

Sustainability Strategies Sampler: Discussing Different Visions of Sustainable Futures

Sustainability Salon

24 August 2015

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Meeting the needs of the present
generation without compromising the
ability of future generations to meet
their own needs.

as defined by the Brundtland Commission, 1987

How can we ensure a prosperous future not
just for our own children, but for all
children, of all species, for all time?

William McDonough

What is “Sustainability?”


Bruntland –

Carries an implication of intergenerational justice – we can’t steal from our grandkids to pay our rent now.


However, it sounds like it was written by a committee, doesn’t it?

That’s why I like McDonough’s more poetic approach.


Looming Stresses → Doom-and-Gloom



Peak Oil



Water Shortages



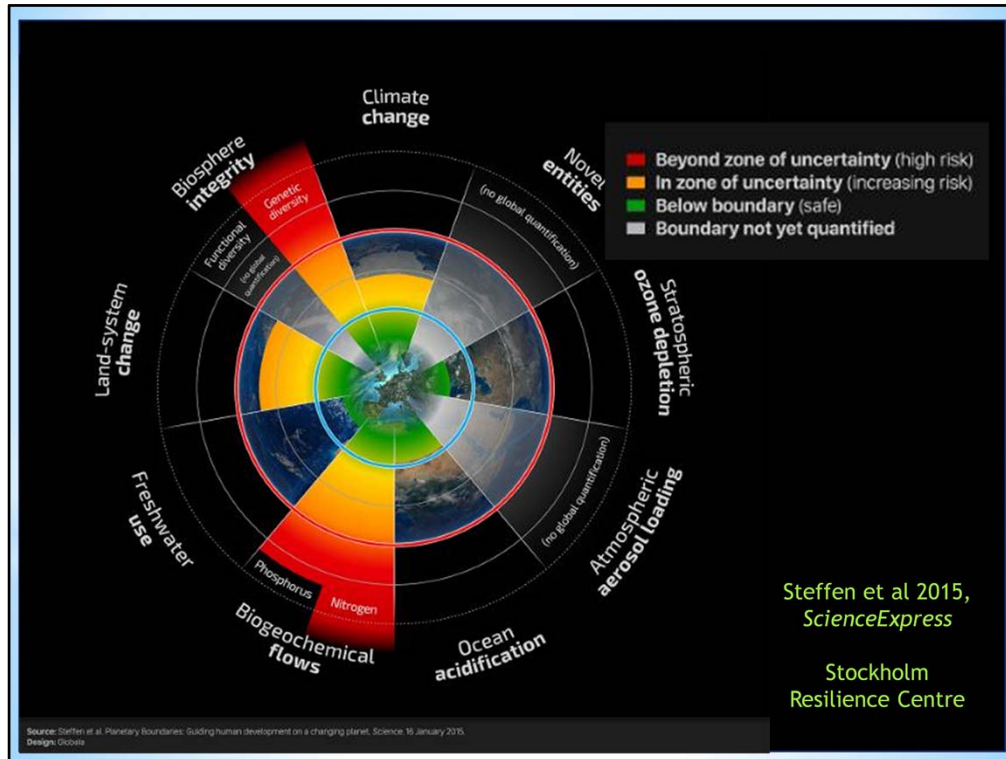
Climate Change

...foreshadow further food production constraints, price rises, and increased political unrest unless dealt with.

From L. Brown (2009) *Plan B 4.0:
Mobilizing to Save Civilization*

It's pretty clear to most scientists that what we're doing now isn't remotely close to sustainable.

Note the subtitle of Lester Brown's book – he has a whole series about saving civilization. (Earth will be fine, humans as a species are very tenacious and will probably survive... but civilizations are fragile, complex human constructions and notoriously prone to collapse.)



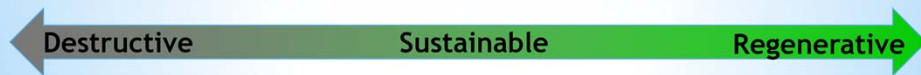
Right now, we appear to be well outside of the “safe operating space,” that zone where we can be reasonably sure that we are not compromising the future, in terms of climate change, nitrogen cycles (soil fertility), and especially biodiversity loss. And this doesn’t even begin to address the problem of using-up non-renewables that form the basis for our technological civilization (fossil fuel, metals and minerals).

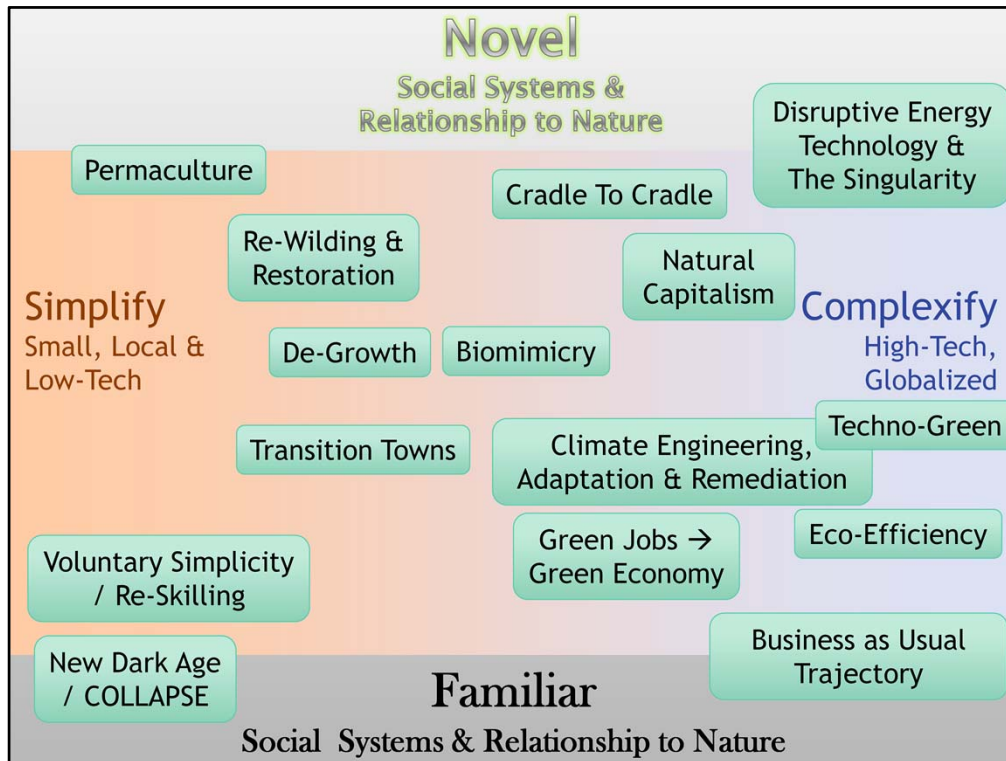


How then shall we live?

