

integral city 100+ Futures Lab lecture June 30, 2021

Gaia Mentors Schooling for a Planet of Integral Cities 2121

SPEAKER

Marilyn Hamilton

Marilyn Hamilton (MH)

Hi, I'm Marilyn Hamilton. I'm the founder of Integral City Meshworks, and the author of the **Integral City book series** (including the **translation of Book 1 into Russian**). I'm delighted to be with you today to explore the future of cities in the next 100 years.

In fact, I want to share a whole conversation with Gaia herself. She has offered to mentor me about how her Earth cities can evolve maturity and wellbeing.

I opened my third book with these words:

Wholing the Human Hive

“How can we design a city for the wellbeing of our granddaughters and future generations in a way that adds value to all Life on Earth?

That is the question that jet-propels me from my [calm ecovillage in Scotland] to the farthest reaches of the universe and has made me take notice how the discoveries of space pioneers such as Edgar Mitchell astronaut, the Voyageur I and II space exploration program designers, Elisabet Sahtouris evolution biologist and Elon Musk inventor, contribute to designing conditions for optimal human hives.

On this journey I have asked related questions that might reveal the mysteries of living well in cities - **How do we wake up the human hive as a whole? Why should I care for her resilient souls, understand the context of people’s goals, develop organizational capacity for critical roles, amplify sustaining energy flows or heal the traumatic impact of warring blows?”**

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MH: In 2021, I could be overwhelmed in answering these questions, when I contemplate the future of our cities with the dire scenarios described by Duane Elgin in “Choosing Earth”.

He proposes that our current circumstances that I characterize as the **Big Challenges** of the city — Energy, Water, Climate, Food, Bio-Genetic, Psycho-Cultural – can be situated at the trailhead of **3 possible pathways** into the future. He projects the likely outcome of each scenario:

- **Status Quo** – Crash and Collapse - do nothing and we burn up
- **Autocratic** – Authoritarian governance with AI leads to large system change under autocratic control and humans will lose personal freedoms
- **Self-Organizing – The Great Transition** - after an extended period of struggle, local/large area system change will occur with free personal agency that opens a whole new era of aliveness and unity.

The 3 Pathways are all in existence now in different cities in different parts of the world. As beginning conditions how will they determine local and global futures?

I wonder what will be the distribution of the 3 Pathways – how are they permeable to one another? Does their co-existence mean never ending conflict/tension?

What will be the catalysts that enable conflict and competition to move to cooperation and collaboration?

100 years from now 2021-2121:

Elgin chooses to tell the story of the Great Transition in decades that I will **mark with the generational stages** of The Great Turning (with a nod to the generational analysis by Strauss and Howe (1997)).

[My baseline context is this: In 2021 Cole my great grandchild is 7, his parents my grandchildren are in their 30's, his grandparents my children are in their 60's, while I am 70+ in the phase of Old Age/Death. So, in my family I am intimately familiar with 4 generations who will be impacted by the future Great Turning as it unfolds.]

I characterize the 100 years ahead of us in 4 Stages that align with Elgin's stages (of 20-25 years):

Waking

2020-2039 – **Recognizing Crisis, The Great Unraveling; Collapsing Civilization – The Great Fall**

Cole my great grandchild 20+-, Cole's Parents (my grandchildren) 60+, Cole's Grandparents (my children) 80+, me Old Age/Death

Growing

2040-2059 **Into the Fire of Initiation – the Great Sorrow; A Conscious Species – Civilization the Great**

Awakening

Cole's child 20+-, Cole (my great grandchild) 60+, Cole's parents (my grandchildren) 80+; Cole's grandparents (my children) Old Age/Death

Cleansing

2060-2089 **Preserving the Future- Choosing Earth; An Open Future**

Cole's great grandchild 20+-, Cole's grandchild 60+, Cole's child 80+, Cole (my great grandchild) Old Age-Death

Wholing

2090-2119 Which of 3 Pathways did we Choose?

Cole's great great grandchild 20+-, Cole's great grandchild 60+, Cole's grandchild 80+, Cole's child Old Age-Death

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With such oppressive scenarios to contemplate, I am going to call up my radical optimism to have a conversation about cities with Gaia herself. I have asked her **“how do you imagine your cities in 100 years, after we have finally recognized our life is inextricably part of you as our Mother Planet?”**

Gaia:

I Imagine Gaia as a Thriving Planet.

I imagine Gaia as thriving and flourishing in a new golden age [100+ years from now]. I am a living example in the universe of planets, of a thriving mature living system where human contribution reflects how magnificently Creation has evolved all life here including humans themselves.

I imagine I have awareness of all my evolutionary life and we have complete awareness of ourselves on a spiritual Cosmo-Bio-Anthropo-centric basis.

I imagine I have emerged as thriving Gaia because of breaking through crises where younger generations of humans have imagined solutions that don't occur to their parents or older generations. I imagine somehow the younger generations find a way to join in my very energy – and quantum field - of my being.

*I imagine the role Integral City (IC) plays opens up because humans became able to be effective both locally and globally. Imagine the younger generation(s) break through the initial (pre-2021) fascination (for Gen Y, Z) to contact each other and they, realize they have local + global (glocal) power and can see that power is Collective Intelligence (CI). Imagine them as Gen-CI. CI enables cities to discover double sustainability loops (like the **bees** have discovered where they sustain the hive and pollinate the eco-region). They implement the **Master Code to Care** for Self, Others, Places and Planet. With this expansion of their circles of care to planetary scale, it is natural for them to implement the visions of Vandana Shiva to reconnect with the soil and rejoin the city to its eco-region. In overcoming your current “Nature Deficit Disorder” this CI generation amplifies the intelligences to make it happen.*

*With this special development of Collective Intelligence, the CI's truly embrace the Integral City **GPS** and find direction in, with and as the Integral City. They are adept at assessing the Contexting Intelligences (ecological, emergent, integral, living). They balance the Individual (inner and outer) Intelligences with their new prowess of Collective Intelligence (culture and social) so that the relationship between I and We is elegantly regenerative. And they design effective Earth-centric strategies because they never tire of Inquiry; they have learned how to Meshwork self-organizing operating systems with structural operating systems. Altogether they are proficient Navigators of Aliveness – using guidance from the zero-point Akashic field along with advanced digital and beautiful analog guidance systems. Finally, the CI's attune many times a day to the Evolutionary Impulse they know as their Source.*

*I imagine humans and human hives connect themselves in eco-regions around and in cities, bringing the relationship of Integral Cities and eco-regions with Gaia to life. This brings the value of Integral Capacities – which you mapped out in **Map 1** of the whole AQAL city - to life through a series of generational cycles. In addition, we can see how the governance from **the 4+1 Voices** of the City matured from mutual trust and respect to a governance system that guides cities through coalescing authority, power and influence within cities and their eco-regions and across a Planet of Integral Cities.*

*I imagine this creates new conditions on Earth, so people develop in new ways. In 2021, we know the steps, stages and lines of 1st tier human development, but as 2nd Tier blossoms, I imagine we learn to recalibrate and accelerate whole lineages, worldviews, cultures and societies so they can become mutually sustainable - by breaking political and economic stereotypes, like Kate Raworth imagines with Donut Economics and Duane Elgin imagines in “Choosing Earth” and you have shown on **Map 4**.*

I imagine modern and post-modern worldview stereotypes embedded in the developed world are counteracted by emerging city-states who break open those stereotypes and find natural self-organizing capacities of economy, environment, society and culture. Imagine the children of Gen-CI discover new answers and their grandchildren and greatgrandchildren enable thriving cities on a thriving planet. I knew that in 2021 the roots for those new possibilities exist in our DNA and the DNA of Gen-CI.

