Sustainability Strategies Sampler:
Discussing Different Visions of Sustainable Futures

Sustainability Salon

24 August 2015

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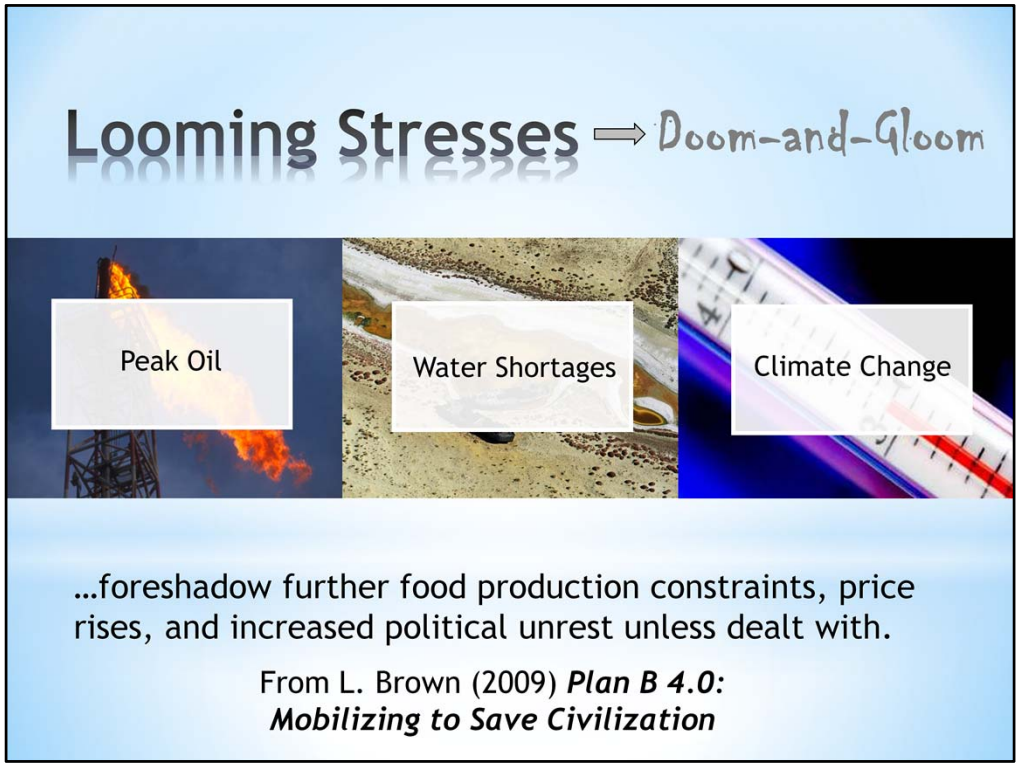
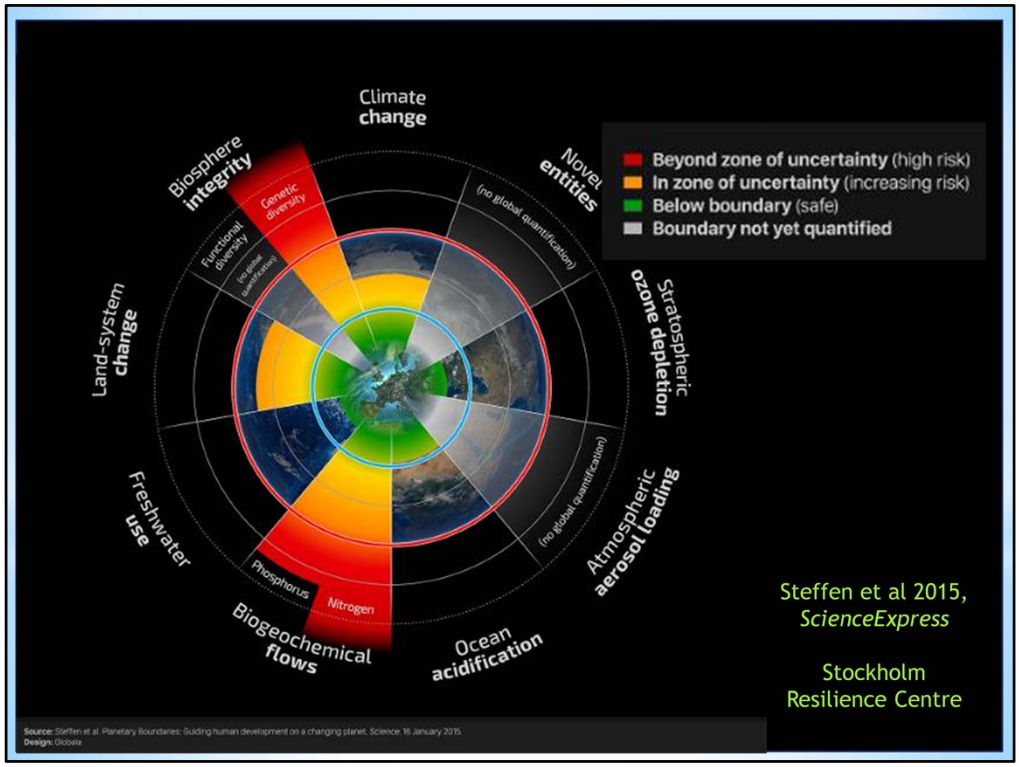
Bruntland –
Carries an implication of intergenerational justice – we can't steal from our grandkids to pay our rent now.
However, it sounds like it was written by a committee, doesn't it?

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



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.)



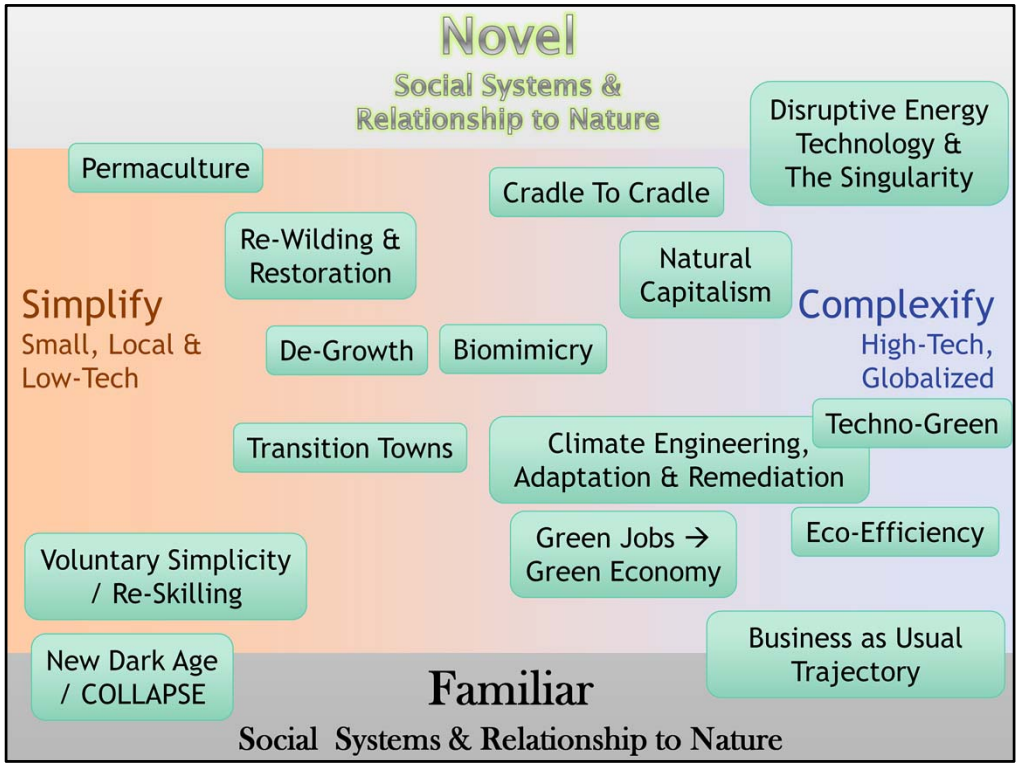
Right now, we appear to be well outside of the “safe operating space,” that zone where we can be reasonably sure that we are not compromising the future, in terms of climate change, nitrogen cycles (soil fertility), and especially biodiversity loss.
And this doesn’t even begin to address the problem 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?