Which way to sustainability?

Is sustainability enough?





From Futures Studies: Multi-Criteria Forecasting (Shell scenarios 1970s?)

2 factors → 4 scenarios ; Hold other factors constant

Describe 4 quadrants – what’s at the corners?

I’m using this structure not to build new future scenarios, but to organize the ideas of various groups working toward sustainability.

I chose these two axes:

Simplification: solutions that are largely about reducing technological, economic and social complexity, often with a large emphasis on the slow and the local

Vs. **complexification** following the current trajectory of increasingly complex technologies, with long and convoluted global supply chains and distribution networks (better, faster, sometimes cheaper)

Other axis **Familiar** (not so much in terms of the specific technology, since we are increasingly familiar with rapid improvements, and the general expectation is that my cell phone or computer in 5 years will be much more sophisticated than the one I have now); really about how we relate to our technology, how our economy functions, how our society deals with issues of power and progress. I include “falling back” as Familiar, if it is largely envisioned as a return to something that was historically familiar.

Vs **Novel** where our technological, economic, political and/or social structures are doing something that they’ve never done before

I’ll examine the different kinds of movements that populate each of these quadrants, as I see them, starting with the simple and familiar, moving to the complex and familiar, then up into complex and novel and over to simple and novel.

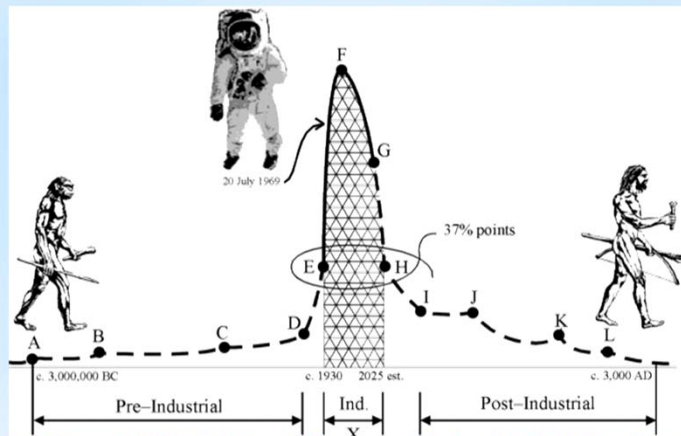
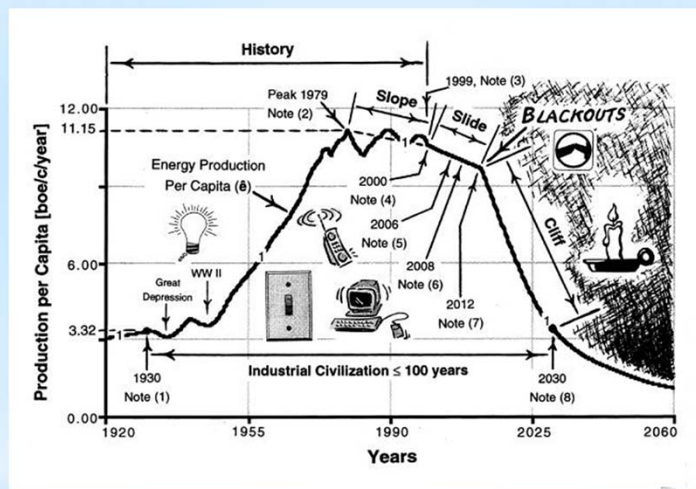


Figure 1. The Olduvai Theory of Industrial Civilization

Collapse?

The Olduvai Theory: Sliding Towards a Post-Industrial Stone Age
 Richard C. Duncan, Ph.D. - Institute on Energy and Man, - June 27, 1996
<http://www.dieoff.org/page125.htm>

(R Duncan: power system engineer in petroleum industry)
 heard that most Civilizations peak when energy per capita peaks (e.g. Mayan and Egyptian pyramid-builders); civilizations then collapse; usually next civ comes along in a few hundred years
 maybe Industrial Civ is a one-off b/c using non-renewable fossil energy pocket-using up that and rare minerals so they won't be accessible for 100K-100M yrs
 our energy use per capita – looked like it peaked in 1970s, collapse probably right around the corner

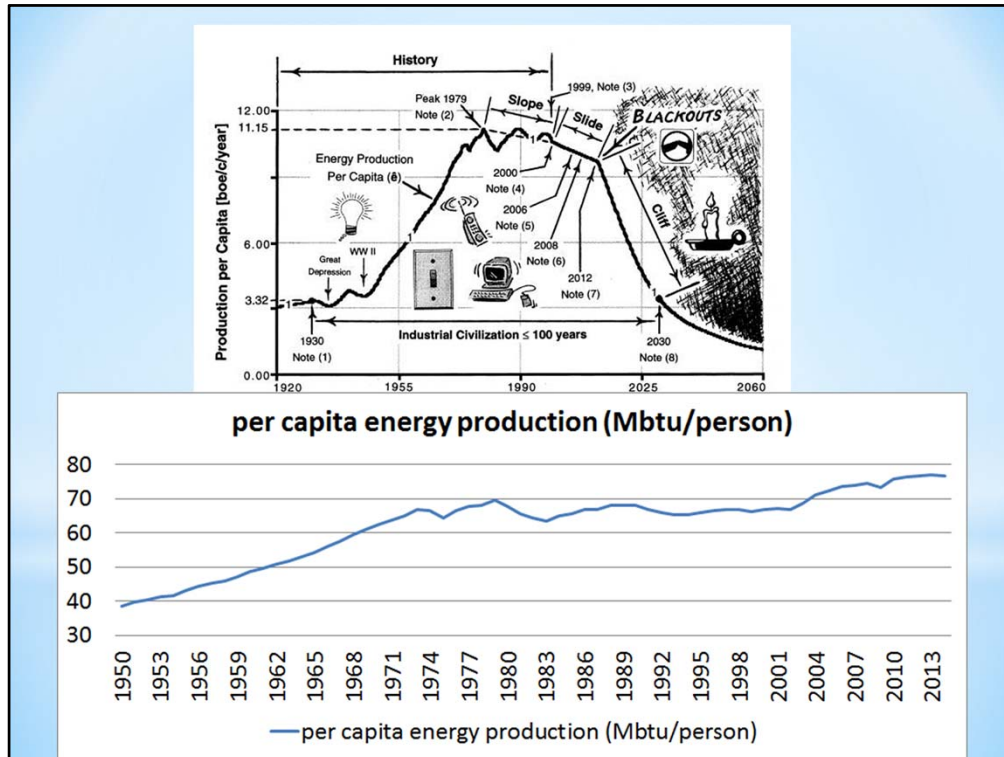


Collapse (when)?