The Spirit of the Integral City sparks to a new level of aliveness, with the spirit of younger generations (Gen-CI) who grok and know it as achievable reality. I knew they had the courage to not just dance with positives but even walk into the middle of shadow and turn it inside out (like the Shambhala warriors they are). I imagined Gen-CI could light up shadow in ways you think is blocked now. I imagined Gen-CI and their whole lineage into the future, could release, shadow-blocked energy into new capacities that became available because the energy blocks dissolved.

*As Gaia, I imagine I have **Reflective Organs (GRO)** – that is why I evolved the human species as my RO. I could see that especially cities could become my Reflective Organs. I imagined GRO (especially with Gen CI) could face the trauma and blockages in my planetary body. I wanted the human species as GRO to work as reflective beings who can find and release that which is blocked and regenerate flow.*

*I imagine, Reflection is the essence of the human species. I evolved you so you are conscious of your consciousness and able to think, do, relate and co-create in ecosystems, able to follow matter, information, energy – in their flexes and flows. Reflection follows feedback loops, so that as the systems become open, the organ is able to function more fully. You thought darkly in 2021 and were limited to ego and family and work scale. Many in Gen CI saw what an impact it made to practice the Karma Yoga of the **Master Code of Care** (see Russian Image) – Caring for Self, Caring for Others, Caring for Places, Caring for Planet.*

As this practice opened whole systems to flex and flow, I imagined Gen CI enabling blinders to be taken off, the veils of separation and fragmentation falling away, so we could all see Integral Cities as vibrant, alive systems. I imagined Collective Intelligence in IC could holographically sense all of Gaia and at the same time light up all cities, as a Planet of Integral Cities system.

*I evolved the Integral City framework of **5 Maps** of the city as organic – it is a life system, to design and build not just cities, but even space stations. I imagine we save ourselves from the threats we create as we co-evolve together. I imagine we really wake up, grow up, clean up and whole up together.*

I imagine, by the time I Gaia am thriving, we will have carried our capacities off Earth and discovered as we learn how, what happens on Gaia can happen off Gaia. I imagine that we are in a dance of inner and outer, individual and collective; I become a really thriving planet as humans become a really intelligent species with deep respect for cosmo-bio-anthro-centric life that brought us to this point, cities and all.

[Let me show you a little animation that brings the shapeshifting maps of Integral City into an evolutionary flow – shown as video on Zoom.]

MH: Gaia has spoken. I am energized and excited by the picture she paints of the future of cities in 100 years. But how do we evolve our cities from 2021 to 2121? Can we backcast to see how we could develop a strategy to realize what you imagine?

Cities are Alive

Gaia: That is my intention I want to inspire in you. I have some more wisdom to share.

*I am so grateful that **James Lovelock** recognized that as a planet I, Gaia, am a living system. Not only am I alive, but I am the creator of all life on this planet – and I long to have a conversation with the most complex species I have evolved to date – humans.*

*I want to share with you some of the ideas and design frameworks I have evolved, and how I am still in the process of evolving living, evolutionary organs for my Earth body. I have been busy creating forest organs for breathing, riparian organs for cleansing my wastes, heart organs from the savannahs of Africa, circulatory organs from my rivers and lakes and homeostasis organs from my great oceans. Now I long for a system of Reflective Organs that allow me to express my consciousness and intelligent culture. I have imagined these organs to be Integral Cities. When I imagine a Planet of Integral Cities coming into existence, I will have a whole Reflective Organ system (like **Map 4**), with organelles formed from organizations and cells from you individual humans.*

As a planet I have been around for 4 billion years and have ancestors in the universe who have shared with me universal design patterns that I put to good use. For instance, Cities are Complex Adaptive Living Human Systems. As such they are extensions of the living organisms that form you humans as individuals and collectives. Like all living systems I have created, cities demonstrate 3 behaviors: They

- 1. Survive*
- 2. Adapt/connect with environment*
- 3. Regenerate*

Cities Evolve Map 4

As living organisms cities have the potential to develop through characteristic (archetypal and fractal) lifecycle stages of most living systems:

child, youth, adult, elder

Each of these stages has the potential to mature in ways that expand the worldviews - and centres of care - of your individual consciousness and the culture that contains it:

Ego, ethno, regional, global (Your languages describe these as I, You/We, It, Its.)

In turn each of your worldviews can be related to a potential stage of maturity in engaging with the world – that I name as:

Waking, Growing, Cleansing/healing, Wholing

Elisabet Sahtouris, the evolution biologist who has explored so much about the living system contained in cells and microbiology, wisely recognizes that humans are a very young species. (By comparison to the honeybees that you study for insights through biomimicry - honeybees are 100 million years old). Your species is maybe a million years old if we stretch it.

Elisabet says, as a young species, you have been and are naturally conflicted and very competitive. This is very typical of the child and youth stages of most species. This youthful stage of your species – with all its conflicts and competition is what has brought you to the circumstances that you experience in the world today. In your youth you tend to see the world through a I/It lenses and challenge life with a competitive attitude.

My first mentoring insight for you is that unless you can mature and outlive this stage to embrace a wider circle of care, and become cooperative and collaborative, your species may not mature into the organs I Gaia so greatly desire.

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Cities are Unequal: Cities are Diverse

MH: I am a little stressed – cities and the people who are in them are so different. How can we expect that what will work in one city will work in another?

*Gaia: Another wise human, who has been extremely helpful in offering a coherent story about my evolution as a planet is Dr. Eddy. In (2003) he reframed the study of geography as a **history of the universe and world**, within an Integral model and ecosystem science. He provided an evolutionary view within which others could examine both global environmental change and theories of human security. Eddy (2005) started with the Big Bang (or what cosmologist Jude Currivan calls the Big Breath) and revealed the evolutionary strata that culminate in human civilization as in Figure 1.*

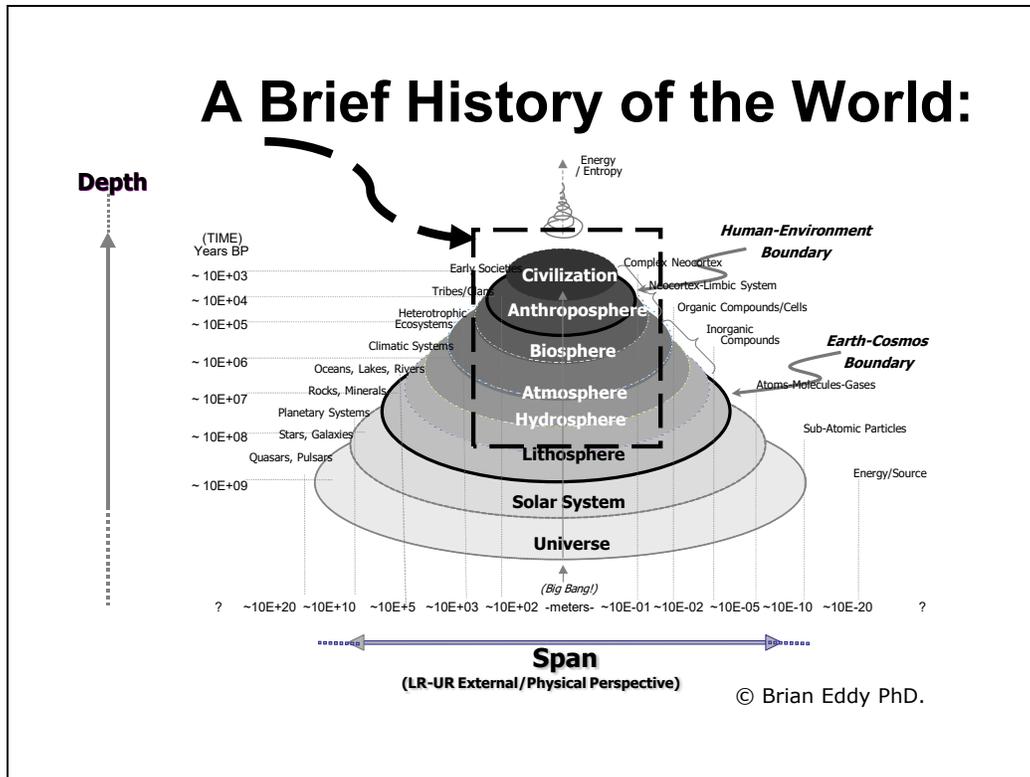


Figure 1: Brief History of the Universe and World. Source (Eddy, 2005)

Eddy grounded the study of global environmental change within three differentiated strata: The Cosmosphere that spans the universe (that embodies my lineage as a planet); the Biosphere that includes the living global environment; and the Anthroposphere that embraces the human condition. He grouped the study of these into a spectrum of “pure and applied (ABC) sciences”: Earth and Planetary Sciences; Life Sciences; and Social Sciences.