Destructive **Sustainable** **Regenerative**



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.

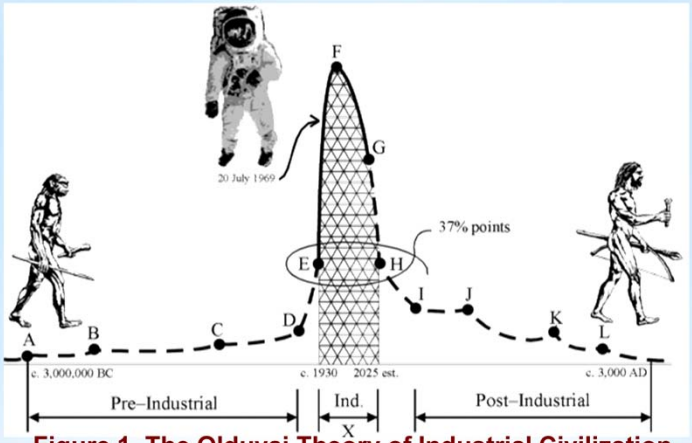
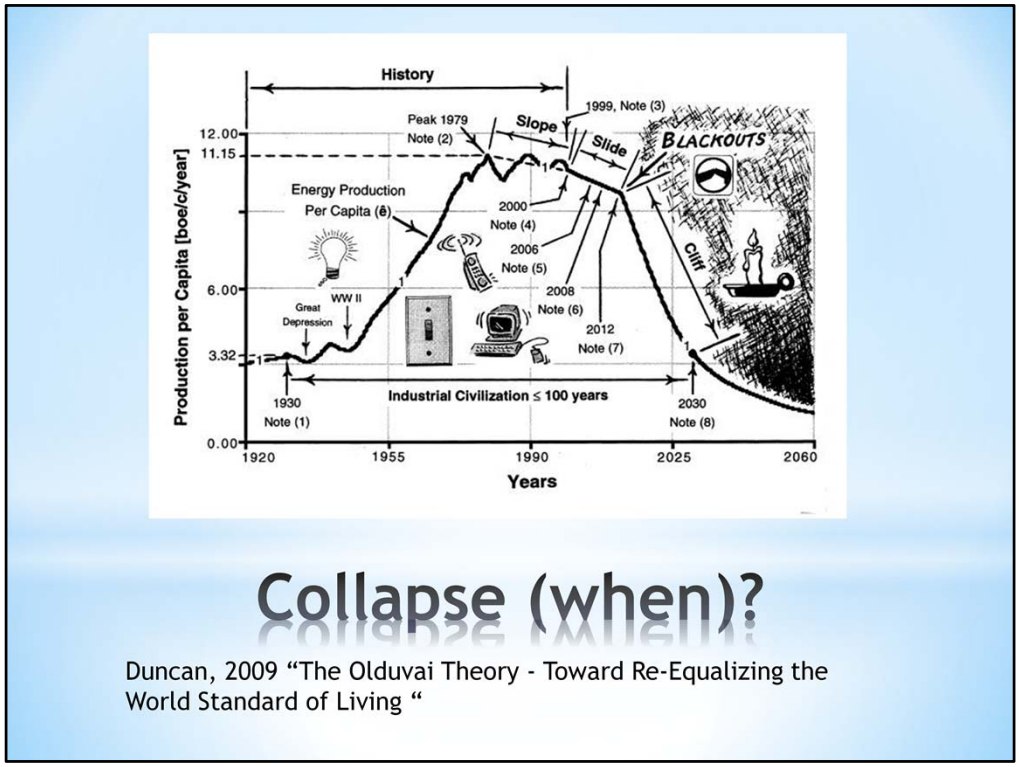


Figure 1. The Olduvai Theory of Industrial Civilization

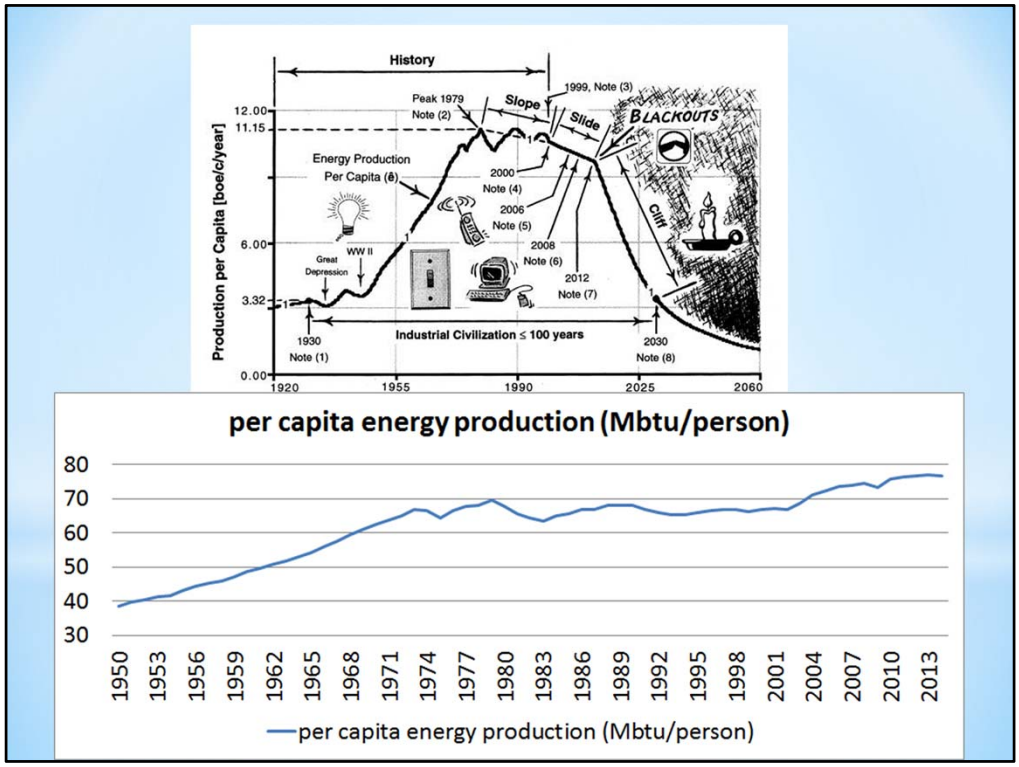
Collapse?