Duncan, 2009 "The Olduvai Theory - Toward Re-Equalizing the World Standard of Living "

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But then per capita energy use started to climb again, as energy use in emerging economies grew rapidly even while developed economies were constant or declining, pop growth slowed somewhat



[World Energy production data compiled by Resilience.org

2012 <http://www.resilience.org/stories/2012-02-16/world-energy-consumption-beyond-500-exajoules>

/pop data from UN <http://esa.un.org/unpd/wpp/DVD/>]

1973: 66.92322727

1979: 69.49874478

1983: 63.34512026

1989: 68.06117859

1994: 65.34022801

2002: 66.94381495

2008: 74.52082725

2009: 73.20970172

[energy data from 2011-2014 is transformed from BP production data - not good match, so I fudged]

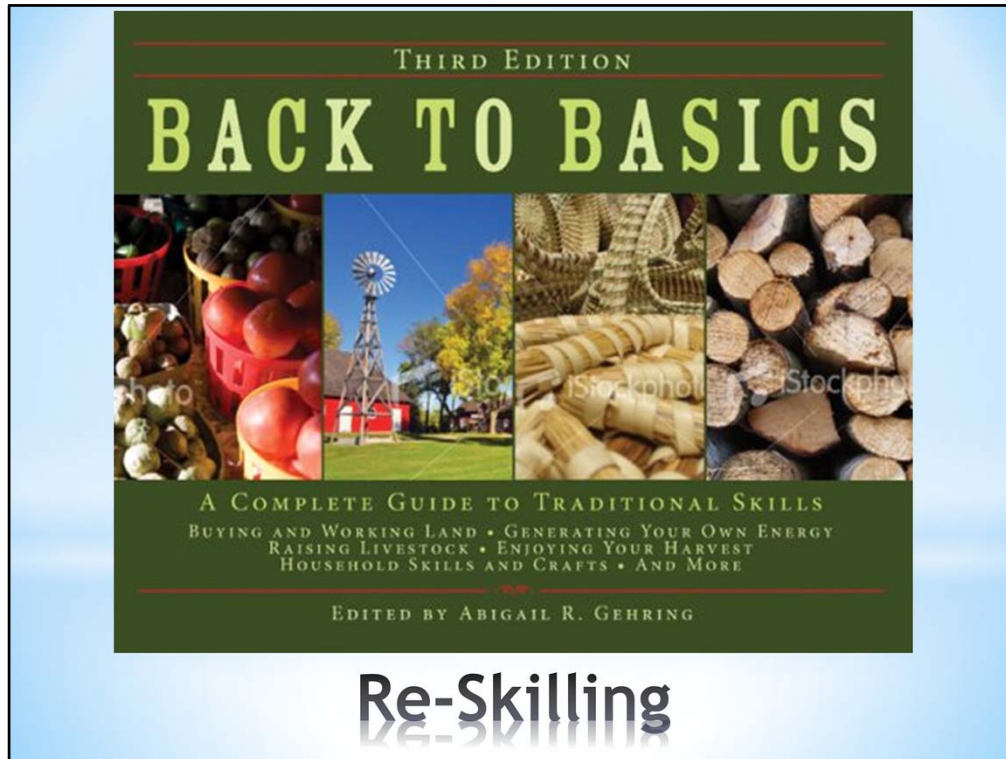
2013: 76.9195476

2014: 76.7493067


Does it subtract out energy invested to extract/capture energy? (don't think so, this is probably gross energy per capita, **not net**)



Voluntary Simplicity movement; reduce your personal footprint, get off grid and out of money economy, minimize technology reliance, etc. ; long been part of some religious communities like Amish Mennonites in US



learn almost-lost arts from a century ago (beekeeping, weaving, sewing, canning and dehydrating food)



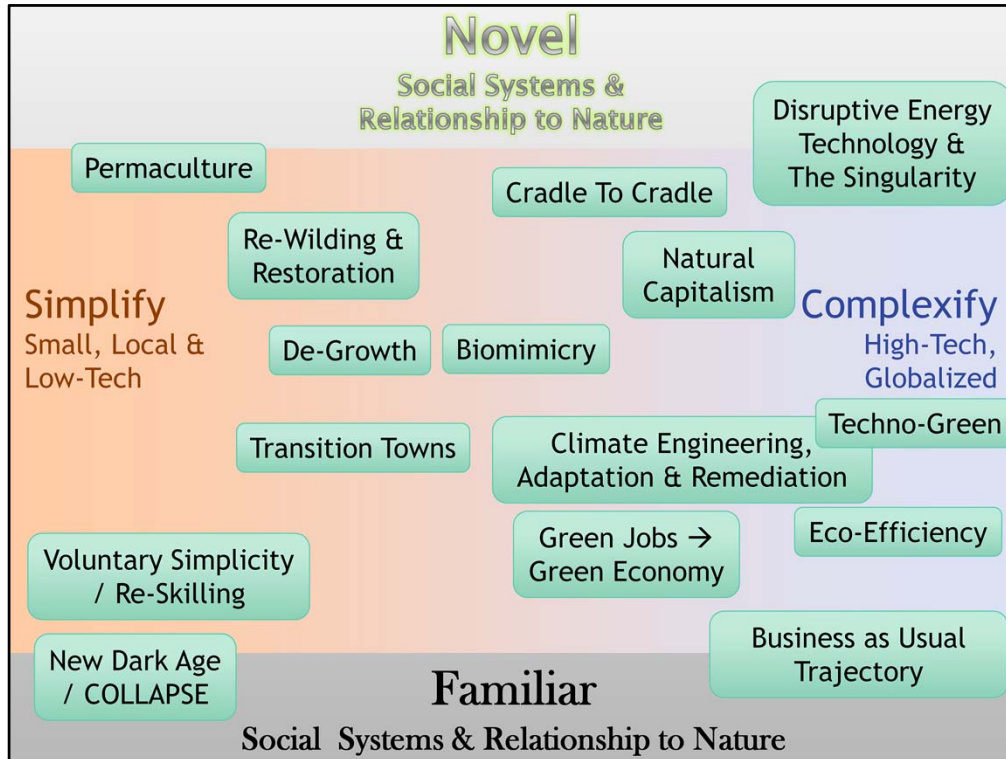
The image displays the cover of the book "THE TRANSITION HANDBOOK: From oil dependency to local resilience" by Rob Hopkins, Founder of the Transition movement. The cover features a detailed illustration of a sustainable village with wind turbines, solar panels, and community buildings. Below the title, a quote from Richard Heinberg is included: "If your town is not yet a Transition Town, here is the guidance for making it one. We have little time, and much to accomplish." — Richard Heinberg, author of *Peak Everything*.