The variations in each of these spheres helps to explain why cities are different from one another.

Eddy’s evolutionary ABC framework built on Ken Wilber’s framing of holons and holarchies (Wilber, 1995, 1996a, 2000b, 2007) and effectively integrated the human condition within global environmental change, showing the three spheres as evolving one from the other and massively entangled at all scales and times, co-creating conditions where now it is evident that the Anthroposphere is impacting both the Biosphere and Cosmospheres; for example reducing biodiversity in the Biosphere (Esbjörn-Hargens & Zimmerman, 2009) and changing the hydrological cycle in the Cosmosphere (Linton, 2010).

*More recently, you (Hamilton, (2011, 2014) integrated global environmental change issues within an evolutionary analysis of key literature, to **identify the strata critical to global wellbeing:***

- *Psycho-Cultural-Social (Diamond, 2005; Hamilton, 2008a; Wilber, 1995; Wright, 2004)*
- *Bio-Genetic-Ecological (Esbjörn-Hargens & Zimmerman, 2009; Hamilton, 2008a; M. E. Zimmerman, 2005)*

- Food Scarcity (L. Brown, 2008; McKibben, 2007, 2011; Taylor, 2008)
- Climate (Adger, Aggarwal, Argawala, Alcamo, & etal, 2007; Diamond, 2005; McKibben, 2011; M. Zimmerman, 2010)
- Water (L. Brown, 2008; Diamond, 2005; Linton, 2010)
- Energy (Monbiot & Prescott, 2007)

Figure 2 makes the direct linkages, of Energy threats to degradation of the Lithosphere; Water threats to degradation of the Hydrosphere; Climate threats to degradation of the Atmosphere; Food threats to degradation of the Biosphere; and Psycho-Cultural-Social threats to degradation of the Anthroposphere.

The most evolved strata of this Threat Map is human civilization, which is now predominantly located in cities (anon, 2011a, 2011b; Glenn et al., 2011a; Taylor, 2008). I have become aware that the progressive entanglements and feedback loops between strata amplify the impacts of change on my whole planetary life as increasing complexity emerges. Thus, while the Anthroposphere is the most complex it not only impacts Biosphere and Cosmosphere, it too is impacted in turn by any changes originating in the B and C Spheres.

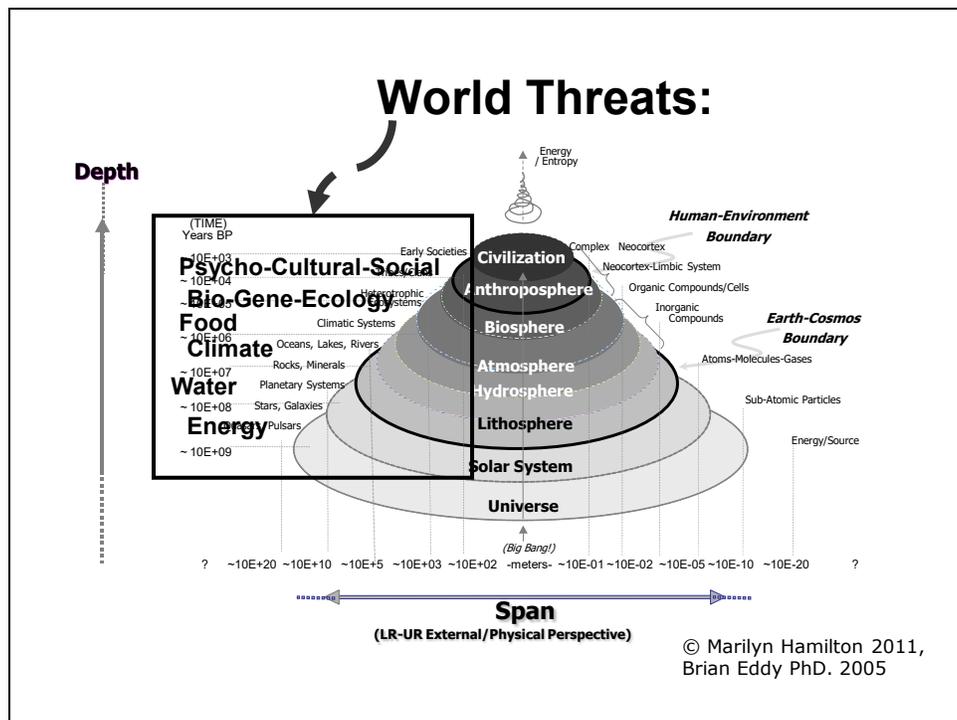


Figure 2: Threats to World Spheres in Evolutionary Trajectory

Population Growth

MH: Now I have a better idea of the relationship of the 3 great ecosystems that co-exist on our planet and the patterns you have taught me to recognize in all places. But humans are unequally distributed around the world. And our cities are not all at the same level of development. How do we take that into consideration?

Gaia: *If you are going to evolve cells, organelles, organs and organ systems like I imagine as my Reflective Organ System, then it is a good idea to become aware of the conditions in which these living systems and sub-systems are emerging.*

*Let's get some big pictures of **human population and demographics.***

In purely biological terms, the success of humans can be measured by the rise in global population. Figure 3 illustrates the exponential rate at which human population has grown and is anticipated to continue to grow.

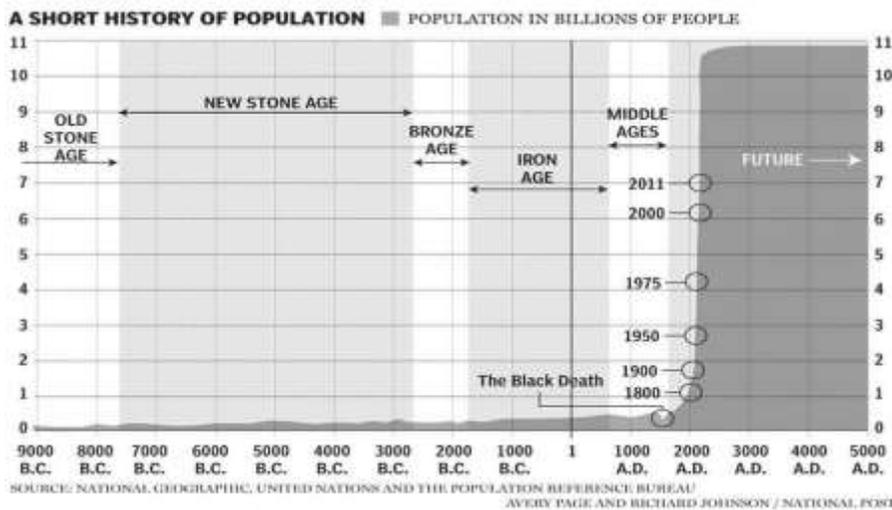
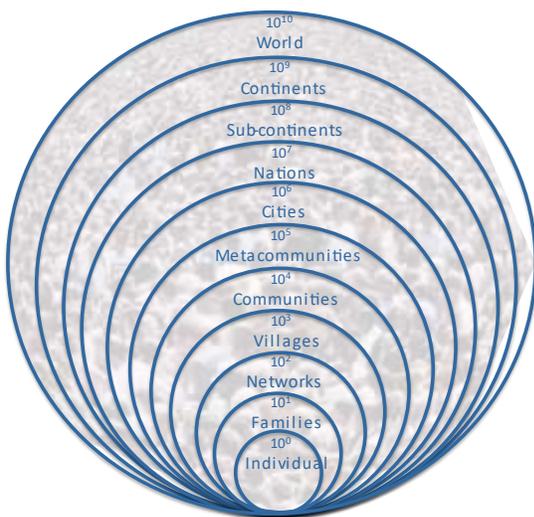