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

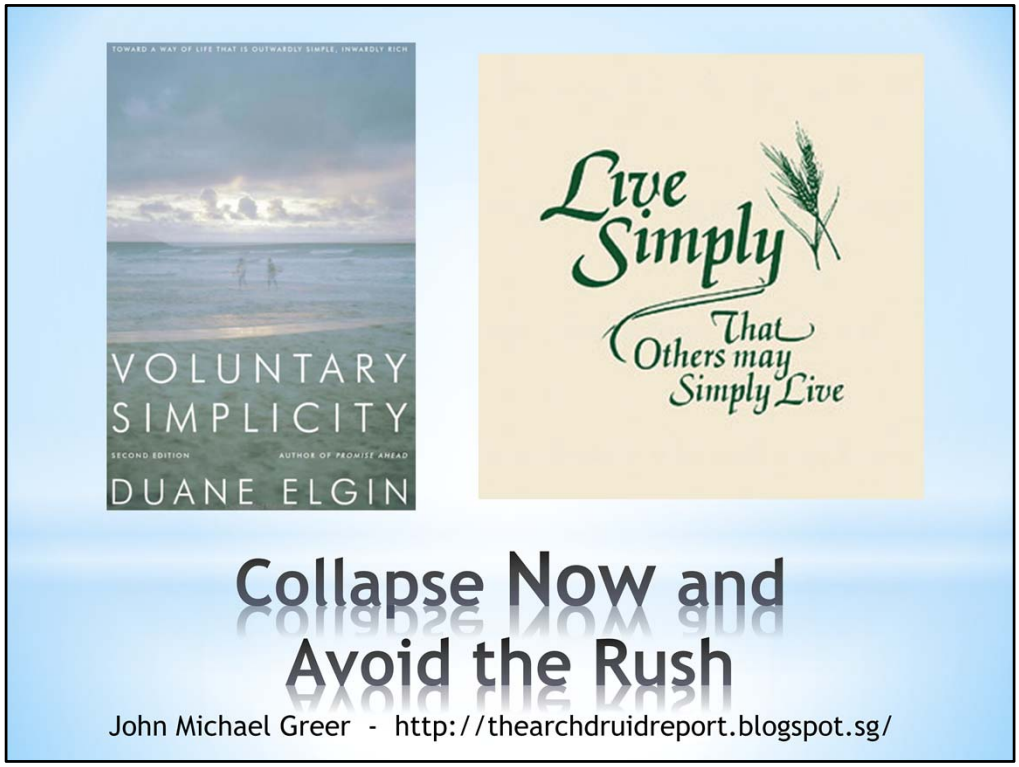


Duncan, 2009 "The Olduvai Theory - Toward Re-Equalizing the World Standard of Living "
But then per capita energy use started to climb again, as energy use in emerging economies grew rapidly even while developed economies were constant or declining, pop growth slowed somewhat

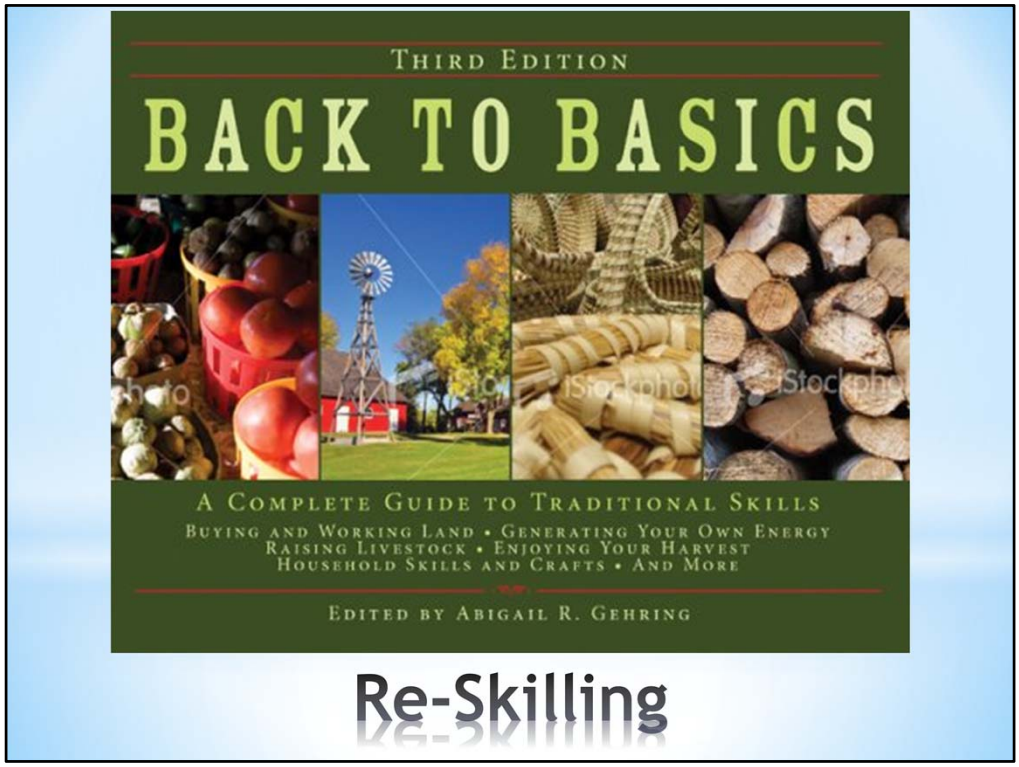


[World Energy production data compiled by Resilience.org
2012 http://www.resilience.org/stories/2012-02-16/world-energy-consumption-beyond-500-exajoules
/pop data from UN http://esa.un.org/unpd/wpp/DVD/]
1973: 66.92322727
1979: 69.49874478
1983: 63.34512026
1989: 68.06117859
1994: 65.34022801
2002: 66.94381495
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