Adjacent to the book cover is a world map with numerous green location pins indicating the presence of Transition Towns across all major continents. The map is labeled with "SOUTH AMERICA", "AFRICA", "ASIA", "Pacific Ocean", "Atlantic Ocean", and "Indian Ocean".

<https://www.transitionnetwork.org/initiatives/map>

Transition Towns

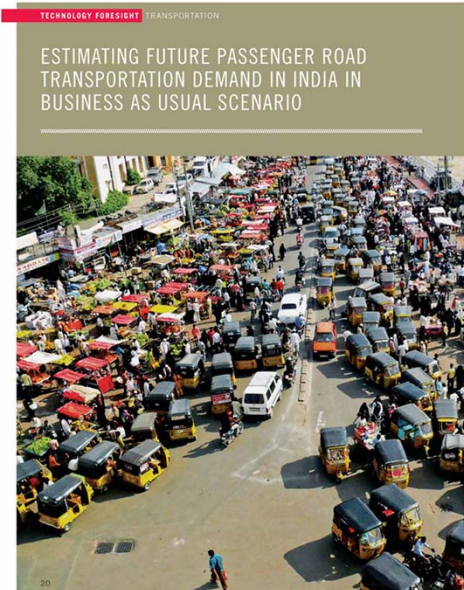
Focus on prep for end of fossil fuel availability; emphasizing localization (minimize supply chain)



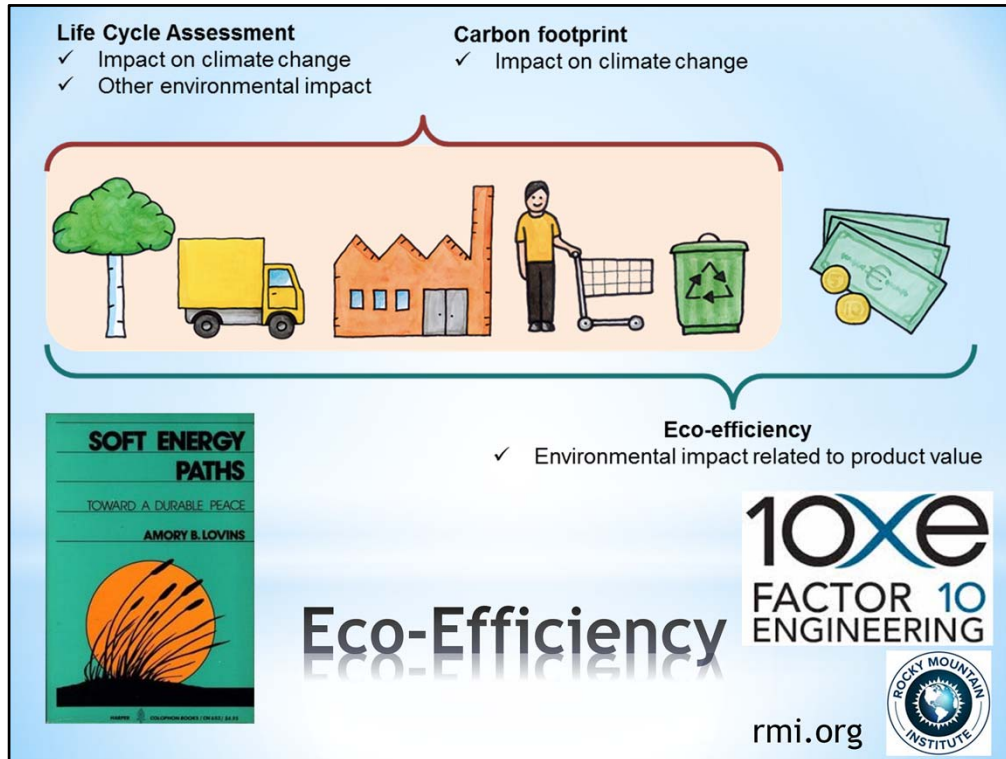
so that was this Familiar & Simplified quadrant, - now move to Familiar & Complexified

- *No Questioning Current Economic Models (TINA)
- *Improved regulation
 - *Polluter Pays
 - *Efficiency Standards
- *Carbon Pricing / Cap-and-Trade
- *Adaptation to problems will be minor; minimize changes to status quo

Business as Usual Trajectory



these are still very much sustainability strategies, but trying to reduce disruption of familiar ways of doing things



1976 energy policy analyst Amory Lovins coined the term **soft energy path** (wikipedia.org) ; Rocky Mtn Inst still doing brilliant work (Factor 10 engineering - e.g. design factory to favor straight, thick pipes instead of short, bent ones → huge reductions in pumping costs)

Bridging the Gap: Connecting Black Communities to the Green Economy

NAACP Pre-Conference before the
Good Jobs, Green Jobs Conference
Washington Hilton Hotel, Washington, DC
April 15th, 2013 8:00am-10:00pm

REGISTER NOW! Go to:
<https://donate.naacp.org/page/contribute/goodjobsgreenjobs>

Green Collar Jobs

Truck Driver
Park Ranger
Building Inspector
Engineer

www.koreatimes.co.kr

<http://reimaginerpe.com/node/101>

<http://njmonthly.com/articles/new-jersey-living/ecologic-green-collar-jobs/>

Green Jobs → Green Economy

focuses on using growing sustainability sector employment to lift people out of poverty



focus on solving created problems (instead of problem reduction/prevention): e.g. seawalls to deal with rising sea levels; finding novel ways to clean up toxic sites like this tar sands pit; and even extreme climate engineering, either through technological carbon capture or by adding reflective materials on the ground, at sea, in the air or in space to reduce solar heating and some climate change effects)