Figure 3: Human Population Growth Past & Future (Page & Johnson, 2011)

In relating this population growth to cities, we can date the first city with over 1 million inhabitants in 1800 (Beijing). By 1900 the world's 10 largest cities had populations in the range of 1.4 to 6.4 million. By 1950 the world's 10 largest cities had populations in the range of 4.8 to 12.4 million. By 2000 the world's 10 largest cities had populations in the range of 14 to 33 million. (All figures from VanSustern (2007).) By 2018, the world's 10 largest cities had populations from 18 to 37 million.(Wikipedia)

Mark McCaffrey has been studying the scale of human systems in relation to climate change impact. He and colleagues created the **Powers of 10 framework** to use the ten orders of magnitude between a single individual and everyone else on the planet as a framework (Figure 4). Their research showed that the “sweet spot” for climate change effectiveness was cities of 50,000 to 100, 000 (this is an echo of Aurobindo – in the 1920’s - who suggested 50,000 was the optimal size of a city.)



Powers of 10:

Ten orders of magnitude between a single person and all other humans on the planet

Figure 4: Human Systems to the Powers of 10 (McCaffrey et al)

I, Gaia notice that this image and pattern is a fractal of your (Hamilton’s) Map 2 of the Integral City – where McCaffrey’s holarchy is nested human habitats (whereas Map 2 is a holarchy of organizations within any given city).

Powers of 10

a framework for scaling
social transformation

Mark S. McCaffrey
ECOS - a UN Climate Change Community

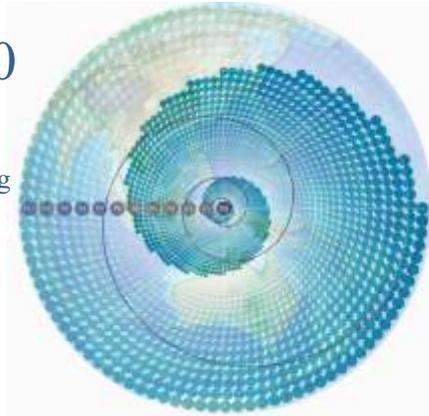


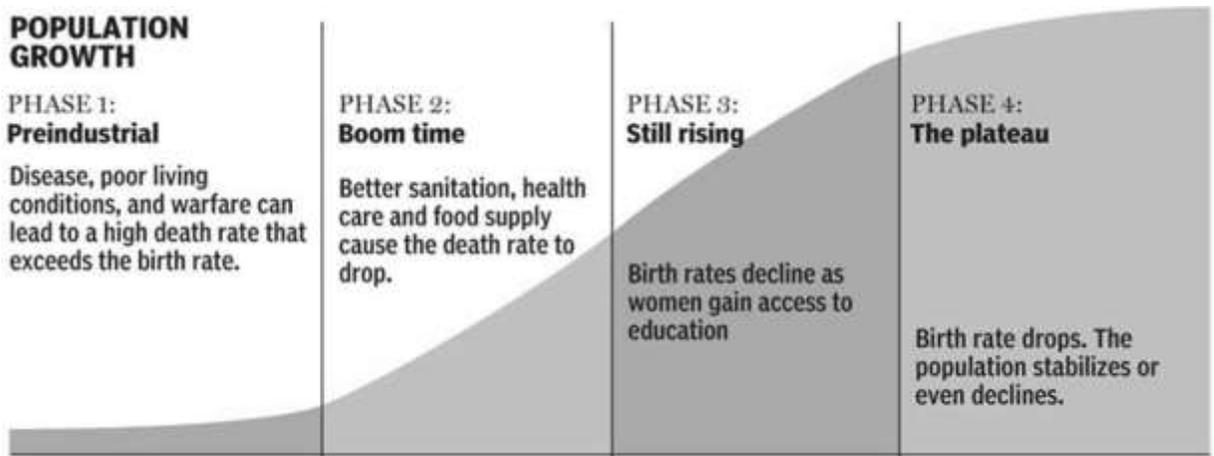
Figure 5:
Transformation (McCaffrey et al)

Framework for Scaling Social

Mark and colleagues noticed that the holarchy was a framework for scaling social transformation and could be expressed as an **elegant Fibonacci image** as in Figure 5. Perhaps one of the considerations we will have moving into the Planet of Integral Cities that you and I imagine is that we will have to do some work to “right size” cities? Perhaps, we can use the powers of 10 to start up ecovillages, and target the size of new cities to be in the 50 – 100, 000 population range? (Or recalibrate cities into Community Action Networks CAN’s (Adnan, 2021)?)

As you observe, people are not all the same in different cities or even within cities. So, as a corollary to the global population data, let’s consider recent analysis of regional demographic profiles that show changes to worldviews and human capacities as the society matures in complexity (Page & Johnson, 2011).

Figure shows **the demographic growth profiles** of four societies and their birth rates: Traditional/**Pre-Industrial**, Pre-Modern/**Boom Time**, Modern (Industrial)/**Still Rising** and Post Modern-Early Integral/**The Plateau**. The clear trend is that as societies become more complex (measured in terms of wealth and/or development), population fertility rates drop, life spans lengthen, and total population size stabilizes or reduces.



Source: National Geographic, United Nations and the Population Reference Bureau, Avery Page and Richard Johnson/ National Post, August 13, 2011



Source: National Geographic, United Nations and the Population Reference Bureau, Avery Page and Richard Johnson/ National Post, August 13, 2011

Figure 6: Demographic Profiles of Four Societies (Page & Johnson, 2011)

*The outcomes of this pattern impact the **4 Voices of the City**. The demographics of cities/societies result in different proportional impacts of the 4 Voices: Citizens grow from least to greater empowerment. Civic Managers trend from greatest to lesser power; Business/Innovators expand from less influence to more influence; and 3rd Sector/Civil Society discover an increasing capacity for coalescing and cohering all the other Voices.*

Beck (Beck, nd) has proposed that in large scale human systems changes in complexity impact the political systems, economics and wellbeing of societies. He makes the point that democracy as a governance system comes in many forms that align with the stages of maturity of a country.

We would propose that cities are the key zones where each of these core society profiles emerge (Traditional, Pre-Modern, Modern Post-Modern/Integral) . The profiles seen in the sample Figure 7 nations (less and more

developed) and Figure 8 (*low and high income*) effectively make visible the demographic shapes of the human hive at ever increasing stages of complexity in the years 1950, 2017, 2050 and 2100.