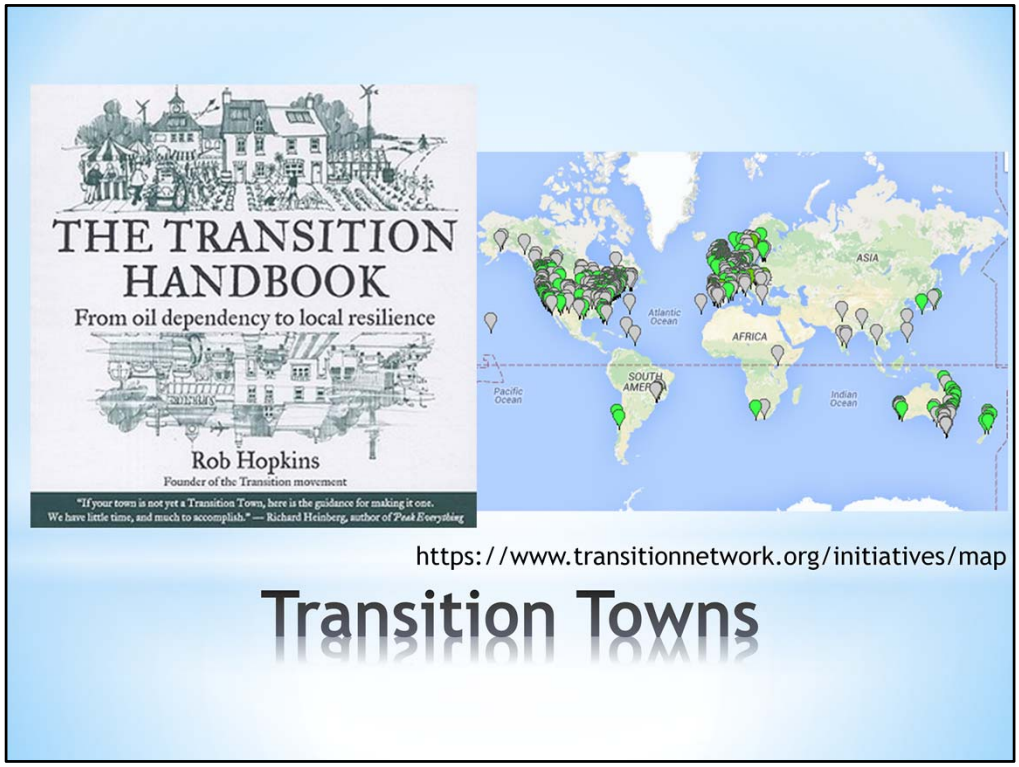
Does it subtract out energy invested to extract/capture energy? (don't think so, this is probably gross energy per capita, **not net**)



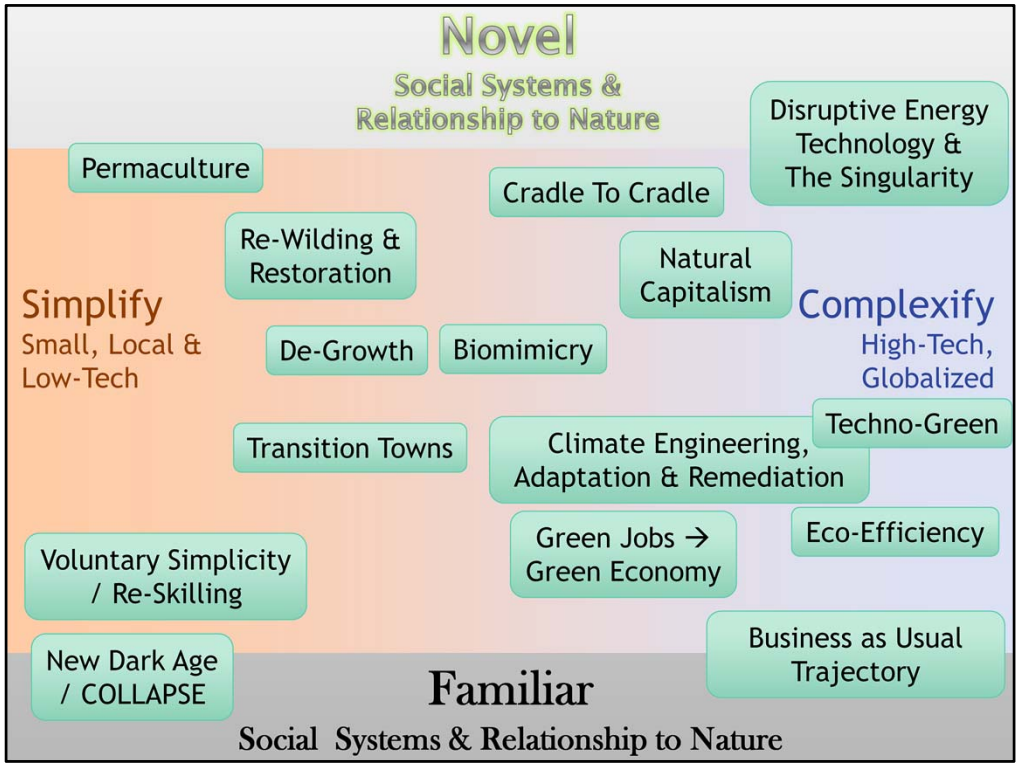
Voluntary Simplicity movement; reduce your personal footprint, get off grid and out of money economy, minimize technology reliance, etc. ; long been part of some religious communities like Amish Mennonites in US



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



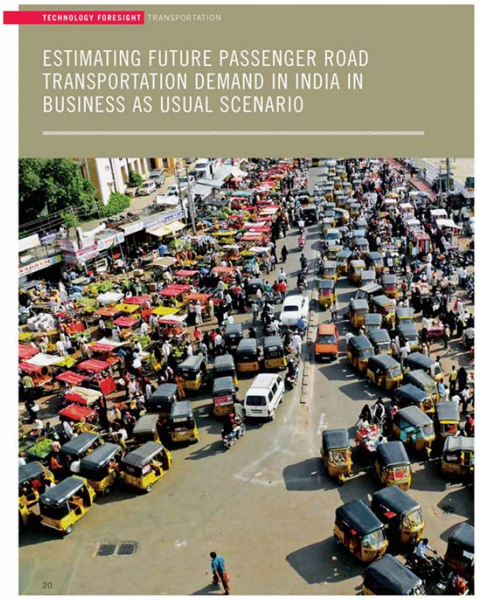
Focus on prep for end of fossil fuel availability; emphasizing localization (minimize supply chain)



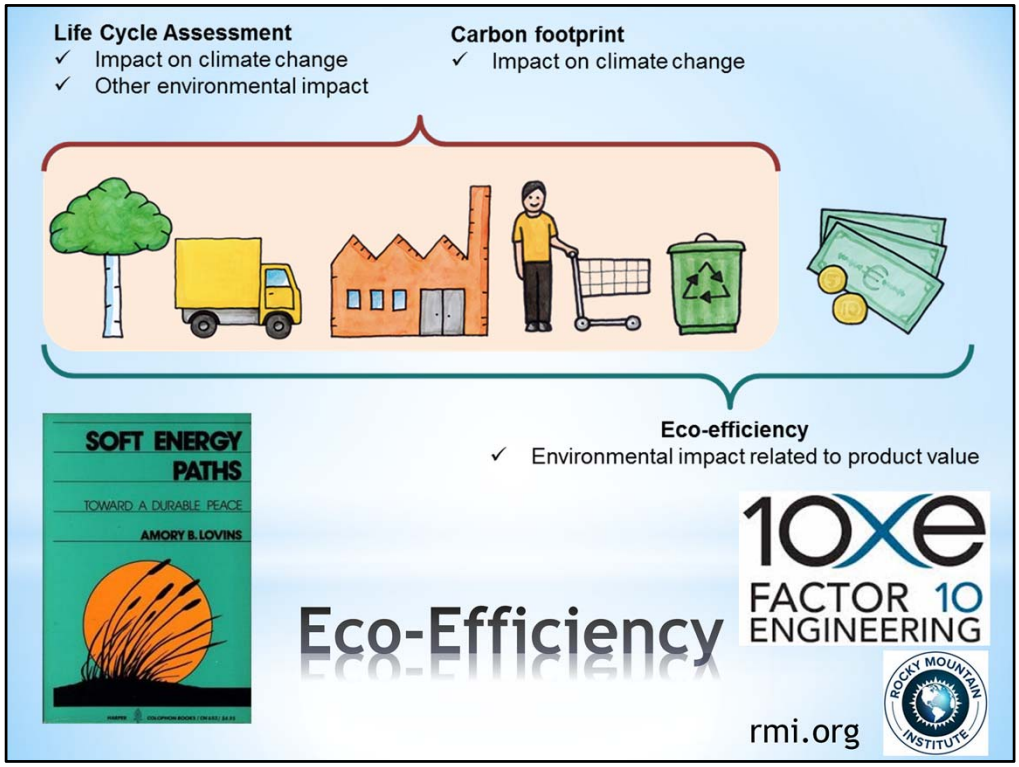
so that was this Familiar & Simplified quadrant, - now move to Familiar & Complexified

