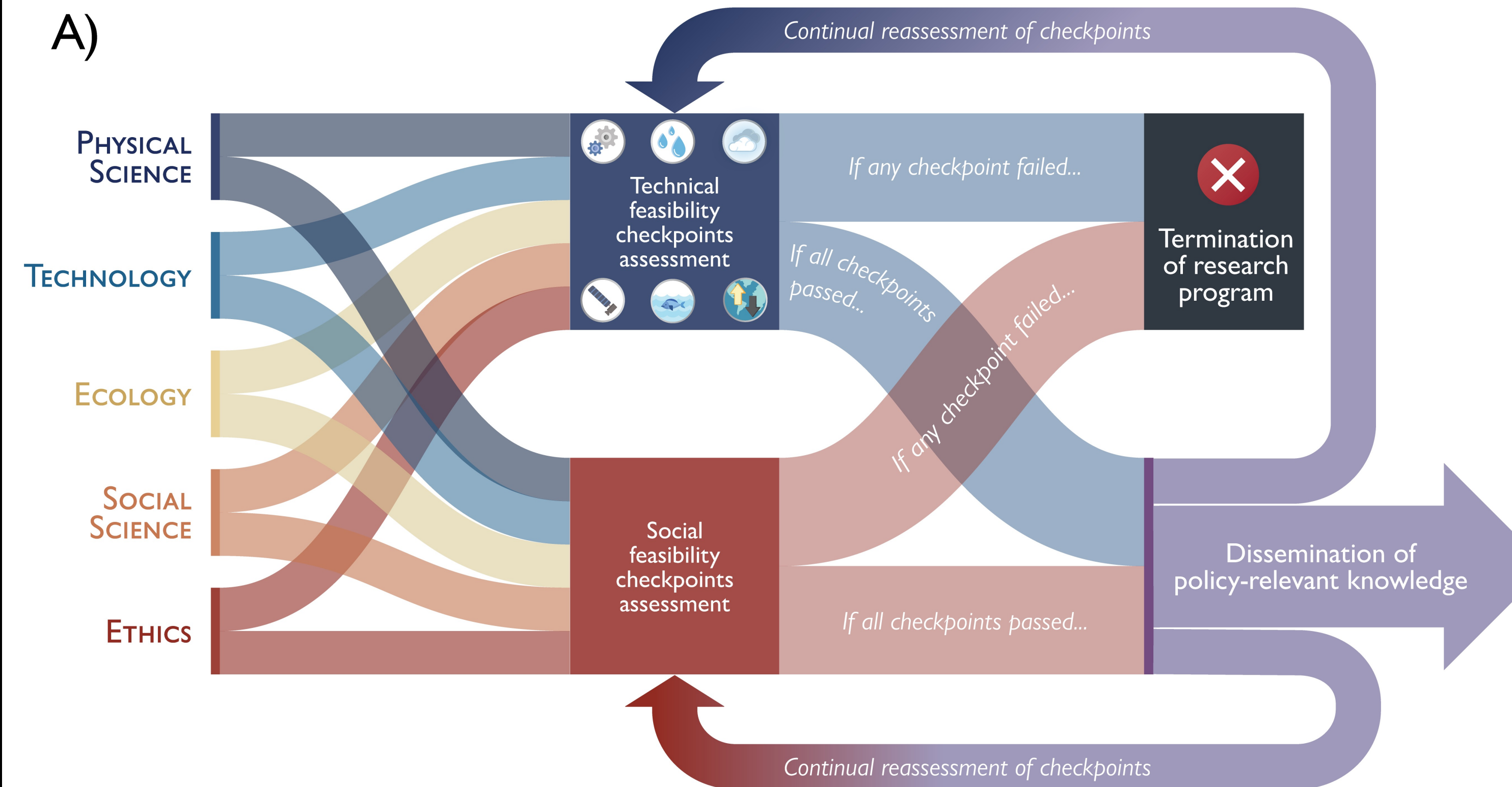
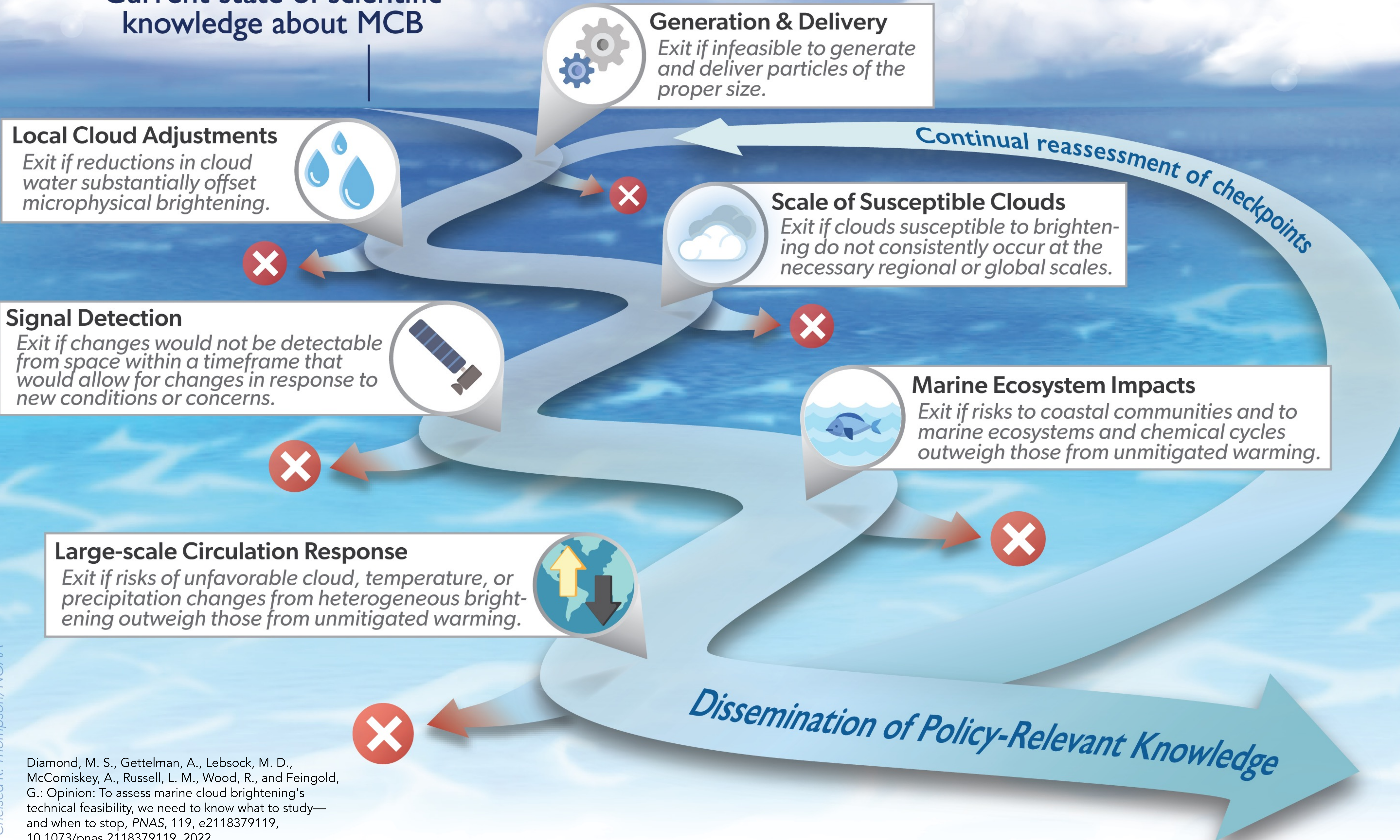


PHYSICAL SCIENCE CHECKPOINTS IN MARINE CLOUD BRIGHTENING RESEARCH

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Current state of scientific knowledge about MCB



Marine cloud brightening (MCB) is a proposal to offset some effects of global warming by seeding clouds with salt particles, producing brighter clouds that reflect sunlight back to space and thus cooling the Earth. Although there is a consensus that reducing greenhouse gas emissions is the most important step toward combating climate change, some scientists and policymakers have proposed that "solar climate intervention" proposals like MCB may be desirable to limit the effects of warming while other policies scale up. However, there are currently no formal governance structures determining how research into MCB should proceed, raising the risk of an unbalanced or misguided research portfolio susceptible to "lock-in".

We propose that there exist six physical science "checkpoints" (left) that must be addressed for MCB to be viable within the broader portfolio of climate policies. Each checkpoint is associated with an "exit ramp" that would discontinue the MCB research program if taken (above, A). Expertise in engineering, ecology, social science, and ethics as well as consultation with relevant stakeholders will also be necessary to assess the checkpoints and determine if an exit ramp should be taken (above, B).