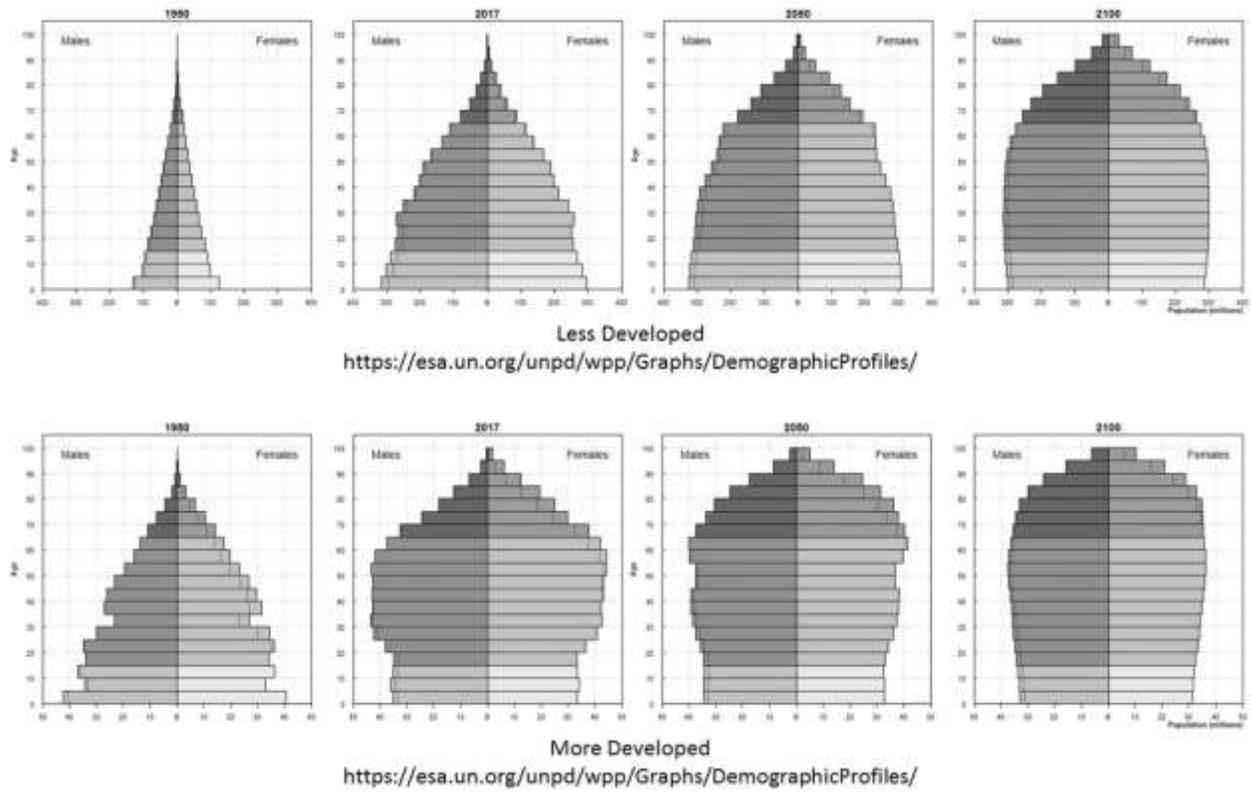


Figure 7: Demographic Profiles of Less & More Developed Nations

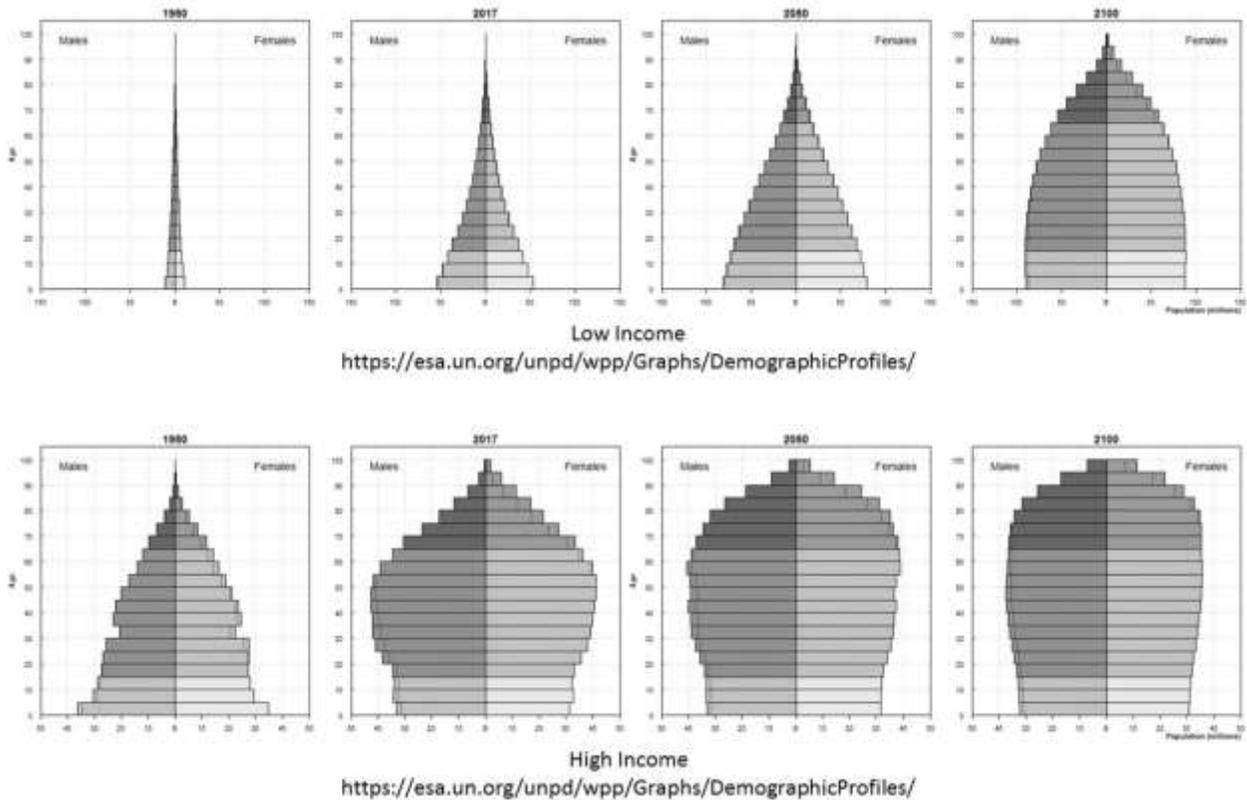


Figure 8: Demographic Profiles of Low- & High-Income Nations

You can see that from all these profiles the city-nations with the most complex worldviews, most developed and most wealthy populations have proportionately fewer young people and more elders, with gradually stabilizing large populations in mid-life.

Nature Economy

*Along with these evolving population profiles, life conditions are also shifting in cities around the world, producing a toxic mix of interconnected threats. The **relationship of natural capital to human endeavor** shows that human society (in the industrial and post-industrial world) is almost bankrupt because it is now consuming my Earth's capital at a dangerous and unsustainable rate. As noted by Rees and Wackernagel with their *Eco Footprint (1994)* over two decades ago, living at this rate of consumption demands the equivalent of three to four planets.*

All of this demonstrates to me, that I need to create an evolutionary solution – especially if I want you humans to build “new cities”.

MH: Before we talk about new cities, let's consider what we need to know to regenerate existing cities.

Implications for Development of Existing Cities

Gaia: As we have seen, an evolutionary analysis of sustainability threats tells us that cities in the developing world face greater levels and more complex risks than cities in the developed world. These relate to both the internal ways of thinking, cultural beliefs and visions of the future as well as in the external behaviors and structures and systems of the city. That's why you suggest that developing quality of life in your human habitats requires both placecaring and placemaking.

Ecological Implications for City Regeneration

When threats to city sustainability occur because of major natural disasters, restoring city capacities depends on strategies that must be evolutionarily appropriate to the level of complexity of the city while keeping in mind its ecology, climate and natural capital load (Esborn-Hargens & Zimmerman; Zimmerman 2010, 2005).

Many examples of disaster-based meltdowns, dramatically illustrate the difference of regeneration in the developed world (e.g., Sendai, Japan) compared to the developing world (Haiti).

Where the threats are less dramatic, for example where deterioration has occurred over extended time frames, the results may be no less drastic. For instance, in places where there is little social equity for workers' health and safety, toxic soups of physical and chemical deterioration endanger human survival. We know of polluted cities from cold-war Russia; the electronic and shipping recycling dumps in China and India; the maquiladoras in Mexico and southern Asia – or even Miami's recent apartment collapse. These cities are stuck in life conditions that have long ago threatened the health of the local Biosphere and toxified the Cosmosphere sufficiently to imperil the health of the Anthroposphere. These same threats are now increasing regional and global deterioration, including global temperature increases, CO2 emissions, terrorism, corruption, refugee displacement and restricted governance participation. In addition such unsustainable city systems are clearly impacting any clear resolution of deforestation, democratization, non-fossil fuel adoption and unemployment (Glenn et al., 2011a, p. 3; 2011b).