* 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

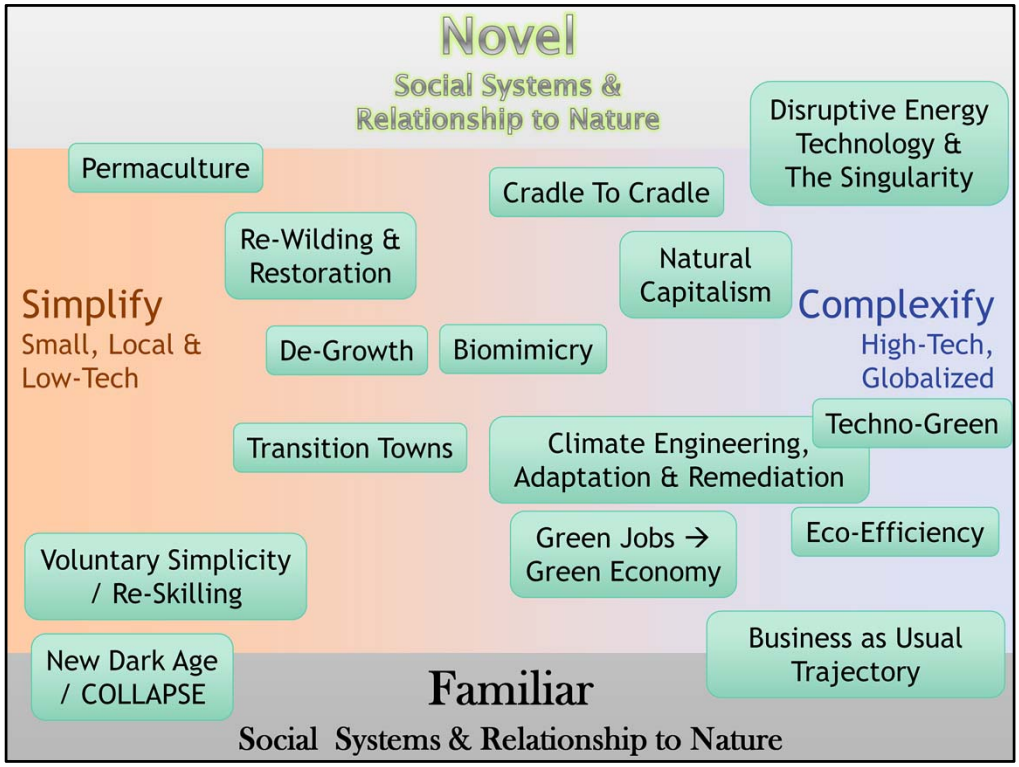


1976 energy policy analyst Amory Lovins coined the term **soft energy path** (wikipedia.org) ; Rocky Mtn Inst still doing brilliant work (Factor 10 engineering - e.g. design factory to favor straight, thick pipes instead of short, bent ones → huge reductions in pumping costs)

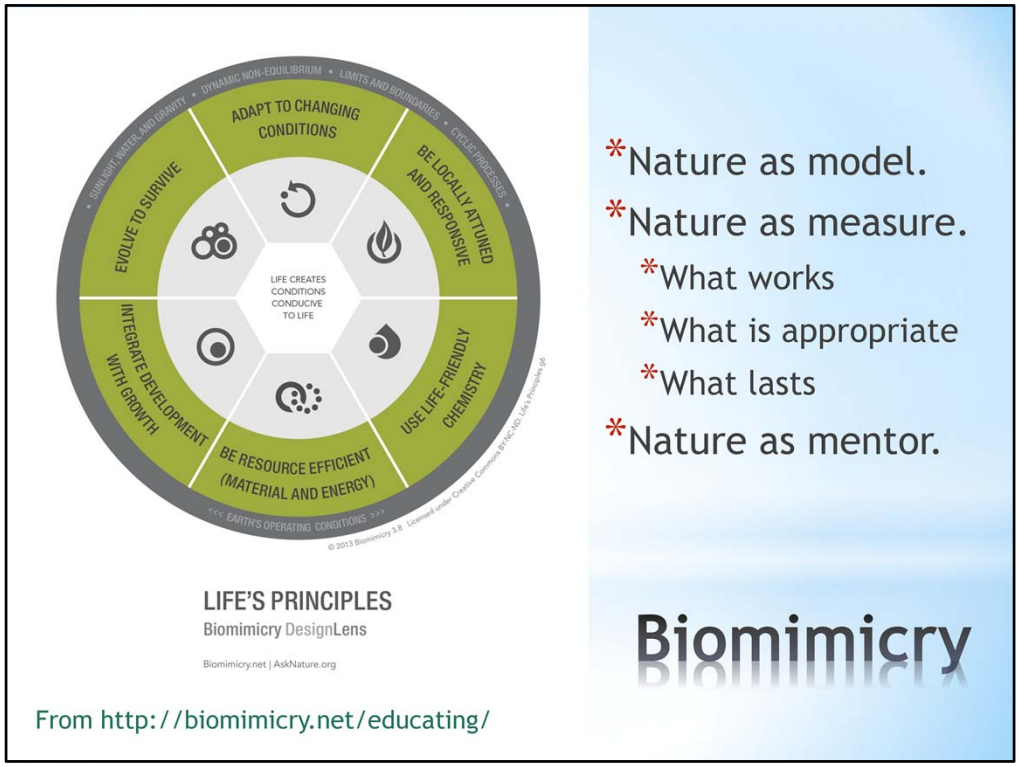
focuses on using growing sustainability sector employment to lift people out of poverty

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)