Photo by Erik S. Peterson



Elon
Musk



TESLA MOTORS

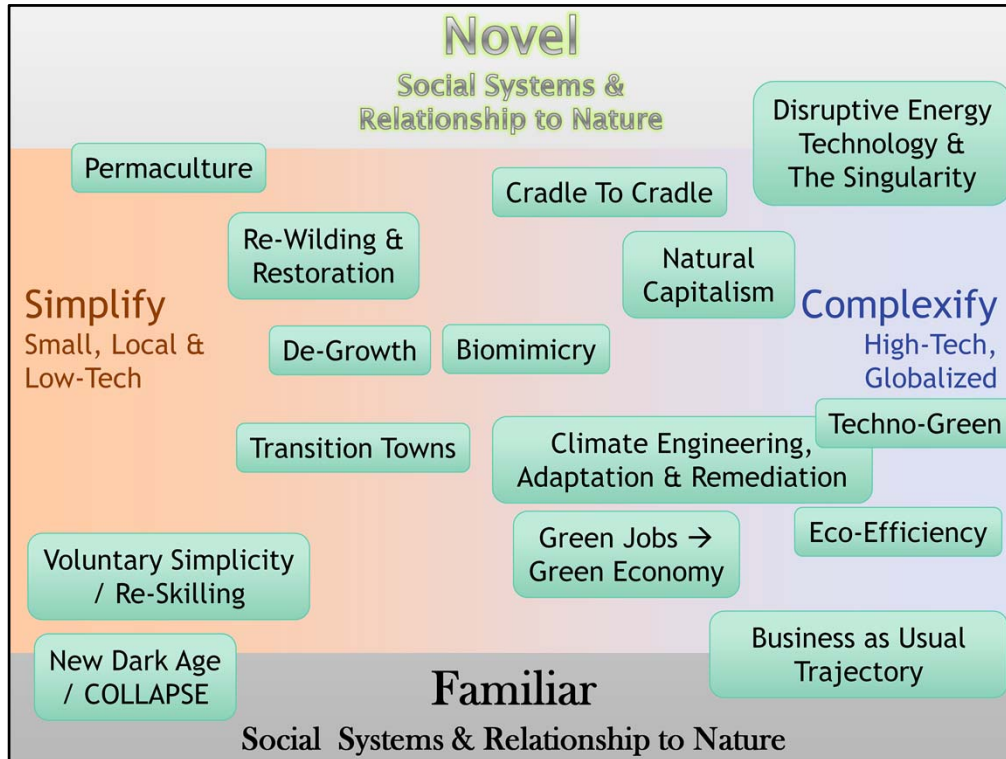
www.greenforwardnews.com



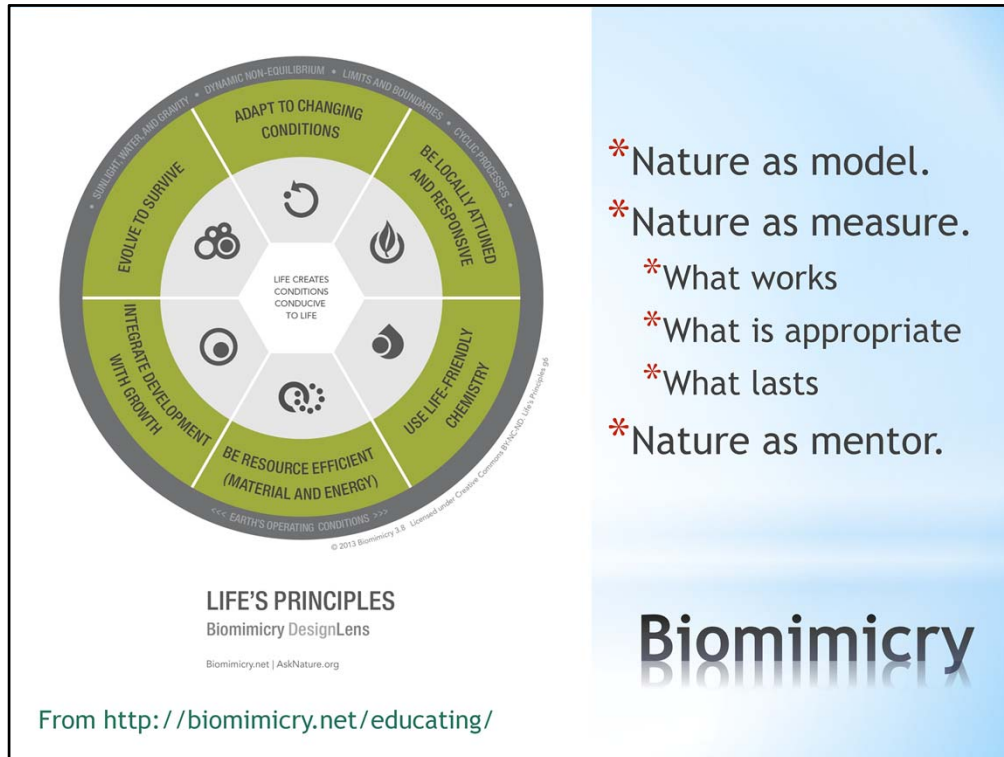
[Sebastian Bergmann via wikimediacommons.org](https://commons.wikimedia.org/wiki/File:Google_Building_in_Silicon_Valley.jpg)

Techno-Green

Elon Musk: also “Powerwall” batteries (derived from Tesla tech); Hyperloop Supertrain (maglev, 1200 kph); SpaceX (goal to make us multiplanetary species)

