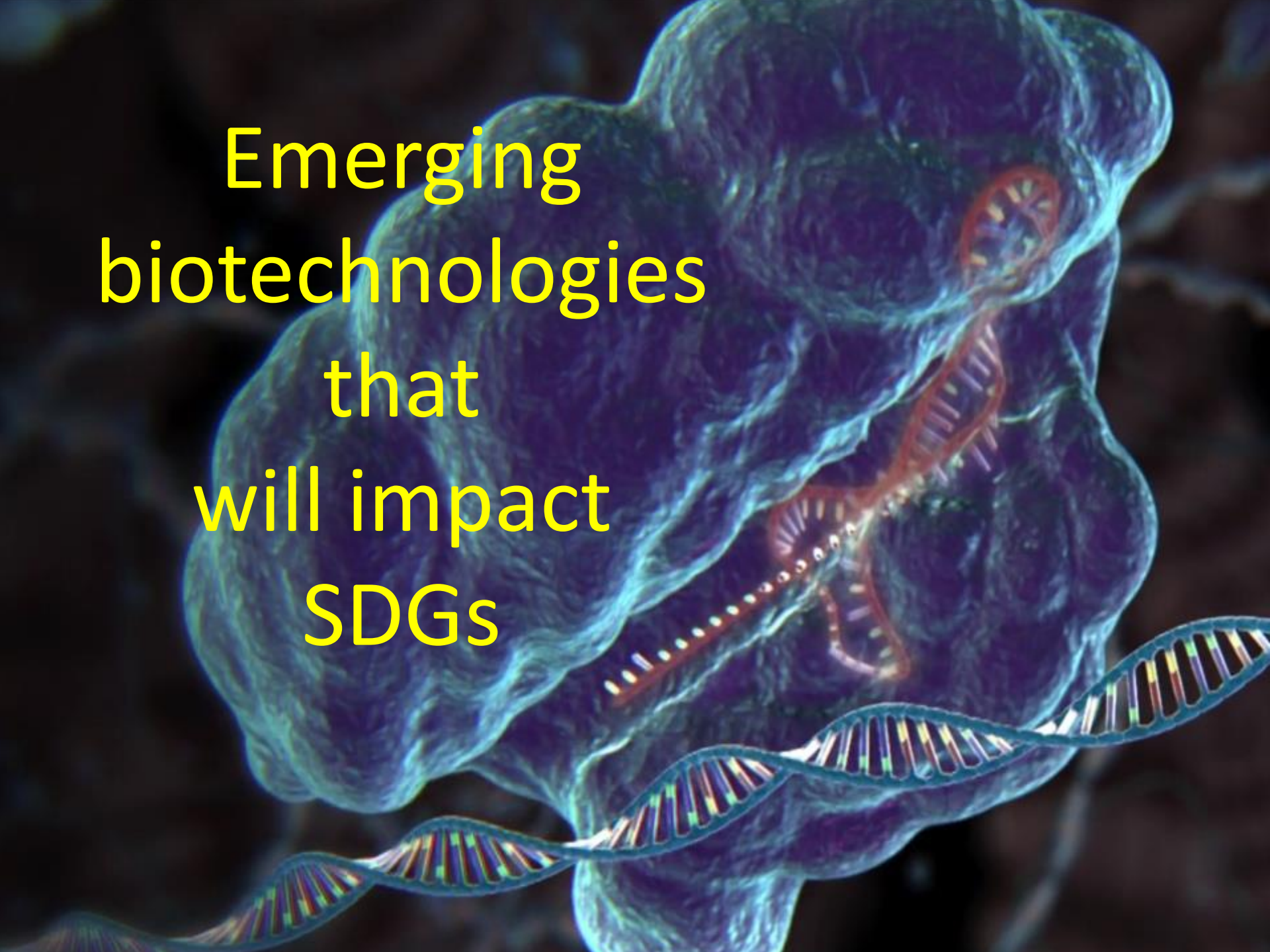


Emerging
biotechnologies
that
will impact
SDGs



Top Ten

1. Synthetic Biology (high throughput engineering)
2. Improvements in DNA sequencing technologies
3. High capacity DNA synthesis
4. Chromosome building
5. Precise editing of DNA (e.g. CRISPR)
6. Cell-free systems
7. Metagenome and microbiome engineering
8. Tissue engineering (lab grown organs and meat)
9. Improved imaging systems for living organisms
10. Modeling (the virtual cell)