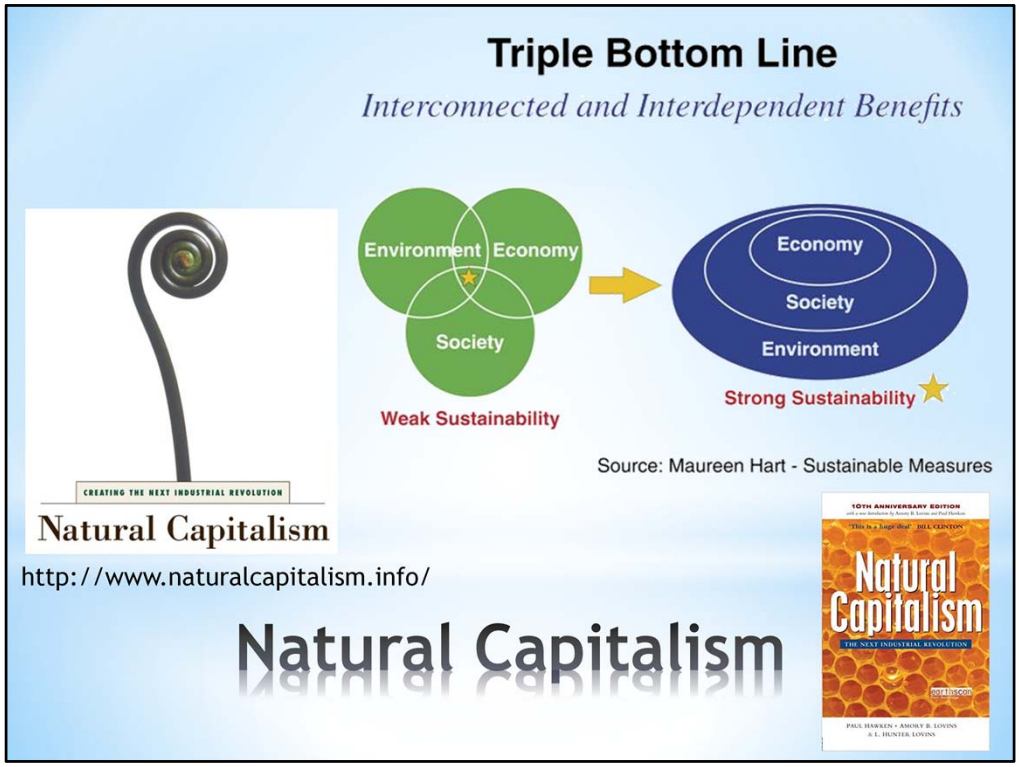
Elon Musk: also “Powerwall” batteries (derived from Tesla tech); Hyperloop Supertrain (maglev, 1200 kph); SpaceX (goal to make us multiplanetary species)



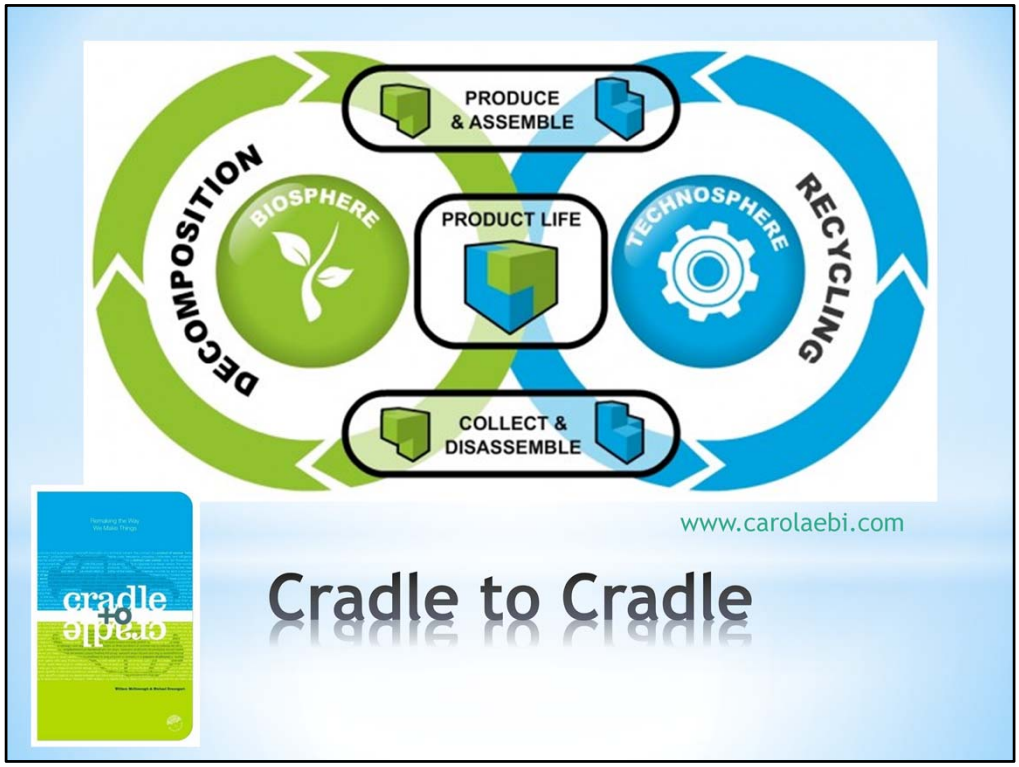
so that was this Familiar & Complexified quadrant, - now move to Novel & Complexified



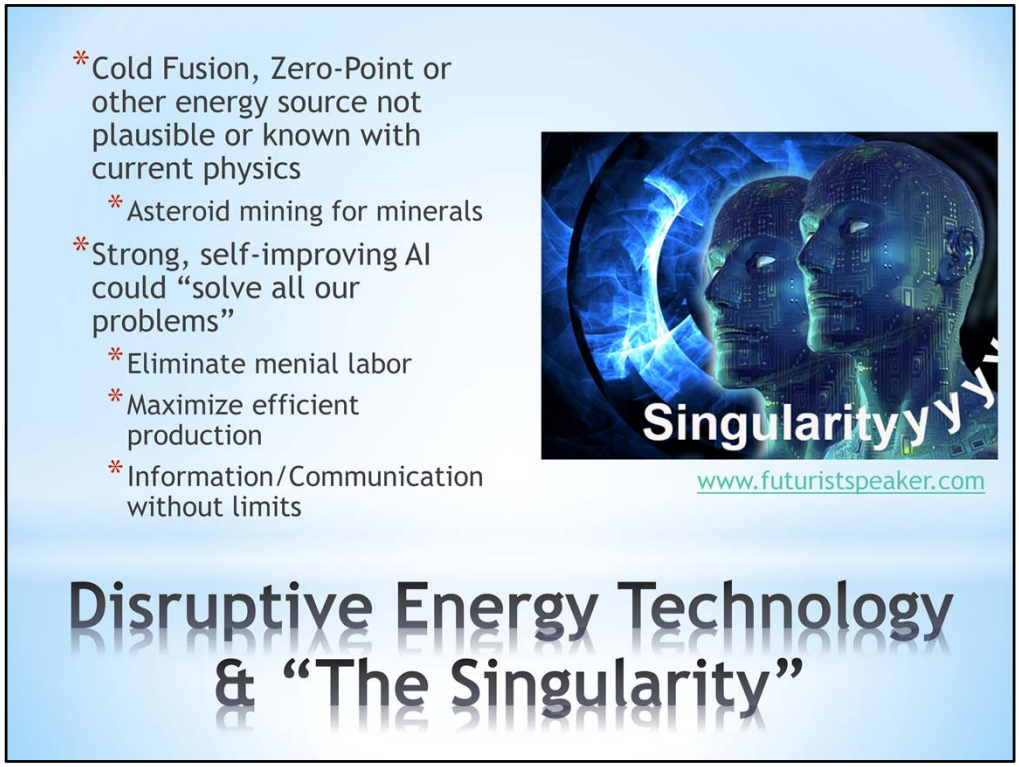
See Sustainability Salon presentation 2 April 2015 Biomimicry Design Challenge to learn more.
Also **http://challenge.biomimicry.org – let's get an NTU team working on food systems.**