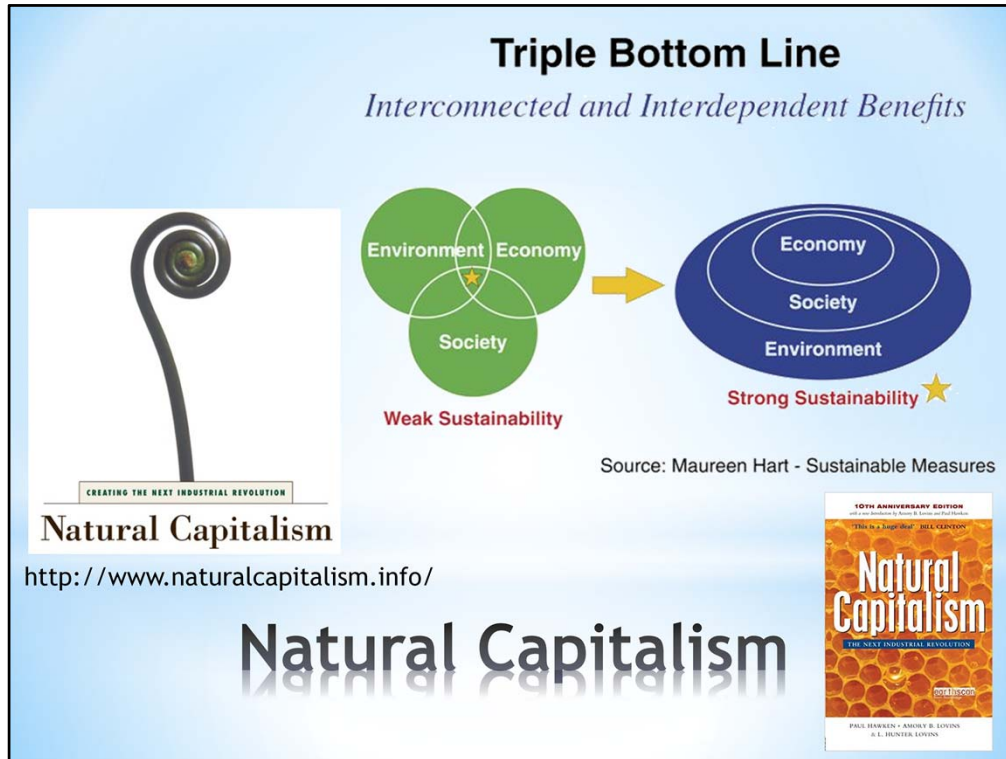


so that was this Familiar & Complexified quadrant, - now move to Novel & Complexified

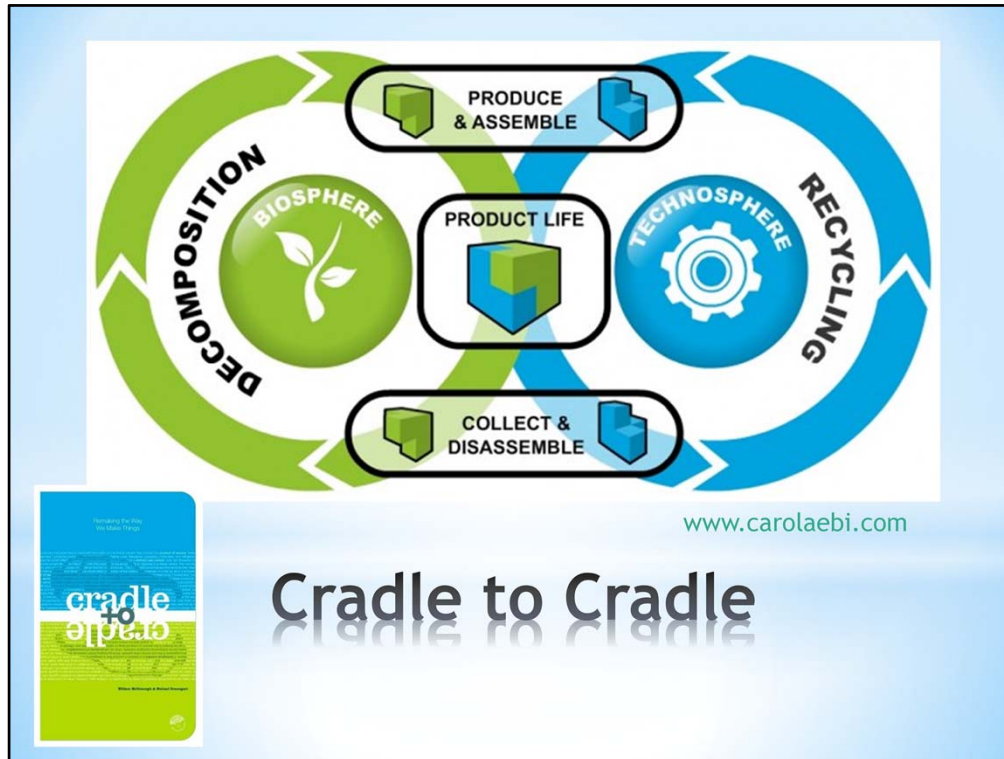


See Sustainability Salon presentation [2 April 2015 Biomimicry Design Challenge](#) to learn more.

Also <http://challenge.biomimicry.org> – let's get an NTU team working on food systems.



re-tooling industrial capitalism to factor in ecological and social “costs” in its calculations about “prices” of things (Amory Lovins again, with his then partner Hunter Lovins and eco-entrepreneur Paul Hawken)



Architect William McDonough and chemist Michael Braungart go a step further from Natural Capitalism and Biomimicry, proposing design principles that involve not only changing how we create products (keeping toxins out entirely, and maintaining ease of separation of bio-renewable and non-bio-assimilatable materials), but also changing our view of commodities as objects to be owned by consumers, and instead keeping technological materials producers as owners of “products of service” – I don’t want the hunk of plastic and metal, I want the services the computer or phone provides.

- * Cold Fusion, Zero-Point or other energy source not plausible or known with current physics
 - * Asteroid mining for minerals
- * Strong, self-improving AI could “solve all our problems”
 - * Eliminate menial labor
 - * Maximize efficient production
 - * Information/Communication without limits



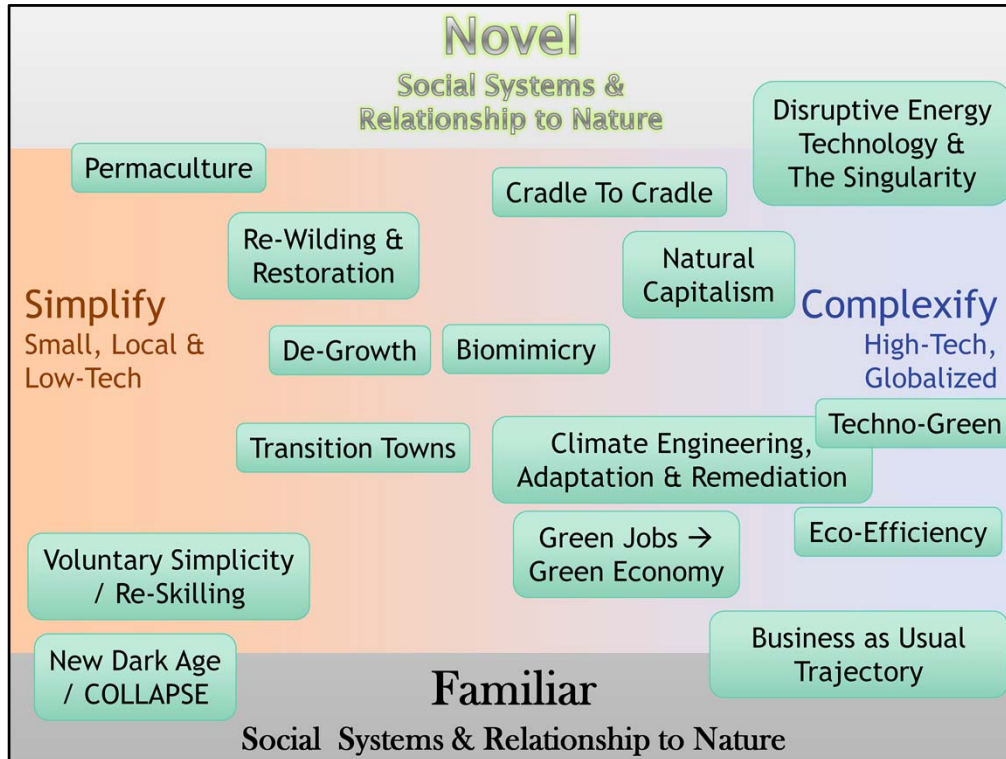
Disruptive Energy Technology & “The Singularity”