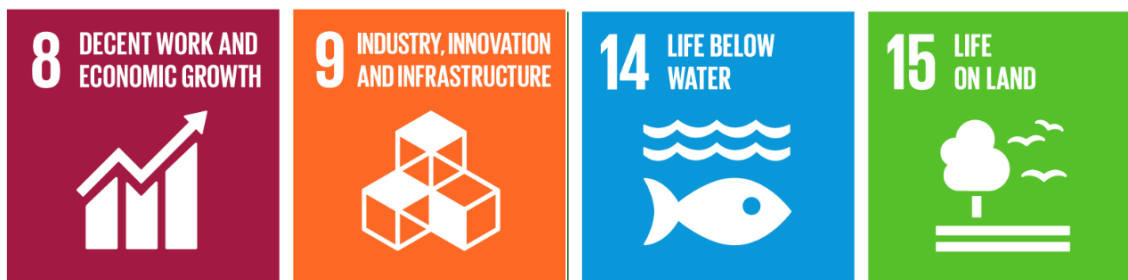
What are the most significant sustainable development impacts of biotechnology?

- Improved crops (hardiness, nutrition)
- Improved livestock
- More sensitive and comprehensive diagnostics
- Personalized medicine (genome & microbiome)
- New biotherapies (e.g. immunotherapy, gene therapy)
- Targeted, speedy vaccine production
- Genetic modification of disease vectors
- Synthetic replacement organs
- Biofuel production
- Biomanufacturing (more sustainable)
- Bioremediation



What are the most significant sustainable development impacts of biotechnology?

- New products and innovation opportunities that may lead to economic growth vs. disproportionate distribution leading to inequalities
- Ecosystem stewardship vs. destruction



Recommendations for action:

Start with Youth- Fund science education and build internal capacity via the next generation through participation in international programs such as iGEM, Maker Faire.

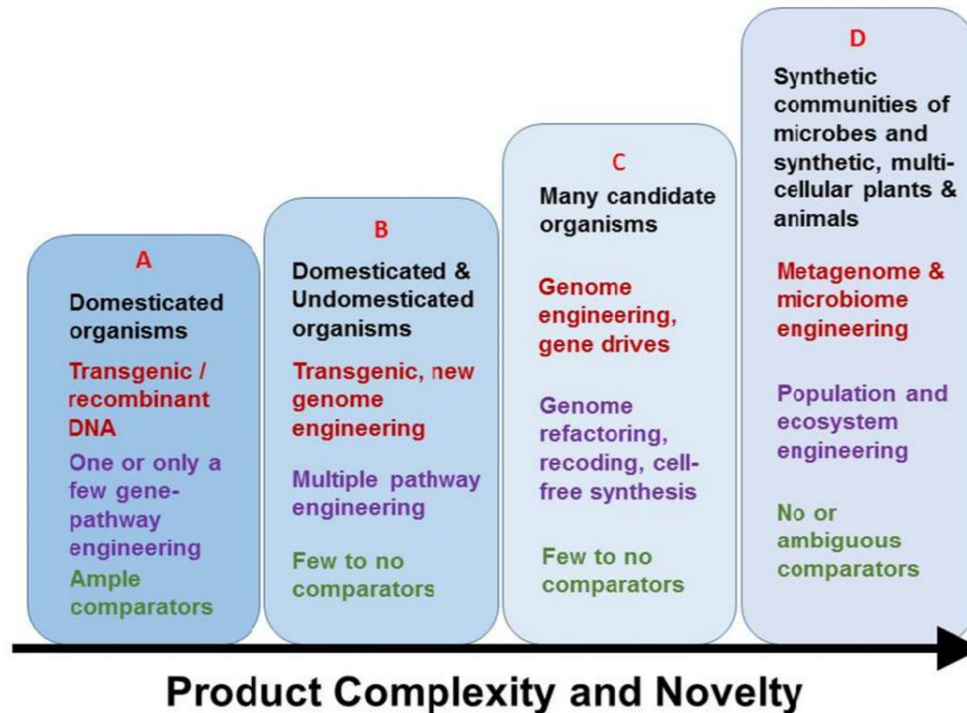


Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs
New York, 15-16 May 2017



Recommendations for action:

Support the development of international methods and standards for risk evaluation through collaboration of both funding and regulatory agencies



From NAS 2017 report *Preparing for Future Products of Biotechnology*

Recommendations for action:

Democratize biotech through open science efforts both local and national levels (e.g. BioBricks Foundation open licensing, community labs, development of tools and infrastructure). Actions do not have to be over-thought!



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