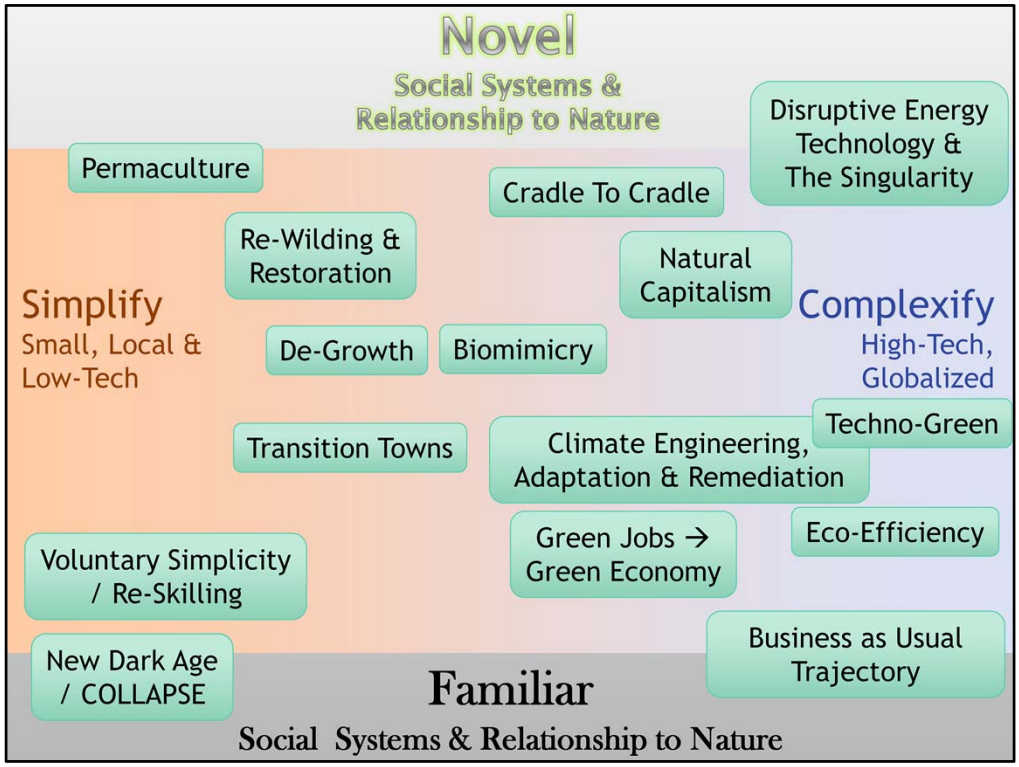
re-tooling industrial capitalism to factor in ecological and social "costs" in its calculations about "prices" of things (Amory Lovins again, with his then partner Hunter Lovins and eco-entrepreneur Paul Hawken)



Architect William McDonaugh 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.

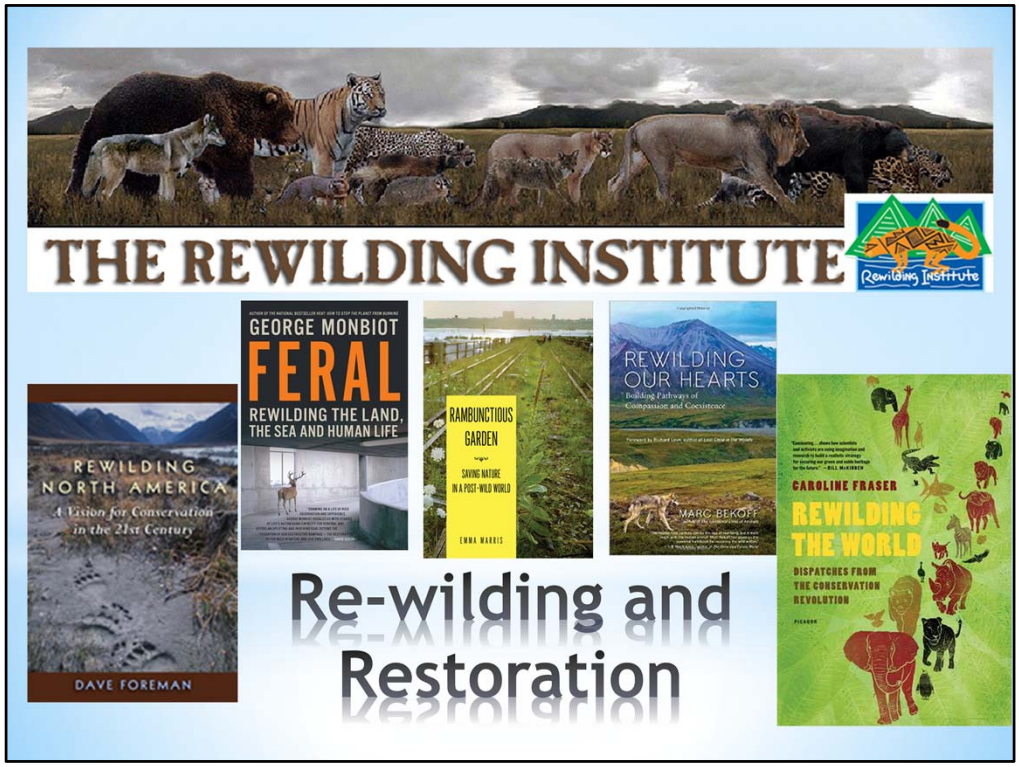


www.futuristspeaker.com : Google's Director of Engineering, Ray Kurzweil, has predicted that we will reach a technological singularity by 2045, and science fiction writer Vernor Vinge is betting on 2029, a date that is ironically on the hundredth anniversary of the greatest stock market collapse in human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