www.futuristspeaker.com : Google’s Director of Engineering, Ray Kurzweil, has predicted that we will reach a technological singularity by 2045, and science fiction writer Vernor Vinge is betting on 2029, a date that is ironically on the hundredth anniversary of the greatest stock market collapse in human history.

The person who coined the term "singularity" in this context was mathematician John von Neumann. In a 1958 interview, von Neumann described the "ever accelerating progress of technology and changes in the mode of human life, which gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, can not continue."

Follows from Weak Sustainability and Techno-Green

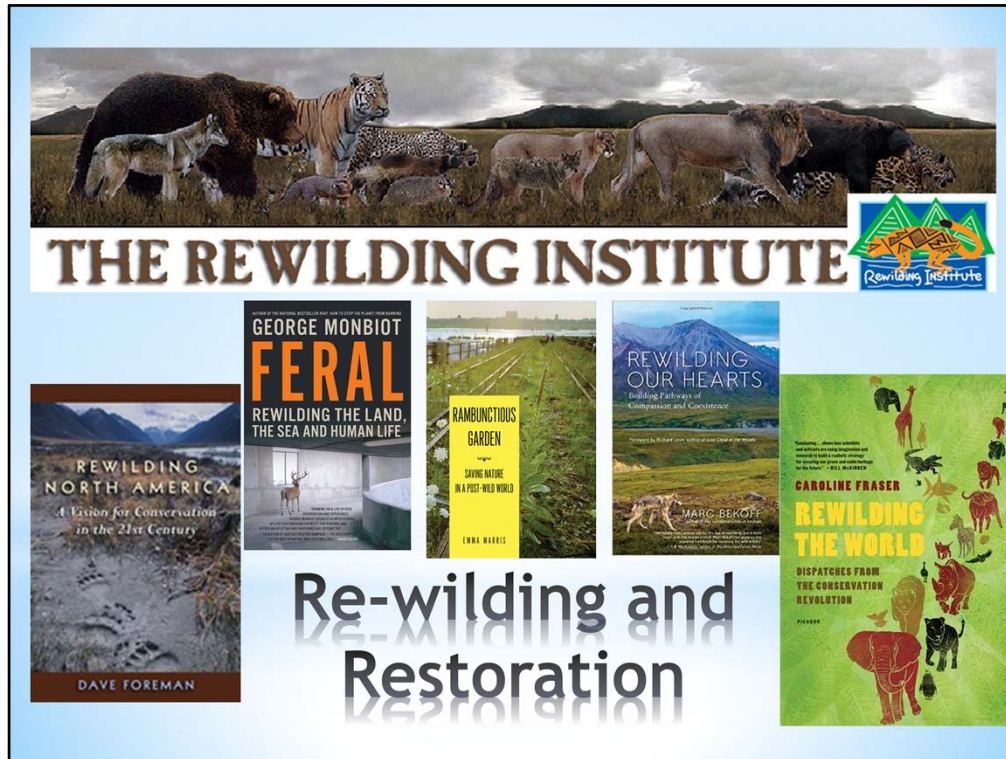
See also “Transhumanism”



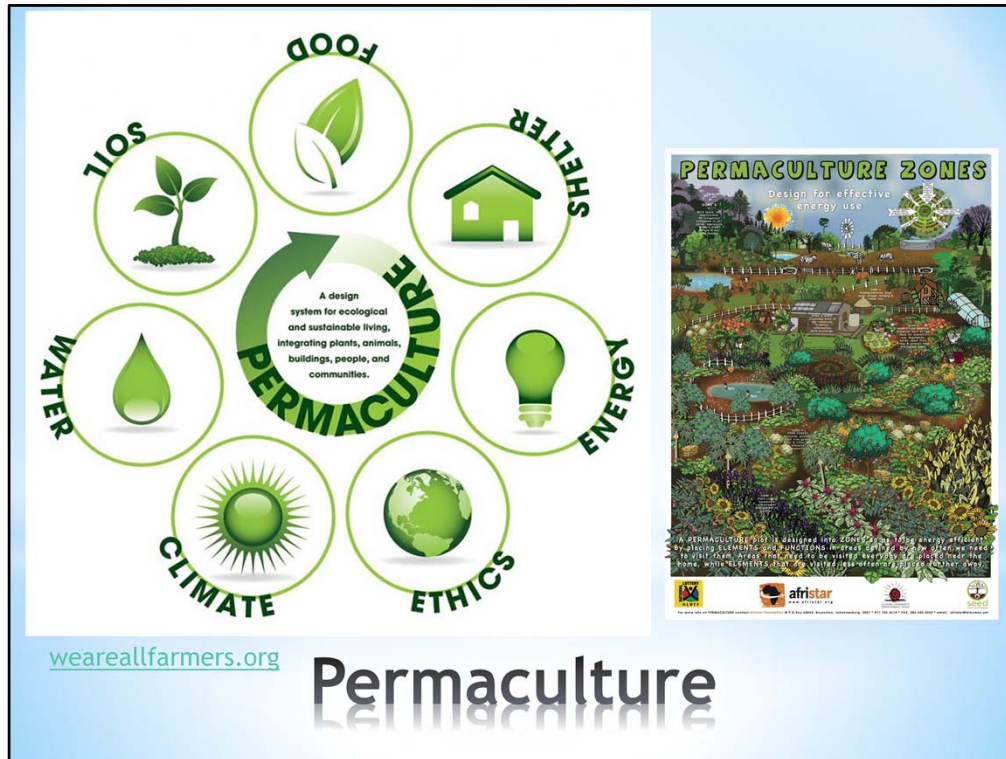
so that was this Novel & Complexified quadrant, - now move to Novel & Simplified