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MH: If things are this precarious, how can we move beyond the threats and disasters of 2021 into some kind of positive future?

Cities Learn & Care: Schooling for a Planet of Integral Cities

Gaia: Well, luckily, I only design systems that learn and evolve (at least the ones I keep alive and in service to all life on planet Gaia). What you need is to shift from thinking in just intermittent projects to creating the conditions for Schooling a whole Planet of Integral Cities.

Reframing with Systems Thinking

From my Gaian perspective, the current situation needs systems thinking lenses like the ones **Meadows** (Meadows, 2008) long ago worked out to identify the core leverage points to intervene in a system:

12. Numbers

11. Buffers

10. Stock-and-Flow Structures
9. Delays
8. Balancing Feedback Loops
7. Reinforcing Feedback Loops
6. Information Flows
5. Rules
4. Self-organization
3. Goals
2. Paradigms
1. Transcending Paradigms

Keeping the most effective leverage points in mind as the paradigms in use and how to transcend them, we discover in the Integral City Map 4 clues to understanding what are the **driving values** of the Traditional, Pre-Modern, Modern and Post-modern/Integral paradigms as shown in Table 1.

Table 1: Paradigms & Levels of Complexity (adapted from D. Beck with permission)

Paradigms and Leverage Points in the System		
Level of Complexity	Who is Center of the Universe?	What is Driving Value?
INTEGRAL	Globe	Global Wellbeing
	Natural System	Flex/Flow
POST-MODERN	Social Network	Caring & Sharing
	World Economy	Performance
MODERN	Nation/State	Authority
	Kingdom	Power
TRADITIONAL	Family/Clan/Tribe	Belonging
	Individual	Survival

In effect Table 1 (and Map 4) shows us a relationship between the worldviews (which define who is the center of the universe), driving values and the level of complexity. The more advanced worldviews (Integral, post-modern and modern) act as the amplifiers to the capacity of the structures in cities in the developed world- On the other hand, the less complex worldviews (traditional and modern) act as the limiters and filters that make structures in cities in the developing world much less resilient-

So now, we have input that can enable us to design a strategy for city development that aligns development with the systems embedded in the people, place, priorities and planet who will be impacted.

Development Strategies

Not surprisingly the roots of Gaia-centric designs for city wellbeing offer us a way of imagining the human hive that we can explore with the core principles of living systems, the 12 intelligences, 5 maps and 4 Voices.

Essentially these core principles of meshworking for city development include the following:

Implement the Master Code

1. *Create an Agreement to Work Together with the Formation Team (including all 4 Voices), based on the Master Code: Take care of Self, so that you can care for Others, so together we care for our Place(s), and all of us can care for our Planet.*

Honor the Spheres

2. *Identify the change condition of the ABC spheres of the city container, map them with **the GPS and Discovery Profiles**. (Figure 5).*

Recognize Threat(s)

3. *Name and evolutionarily map the environmental threat(s) in the system – overcoming the dissonance that provides the impetus or catalyst to change (Figure 6).*

Develop with Purpose

4. *Identify the purpose for developmental change – create the vision for changing the city from what to what (e.g., Traditional to Modern; or Modern to Post-Modern; or Post-Modern to Integral)?*

Engage Stakeholders

5. *Use Integral City **maps 1,2,3,4, 5** to find the agents for developmental change – engage all the **4 Voices** (as many stakeholders in the process as possible) – actively seek out diversity and make room for difference.*
6. *Enable leadership to emerge to champion the development and address the threat(s) at the appropriate levels of complexity (Figure 6).*

Facilitate Change Processes (summary of City Development)

7. *Amplify the resources available for development from all 5 maps (in Step 4) so others can see them (e.g., in scenario planning).*
8. *Amplify the threat(s) to development so others can see it/them (Figure 6).*
9. *Integrally identify the resources needed to facilitate the change and invite and involve stakeholders to contribute to them (Figure 6).*

Design with Integral Methodologies

10. Use Integral City Master Code, GPS, Intelligences and Principles as checklists to determine “right action”.
11. Co-design Integral methodologies for developmental change that self-organize passion, purpose, priorities, people, and planet. Expect it to be messy.

Learn from Feedback Loops

12. Create reflective feedback loops and Integral vital signs monitors (based on Navigational Intelligence) so that participants can self-correct and develop operational structures that work.
13. Make the feedback accessible to all by communication, publication and display; e.g., community gatherings, community newspapers, online media, real time intelligence display systems.
14. Pay forward to other stakeholders, cities, the Integral learning for development, evolution and adaptation.

Practise the Master Code

15. Take care of Self, so that you can care for Others, so together we care for our Place(s), and all of us can care for our Planet.

MH: Ok, I can see how this is not easy work for existing cities – but I think necessary for us to regenerate our relationship with you Gaia. We have not been very respectful of you as our Mother. And I can see that unless we take these steps then you may decide that our cities are not a successful evolutionary experiment to become Gaia’s Reflective Organs.

But let’s agree that we will implement the approach to regenerating existing cities as you suggest. Can you give us some guidance for designing whole new cities?

Designing New Cities

Gaia: Keeping in mind the challenges of bringing new lenses to the development of existing cities, let’s consider how to design Neo-Cities? This may become especially relevant in the next century if we set out to right-size cities and create life conditions for creating new cities.

Questions for Neo-Cities as Human Hives

We need to ask designers, investors and developers questions about their intentions:

- How is a Neo-City a logical next step for your development (vs villages and communities)?
- If the Neo-City assumes that it is possible to create a specialized habitat for humans with select interests:
 - How will Neo-Cities learn from the Masdar or Dubai effect – where construction and maintenance workers cannot afford to live there?
 - How do Neo-Cities administer themselves democratically?
 - How do the voices of non-elite workers and residents get equally heard with those of the elite?
 - Do Neo-Cities risk developing caste systems (internally or in comparison to external cities)?

Internal Requirements of Neo-Cities

MH: Thinking about the Neo-Cities is undeniably exciting, especially when they seem to be really designed with the external requirements of the human hive in mind.

But, when viewing the ghost cities in China which have been built and stand virtually empty without residents, I am curious if designers of Neo-Cities have considered any of the internal requirements of the human hive, such as:

- Considering that humans go through a developmental cycle, how have they built into the design of the city, the fact that we all start out at a basic developmental stage and must learn our way through a series of such stages?
- Do the designers recognize vertical development in themselves? Have they made allowances for continuous learning and the need for the city to change over time? (DeKay, 2011)
- What happens if assumptions about the city's environment (both internal and external) are drastically altered by events not under the designer's control (e.g., natural disasters, or man-made invasions)?
- How do Neo-Cities defend themselves from external invaders such as envy, greed, power-plays, pandemics?
- What is the right relationship of Neo-Cities to other Neo-Cities and Traditional, Modern, Post-Modern Cities?

