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THE ROLE OF COLLECTIVE INTELLIGENCE
IN THE WISE DEMOCRACY NEEDED FOR HUMANITY'S SURVIVAL

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WHERE DOES COLLECTIVE INTELLIGENCE COME FROM?

CONSIDER THE FAMOUS PRINCIPLE OF BIOLOGICAL evolution, "survival of the fittest". A more precise articulation might be "those entities survive that maintain a workable 'fit' with their environment despite its changes and challenges." This is where intelligence comes in.

A dynamic living system or organism needs to remain in tune with its changing environment so that its actions continue to be successful. It does this both by shaping its environment to satisfy its needs and by adapting itself to changing conditions. Both strategies depend on awareness of environmental realities and awareness of the relevance of those realities to the success and survival of the system or organism.

The primary function of intelligence – in fact, its evolutionary advantage – is to sustain this "fit". A living organism – or any system made up of living organisms – carries out ongoing adjustments between its internal and external environments and the palette of responses it has developed to different aspects of those environments. To do this, it may use genetic, cognitive, or mimetic modes. Every organism has a palette of responses governed by their genetic makeup, manifesting in such automatic responses as instincts and urges. Responsiveness can become more complex with the development of cognitive learning systems and cultural mimetic development and knowledge-transfer. But it is clear that an entire species "learns" new responsive patterns over eons through the trial and error of "natural selection" which alters the array of automatic responses it has available and how and when those responses are to be applied.

As intelligence evolved, some intelligent organisms' patterns of responses became more cognitive in the form of internal ideas, understandings, pictures, models, maps, and stories. These structures of consciousness contained increasingly sophisticated guidance for shaping behaviour in ways that satisfied both internal needs and the needs of the situations the organisms found themselves in. Further developments increased organisms' ability to creatively alter their inner ideas and stories – not just to meet current demands, but to imagine future situations and try out various scenarios which – when acted upon and the results noted – taught lessons about handling circumstances never before encountered. Choice increasingly entered the picture, both through moment-to-moment choices and through the ability to create and discard habits of thought, feeling, and action.

With the evolution of communication and culture, certain animals – most notably us humans – became increasingly able to pass on understandings to others around them and then to preserve them not just through individual memory but also through external records and through educationally embedding them in younger and future generations. The advent of science and mathematics further upgraded human societies' capacity to make our collective understandings more congruent with reality. The scientific method continually alters our maps to increasingly fit the territories they purport to describe and so more safely and productively guide our movements through those aspects of life.

Advancing sensor technologies – from microscopes and telescopes to radios and pollution detectors – enhance and extend our human sensory capacities. Evolving computational technologies open doors to calculations, reflections and renderings never before possible – integrating information at ever higher levels of complexity, precision, and abstraction. Developing communications technologies enhance our ability to share ideas, collaborate on collective learning adventures, and spread and access knowledge around the globe, manifesting in the extreme connectivity of the Internet and the Web.

What we see here is evolution of intelligence leaping from natural selection to the individual mind and thence into culture – the collective activities and

structures of society at large. We see all the functional divisions of intelligence reflected in social technologies and institutions. In addition to communications technologies and activities playing a role in society comparable to that played by electrochemical interactivity in the brain, consider these more-than-metaphorical examples:

~ We find a society's collective perception showing up as scientific research and technologies, investigative journalism, and opinion polling.

~ We find a society's collective reflection and problem-solving showing up as scientific theorizing and conversations, policy discussions, and literature.

~ We find a society's collective memory showing up as books, databases, and Wikipedia.

~ We find a society's collective decision–making showing up as meetings, legislatures, and market behaviours.

~ We find a society's collective corrective feedback dynamics showing up as activism, elections, and (again) market behaviours.

THE BUG IN COLLECTIVE INTELLIGENCE

As noted earlier, since intelligence helps us align with reality, it has the power to tell us how to adapt by changing ourselves and our behaviours to fit the demands of our environment *and* how to control conditions by changing our environment to suit our needs and desires. Understanding this distinction reveals a potential danger with collective intelligence.

Since scientific and technological enterprises are particularly potent forms of collective intelligence, I want to use them to clarify this "bug" by comparing Western conceptions of science with what has been called "indigenous science".

The explicit intention of Western science is to understand universal principles governing direct causal relationships so that people can step into that causal position and control and shape reality – a process often empowered by technology and magnified by mass economic behaviours and lifestyles. Indigenous science, in contrast, seeks to understand what is involved in a healthy, balanced relationship with the life of a place and with the larger universal context and forces governing all of life as manifested in such a place. "Unlike Western science, the data from indigenous science are not used to control the forces of nature; instead, [they] tell us the ways and the means of accommodating nature"[1].

These two divergent uses of collective intelligence – to control or accommodate nature – have obvious implications for sustainability. Efforts to adapt, accommodate, and develop partnerships with nature and its living organisms, systems, and forces tend to generate fewer technologies, economies, and lifestyles that require undue energy inputs and that undermine the workings of the natural systems upon which continued human life depends.

In contrast, efforts to predict and control nature tend to generate dependence on abnormal energy and material inputs to sustain continued dominance and the extension of that dominance into ever-new domains of life. This input-intensive creative process – otherwise known as "progress" – does not usually have "balanced relationship" as its core motivation. Rather, it tends to support narrow (linear, corporate, self-interested, immediate gratification) perspectives that disregard waste, pollution, and side effects in the "efficient" pursuit of narrow objectives like production, consumption, profit, and power. As mathematics and technologies magnify our power to dominate, our impacts on the world grow disproportionately – not just at the human scale but also at vast and microcosmic scales beyond the reach of normal organic perception. Mass behaviours driven by economics, mobility, and communication spread that influence over wider territory, increasing our impact even further.