Degrowth proposes that developed economies must deliberately slow and shrink, so that developing economies can develop sustainably; emerging mostly from Europe; closely tied to “slow food” movement **Décroissance / Decrecimiento / Decrescita**

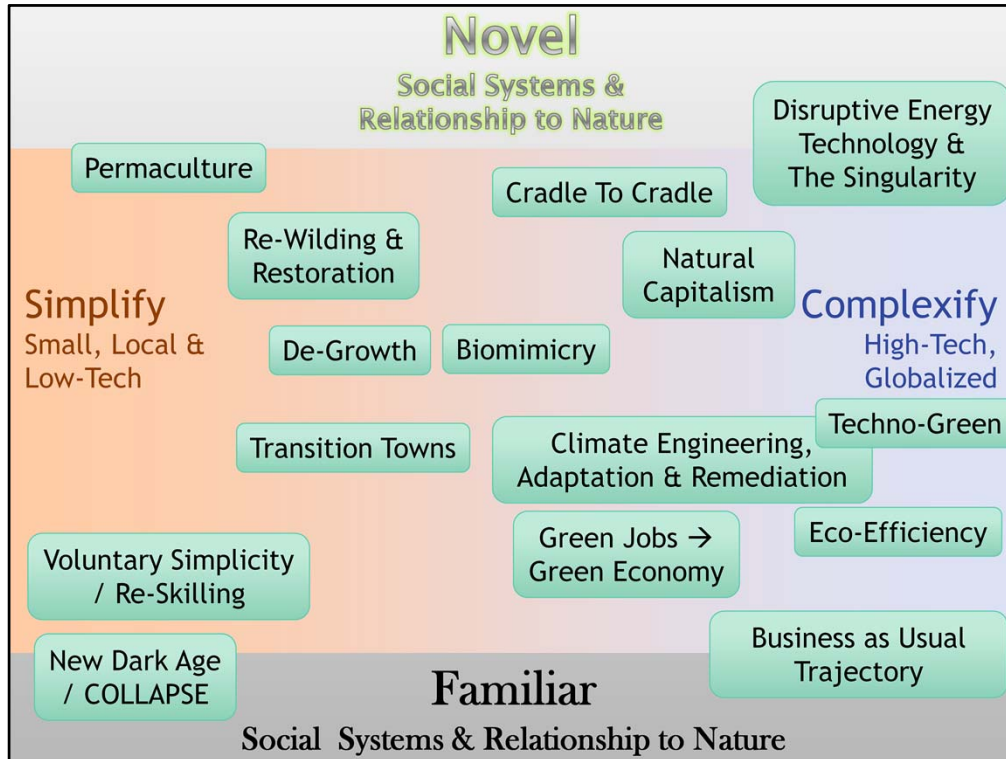


Re-wilding and Restoration focused on changing our relationship to wild places; actually fostering and “cultivating” wilderness - Cores, Corridors and Carnivores



A design system for ecological and sustainable living, integrating plants, animals, buildings, people and communities.

Saying NO to totalitarian agriculture, over-reliance on weedy grasses for storing calories.



Time permitting – do activity

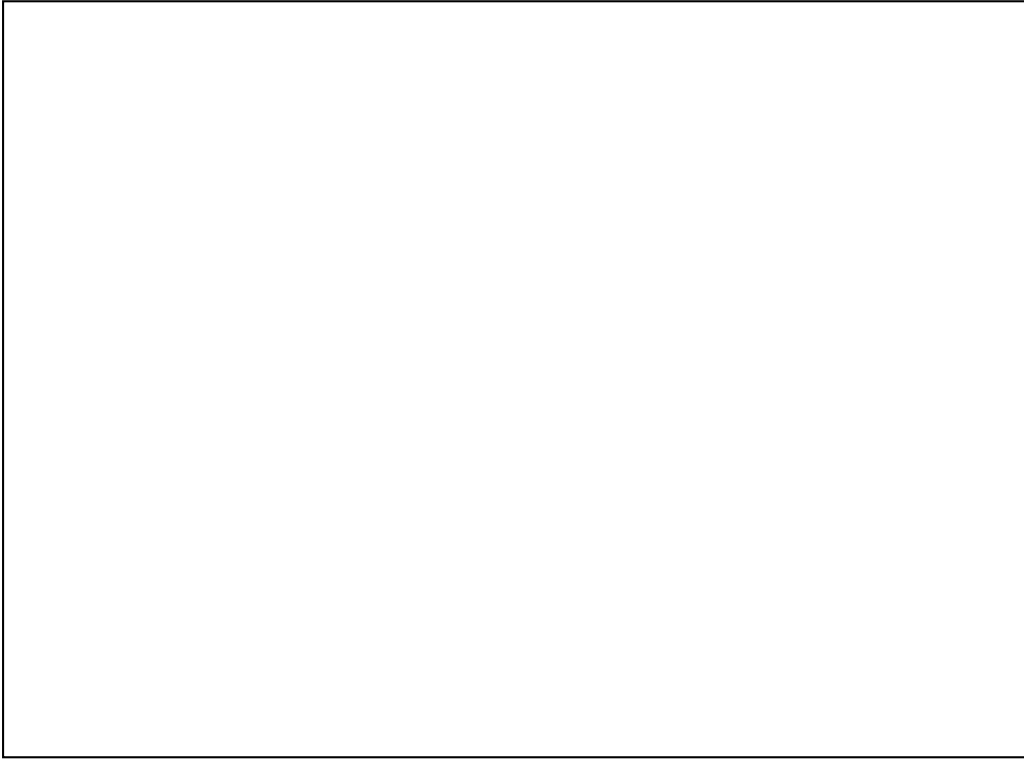
Green dot: where you would most like world to go

Blue dot: where you think NTU is aiming

Red dot: where you think things are most likely to go

**“Civilization is in
a race between
education and
catastrophe.”**

~H. G. Wells



I'd love to hear your ideas about how to move in the right direction. **How can we connect with, learn from and teach one another, so together we can co-create a regenerative, resilient culture!?!**