Neo-Cities Need Neo-Civics

Gaia: *Good questions. With Neo-Cities on the drawing boards – and even before Investor Boards, I wonder if the investors will consider similar aspects of investing in cities as they do in entrepreneurial start-ups, especially remembering the importance of the organizational team? (In the last year alone, I have encountered intentions for creating new city projects in the USA, Canada, UK, Spain, Russia, Costa Rica, Japan).*

In entrepreneurial ventures the quality of the people generally outweighs the cleverest of ideas or the most unusual patents. I suggest the same considerations for team quality ought to be true of Neo-Cities. But how will that be done? Here are more questions to consider:

- *Will there be an application process for citizens? Will the investors form a recruitment team for desirable citizens?*
- *What criteria will they use to choose the initial citizens?*
- *Will the criteria hold the same seeds of disaster that many an intentional community has sown?*
- *How will the recruiters separate their own biases from the needs of the Neo-City?*
- *How will the designers build in the appropriate form of governance? Will they design the first stage and then expect neo-politicians to take over the subsequent stages of developing governance – like condominium/strata corporations in 2021?*
- *Will the state become involved in setting standards for Neo-Cities?*
- *Will Neo-Cities exempt themselves from state interference through economic separation of banking and transactional exchanges? Will they design themselves for Earth/Social Justice balance with the wisdom of the new economics (like **Donut Economics**)?*
- *Does a Neo-City need a neo-civics? Would that evolve out of Integral City's 4 Voices and 4 Roles???*

- *Might the Integral City 4 Voices provide the stem-cells for such a neo-civics?*

Conclusions

MH: Thank you Gaia. I can see that Integral City evolution for the next century starts with a commitment to practising the Master Code. A spectrum of strategies is needed to effectively align city development with Earth's 3 ecosystems and evolutionary strata.

We must apply our GPS intelligences to ensure the survival of the human species long enough for us to mature beyond the over consumption of our natural capital in every eco-region on this planet to cooperate, collaborate and co-evolve with you Gaia.

Thus, we have many generations of Integral City capacity building ahead of us to create self-sustaining human habitats on our home planet. This will require us to grow the capacities of collaboration, community, and urbanization beyond any context the human system has ever evolved. We will need to work at multiple scales simultaneously – at the multiple scales of human systems nested within the city as a whole: systems, organizations, families/groups and individual leadership.

Furthermore, applying evolutionary strategic design will not just be useful for considering different approaches to cities in the developed and developing worlds, but also to designing new cities that embrace the developmental trajectory of the human system at all scales. What's more, these design approaches can also apply to designing space stations, and space colonies (such as those being considered by Musk on Mars (Titcomb, 2017). And these design elements certainly presage Book 4 in the Integral City series, with its exploration of the evolutionary eras of the human hive.

Good News –

*Gaia: And as an epilogue I would like to share, that you are not alone. You invite others into the wisdom of Integral Cities through the training that is forming the foundations of **Schooling for a Planet of Integral Cities**. And your annual awards of **Meshworker of the Year** and **Integral City of the Year** make visible the progress we are making.*

In addition, I notice that a host of Wise Peers and Elders have much to support you in your work of regenerating cities and creating a planet of Integral Cities – I share just 4 here:

Elisabet Sahtouris, Vandana Shiva, Kate Raworth, Duane Elgin,

Wisdom of Living Systems from Sahtouris

We suggest a natural sequence for the creative renewal of the city involves the key steps of: Discovery, Strategic Planning, Contexting Sustainability & Resilience, Connecting & Communicating and Governing. We can review a city's approaches to creative placecaring and placemaking with the steps set out in Table 2 below (with parenthetic links to the numbered sequence of the Principles of Living Systems from Elisabet Sahtouris).

Table 2: Steps for Creative Renewal of the City

Discovery

1. Value history, traditions culture that works well for all (14)
2. Enable creative change to replace what does not work with what works better (15)
3. Create valued and valuable city vision with wisdom and resources for all (1)
4. Appreciate great diversity of the 4+1 Voices (producers, inventors/artists, resource allocators and integrator – citizens, business, civic managers, civil society) (2)

Strategy

5. Create an innovation eco-system for a thriving economy that engages manufacturers, universities, business, innovation labs (7)
6. Create conditions for full employment through training from k-U, coordinating youth, interns, business, government (10)
7. Learn in school and practise day to day: mutual trust and respect; dialogue; feedback; teamwork; life-long learning and life-giving projects/processes for all (4)
8. Balance interests for healthy economy and wellbeing for all by engaging 4+1 Voices of the city in setting goals, planning, deciding (5)

Context Regenerativity

9. Create an integrated regenerativity plan to measure sustainable climate, energy, water, food and finance for city and eco-region and create a circular economy (8)
10. Add value to economy and eco-region, nation, planet for resilience (6)
11. Create information systems that inform decisions for/with/as 4+1 Voices of the city and state, region, nation (9)
12. Be a model of sustainability & resilience for other cities in eco-region, nation, continent and planet (3)
13. Respond to stresses at all scales to create resilient city where stakeholders work together to create wellbeing conditions for all (13)

Network

14. Connect all Voices/Stakeholders with communication technology to optimize communication internally and the rest of world (9)

Govern

15. Design and practise governance that is fair, transparent, accountable, and accessible, so people feel safe, caring and relate to each other easily and often (11)
16. Balance efficient management of all city functions with extra resources so city is resilient to change (12)

Next Vandana Shiva guides us to Earth Democracy.

V. Shiva – Earth Democracy

1. Ecological Democracy – Democracy of all life

We are all members of the Earth community. We all have the duty to protect the rights and welfare of all species and all people. No humans have the right to encroach on the ecological space of other species and other people or treat them with cruelty and violence.

2. Intrinsic worth of all Species and Peoples

All species, humans and cultures have intrinsic worth. They are subjects, not objects of manipulation or ownership. No humans have the right to own other species, other people or the knowledge of other cultures through patents and other intellectual property rights.

3. Diversity in Nature and Culture

Defending biological and cultural diversity is a duty of all people. Diversity is an end in itself, a value, a source of richness both material and cultural.

4. Natural Rights to Sustenance

All members of the Earth Community including all humans have the right to sustenance — to food and water, to safe and clean habitat, to security of ecological space. These rights are natural rights, they are birthrights given by the fact of existence on earth and are best protected through community rights and commons. They are not given by states or corporations, nor can they be extinguished by state or corporate action. No state or corporation has the right to erode or undermine these natural rights or enclose the commons that sustain all through privatisation or monopoly control.

5. Earth Economy is based on Economic Democracy and Living Economy

Earth democracy is based on economic democracy. Economic systems in Earth Democracy protect ecosystems and their integrity, they protect people's livelihoods and provide basic needs to all. In the earth economy there are no disposable or dispensable species or people. The earth economy is a living economy. It is based on sustainable, diverse, pluralistic systems that protect nature and people, are chosen by people, for the benefit of the common good.

6. Living Economies are built on Local Economies

Conservation of the earth's resources and creation of sustainable and satisfying livelihoods is most caringly, creatively and efficiently and equitably achieved at the local level. Localization of economics is social and ecological imperative. Only goods and services that cannot be produced locally, using local resources, local knowledge should be produced non-locally and traded long distance. Earth democracy is based on vibrant, resilient local economies, which support national and global economies. The global economy does not crush and destroy local economies.

7. Living Democracy

Earth democracy is based on local living democracy with local communities, organised on principles of inclusion and diversity and ecological and social responsibility having the highest authority on decisions related to the environment and natural resources and to the sustenance and livelihoods of people. Authority is delegated to more distant levels of governance on the principle of subsidiarity. Earth democracy is living democracy.

8. Living Knowledge

Earth democracy is based on earth centered and community centered knowledge systems. Living knowledge is knowledge that maintains and renews living processes and contributes to health of the planet and people. It is also living knowledge in that it is embedded in nature and society, is not abstract, reductionist and anti-life. Living knowledge is a commons, it belongs collectively to communities that create it and keep it alive. All humans have a duty to share knowledge. No person or corporation has a right to enclose monopolize patent or exclusively own as intellectual property living knowledge.

9. Balancing Rights with Responsibility

In earth democracy, rights are derived from and balanced with responsibility. Those who bear the consequences of decisions and actions are the decision makers.

10. Globalizing Peace, Care and Compassion

Earth democracy connects people in circles of care, cooperation and compassion instead of dividing them through competition and conflict. Earth democracy globalizes compassion, not greed, and peace, not war.