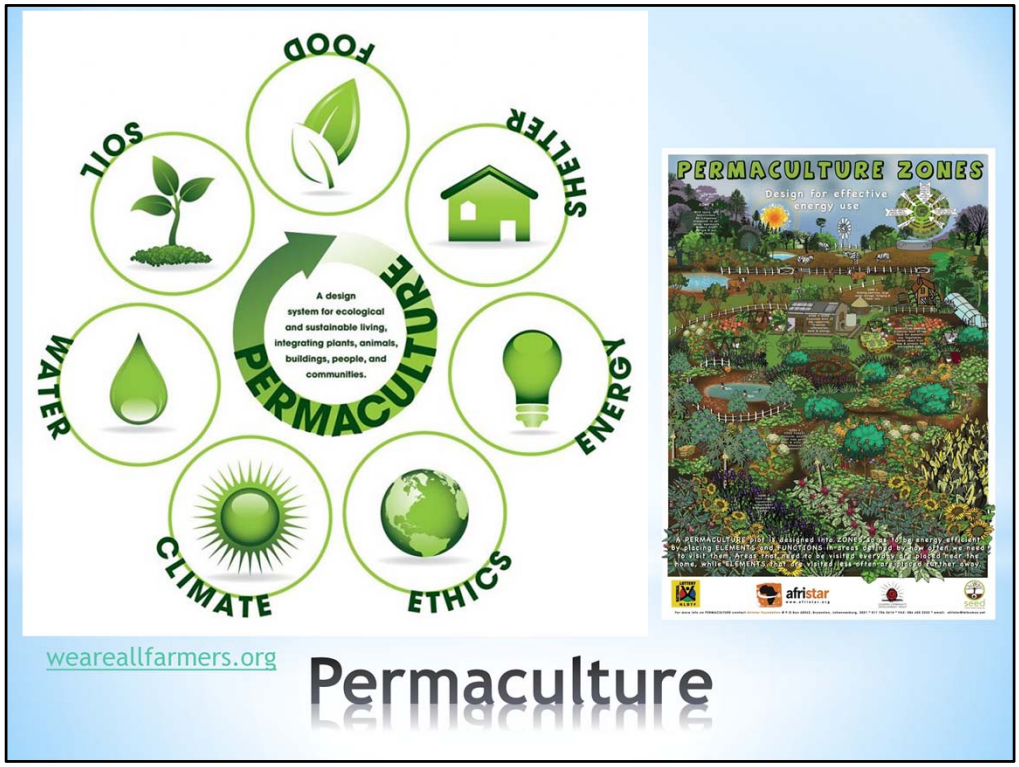


so that was this Novel & Complexified quadrant, - now move to Novel & Simplified

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**

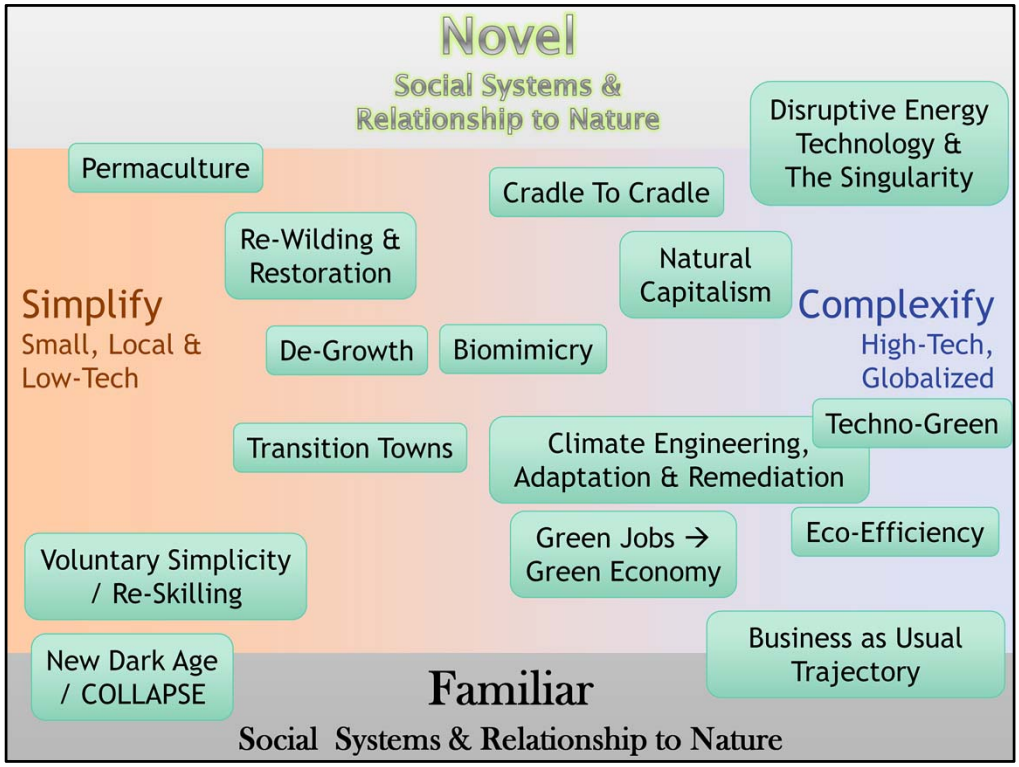


Re-wilding and Restoration focused on changing our relationship to wild places; actually fostering and “cultivating” wilderness - Cores, Corridors and Carnivores



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

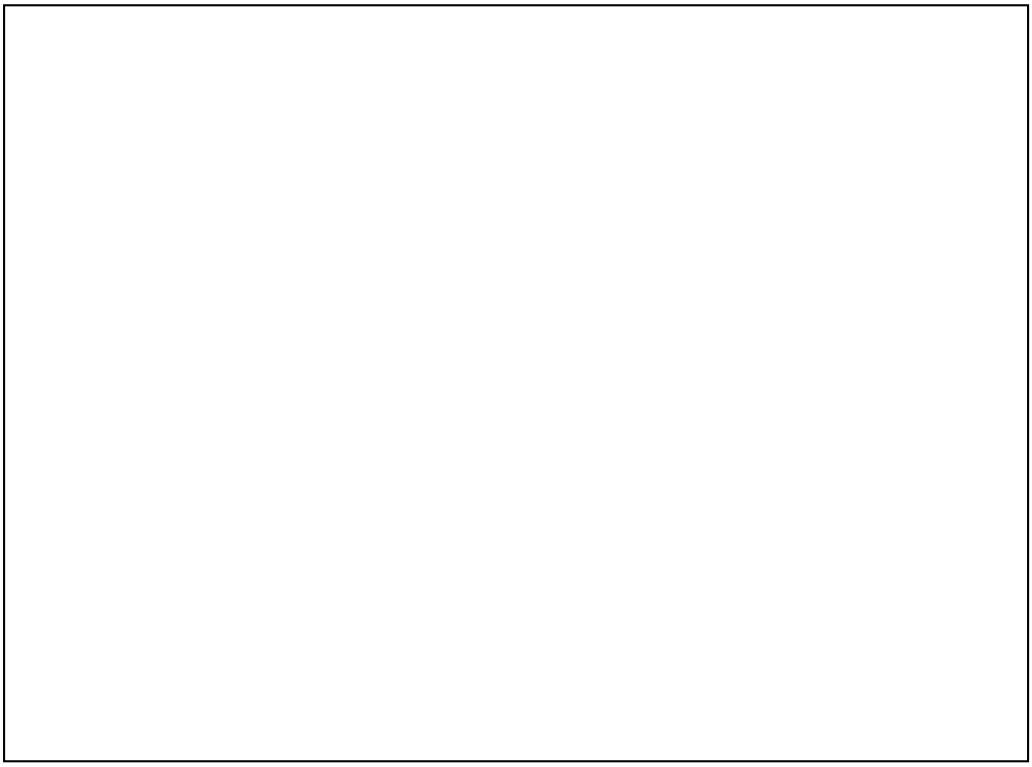
Saying NO to totalitarian agriculture, over-reliance on weedy grasses for storing calories.



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!?!**