Next Kate Raworth's Donut Economics provides the foundation for a Planet of Integral Cities to see themselves both internally through what you call placecaring and placemaking, but also externally through the interaction with other cities in the world and how they enable social justice and Earth system balance. Like you recognized Amsterdam as the Integral City of the Year 2019 (because it demonstrated all the Integral City GPS intelligences in action), Kate's Amsterdam City Portrait identifies key steps to put the Donut into practice:

1. **Embrace the 21st Century Goal.** Aim to meet the needs of people within the means of the living planet.
2. **See the big picture.** Recognize the potential roles of what Integral City calls the 4 Voices to transform and synergize economies : Citizens (household); Business Innovators (market); Civic Managers (state); and 3rd Sector/Civil Society (commons).
3. **Nurture human nature.** Promote diversity, participation, collaboration, and reciprocity. (This relates to your borrowing of the roles from the honey bees: diversity generators, conformity enforcers, resource allocators and inner judges).
4. **Think in systems.** Experiment, learn, adapt, evolve and aim for continuous improvement. Expect non-linear "messiness" through dynamic feedback loops and tipping points.
5. **Be distributive.** Work in the spirit of open design and share the value with all who co-create it. (This relates to Integral City's Master Code of Care: for self, others, place, planet.)
6. **Be regenerative.** Aim to work with the cycles of the living world (as Integral City sets out in Living Intelligence.)
7. **Aim to thrive rather than grow.** (This aligns with your proposal to "right size" cities so they can thrive on purpose adding value to all life on Earth.)

Finally, as a reminder to how we started, Duane Elgin finishes with the steps we can take to Choose Earth in the most positive way possible.

Elgin proposes we do the following in order to Choose Earth as our future (p.155):

1. Awaken to aliveness
2. Cultivate our true gifts
3. Be deeply informed
4. Protect and restore nature
5. Grieve losses
6. Practice reconciliation
7. Choose simplicity

8. Organize a study group
9. Support others
10. Cultivate communication
11. Become a compassionate activist

MH: At the beginning of this lecture, I **started with this question.**

“How can we design a city for the wellbeing of our granddaughters and future generations in a way that adds value to all Life on Earth?”

I asked: “How do we wake up, grow up, clean up and whole up the human hive? Why should we care for her resilient souls, understand the context of people’s goals, develop organizational capacity for critical roles, amplify sustaining energy flows or heal the traumatic impact of warring blows?”

Now I hope from this exploration with you Gaia, we can learn how to craft a Curriculum for Schooling a Planet of Integral Cities 2121. Let us collaborate to reframe and regenerate what it means to live fully alive in in our human hives not just for the next 100 years - but well beyond that.

Replay Animation

References

- Adnan, I., (2121). *The Politics of Waking Up: Power and possibility in the fractal age*. London UK. Perspectiva Press
- anon. (2000). Millennium Development Goals. Retrieved December 21, 2017, from UN http://en.wikipedia.org/wiki/Millennium_Development_Goals
- anon. (2017). Sustainable Development Goals. Retrieved December 11, 2017, from Wikipedia https://en.wikipedia.org/wiki/Sustainable_Development_Goals
- Capra, F. (1996). *The Web of Life: A New Scientific Understanding of Living Systems*. New York: Anchor Books, Doubleday.
- Christensen, T. (Ed.) (2015a). *Innovative Development: Emerging Worldviews and Systems Change*. Tucson, Arizona: Integral Publishers.
- Christensen, T. (Ed.) (2015b). *Developmental Innovation: Emerging Worldviews and Individual Learning*. Tucson, Arizona: Integral Publishers.
- Diamond, J. (2005). *Collapse: How societies choose to fail or succeed* (first ed.). New York: Penguin Group.
- Elgin, D. (2020). *Choosing Earth*. Duane Elgin.
- Hamilton, M. (2020). Book 2 - *Integral City Inquiry & Action: Designing Impact for the Human Hive*. Edition 2. Minneapolis, MN: Amaranth Press.
- Hamilton, M. (2018). Book 3 - *Integral City 3.7: Reframing Complex Challenges for Gaia's Human Hives*. Minneapolis, MN: Amaranth Press.
- Hamilton, M. (2019). Book 1 - *Integral City : Evolutionary Intelligences for the Human Hive*. Edition 2. Minneapolis, MN: Amaranth Press.
- Hamilton, M. (2015). SDi in the Integral City. In T. Christensen (Ed.), *Innovative Development: Emerging Worldviews and Systems Change*. Tucson, Arizona: Integral Publishers.
- Hawken, P., Editor. (2017). *Drawdown: The most comprehensive plan ever proposed to reverse global warming*. New York. Penguin Books.
- Jacobs, J. (2001). *The Nature of Economies*. New York: First Vintage Books Edition.
- Laloux, F. (2014). *Reinventing Organizations*. Retrieved from <http://www.reinventingorganizations.com/purchase.html>.
- Laszlo, E. (2006c). *Science and the Reenchantment of the Cosmos: The Rise of the Integral Vision of Reality* Rochester, VT: Inner Traditions • Bear & Company.
- Lovelock, J. (2009). *The Vanishing Face of Gaia*. New York: Harmony Books.
- Meadows, D. (2008). *Thinking in Systems*. White River Junction, VT: Chelsea Green Publishing.
- Patten, T. (2018). *A New Republic of the Heart: An Ethos for Revolutionaries (Sacred Activism)*: North Atlantic Books.
- Raworth, K. (2017). *Doughnut Economics, Seven Ways to Think Like a 21st Century Economist*. White River Junction, Vermont. Chelsea Green Publishing.
- Sahtouris, E. (1999). *Earthdance: Living Systems in Evolution* Retrieved from <http://www.ratical.org/LifeWeb/>
- Sahtouris, E. (2010). *Celebrating Crisis: Towards a Culture of Cooperation A New Renaissance: Transforming Science, Spirit & Society*, . London: Floris Books.

- Sahtouris, E. (2017). *A Tale of Cities and Cells: Our Human Evolutionary Agenda*. Retrieved December 7, 2017, <https://www.ethicalmarkets.com/a-tale-of-cities-and-cells-by-elisabet-sahtouris/>
- Shiva, V., (2015). *Earth Democracy*. Berkley, CA. North Atlantic Books.
- Strauss. W., Howe. N. (1997). *The Fourth Turning: What the cycles of History Tell Us About America's Next Rendezvous with Destiny*. New York, NY. Broadway Books.
- van Schaik, P. (2016). *Urban Hub 1: Smart Sustainable Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017a). *Urban Hub 2: Methodologies & Planning Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017b). *Urban Hub 3: Integral Theory Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017c). *Urban Hub 4: Integral Workbook Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017d). *Urban Hub 5: Visions and World Views Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017e). *Urban Hub 6: Visions and World Views 2 Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017f). *Urban Hub 7: Visions and World Views 2 Thriveable Cities*. UK: Integral Mentors.
- van Schaik, P. (2017g). *Urban Hub 8: What We Can Do Cultivating Change Thriveable Cities*. UK: Integral Mentors.
- VanSusteren, A. (2007). *Metropolitan World Atlas*. Rotterdam: 010 Publishers.
- Varey, W. (2010). *Psychological Panarchy: Steps to an Echology of Thought*. Paper presented at the 54th Meeting of the International Society for the Systems Sciences, Wilfrid Laurier University, Waterloo, ON, Canada.
- West, G. (2017). *Scale: The Universal Laws of Growth, Innovation, Sustainability and the Pace of Life in Organisms, Cities, Economies and Companies*. New York: Penguin Press.
- West, G. (2011). Why Cities Keep Growing, Corporations and People Always Die, and Life Gets Faster: A Conversation With Geoffrey West (5.23.11). In J. Brockman (Ed.), *Edge*: Edge.org.
- Wilber, K. (2017). *Trump and the Post-Truth World*. Boston: Shambhala Publications Inc.
- Wilber, K. (1995). *Sex, Ecology and Spirituality: the spirit of evolution*. Boston: Shambhala Publications Inc.
- Wilber, K. (1996). *A Brief History of Everything*. Boston, : Shambhala Publications Inc.