It is therefore not surprising that this potent and ubiquitous Western science-driven dynamic disrupts natural – and even human – systems, creating problems and crises. But our scientific worldview has an answer: those problems and crises become objects of study and technologically-empowered manipulation which seeks to predict and control the emerging undesirable situations, which then generate their own ripples, waves and tsunamis of "side effects". We see the crescendo of this approach embodied in the perfect storm of converging mega-crises we face in the current century – the mutually intensifying emergence of climate disruption, peak resources (especially fossil fuels but also increasingly water, to say nothing of the rare metals vital to modern technology), financial instability and inequity, ubiquitous mobility (not only of people, but of capital, materials, pollution, organisms, pests, diseases, weapons, and everything else), the capacity of technologically empowered individuals and small groups to create massive destruction on purpose or by accident[2], the vulnerability of global economics and monocultures… the list grows longer day by day, year by year.

Significantly, over the last century parts of Western science have been evolving towards indigenous science, as embodied in fields that study and emphasize interconnectedness and balanced healthy relationships more than linear predict–and–control dynamics. Examples of such fields include ecology, quantum

mechanics, complex adaptive systems sciences, complexity and chaos theories, climate science, and certain trends in biology, genetics, and evolutionary theory. We also see efforts to merge the two approaches in integral fields like permaculture[3] and complementary/integrative medicine[4], as well as in technologies and social sciences concerned with sustainability. These efforts point the way for more balance between control and adaptation, between universality and one's own place, between certainty and mystery, between ourselves and our desires and the demands and health of the larger systems of which we are a part.

So we find collective intelligence is not an intrinsically desirable and benign capacity, any more than individual intelligence is. Some of the most destructive people in the world have been extremely intelligent, and some of the most creative and life–serving people have not made their contributions primarily through intellectual brilliance. As indigenous science suggests, there are some modes of intelligence that are more intrinsically benign than other modes. We face important questions about how much of reality we are able and willing to embrace with our intelligence – whether individual or collective – and for whose benefit, and at what expense, and with what humility and consciousness. And perhaps most importantly at this stage, we face the question of how much of our intelligence – individual and collective – we choose to apply to monitoring the quality and application of our intelligence, itself, so that we can shape *it* and transform *it* as necessary so that our life–estranged brilliance doesn't destroy us.

COLLECTIVE INTELLIGENCE IN THE DESIGN OF SOCIETY

This brings us to the fields of politics and governance, where the rules that shape our individual, collective, and institutional behaviours are made, as well as the decisions about how we spend or invest the most massive resources available in most societies. Unfortunately, we also find collective intelligence inhibited, distorted, or narrowly applied in these realms.

Collective intelligence is, of course, operating in and around politics and governance. The collective intelligence of partisan and special interest lobbyists and advocacy groups operates at a high pitch to influence elections, policy-making, and budgetary decisions. But the collective intelligence of the society as a whole – its capacity to collectively understand the realities it faces, to collectively reflect on what it collectively sees, to collectively influence or adapt to those realities in an appropriate manner, and to collectively observe the results of its collective responses and initiatives – is exceptionally weak. That weakness is largely due to the efforts of those special interests. Their narrow collective intelligence undermines and distorts the whole society's collective intelligence, inhibiting its collective efforts to learn and know and act wisely on its own collective behalf.

We face this challenge in our efforts to enhance collective intelligence. Those of us in the field should, I believe, take seriously the ethical dimensions of our work, just as people in corporate and military sectors need to reflect on the ethical dimensions of their work. Who does our work empower, and for what, and with what results? As our shared mega-crises unfold, these issues about our roles in them press upon our attention. I would suggest that vastly more attention should be paid to understanding, promoting, and catalyzing collectively intelligent and wise democracies than virtually any other application of our knowledge about this subject.

My own contribution involves a shift from seeing citizens primarily as isolated voters to seeing them collectively as a) an engaged source of diverse perspectives which – interacting creatively – can contribute to greater collective understanding, b) as collaborative creative imaginations capable of identifying options that are at once remarkable and wise, and c) as active agents in applying the collective understandings in a) and the co-created initiatives in b) in ways that continually feed into not only our collective survival and thrival but our ongoing collective learning. My contribution also involves an expansion of the idea of representation to include not just elected politicians but bodies of randomly selected citizens who are empowered to shape public policies and budgets in partnership – and in a balance of power – with other branches of government and with a vital democratic culture.

CITIZEN DELIBERATIVE COUNCILS

These two facets of my vision of a collectively wiser democracy combine in "citizen deliberative councils" (CDCs)[5]. In their current forms – Citizens Juries, Consensus Conferences, Planning Cells, Citizens Assemblies, Community Wisdom Councils, etc. – they constitute what I consider the state of the art of citizen intelligence on public issues. Although I see many ways they could and should be improved, all these current forms offer so much more than traditional forms of public engagement and influence – and more than most other government forums – that I want to take the opportunity to highlight them, focusing on the most widely used form, the citizen jury, that has been held hundreds of times around the world.

A citizens jury is somewhat comparable to a trial jury, with some significant differences beyond the fact that it considers a public issue rather than a crime or a lawsuit. Consisting of one to two dozen diverse citizens selected at random – often with a demographic filter to ensure they are in that way representative of their community – a citizens jury is convened for several days, usually about a week. It is usually provided with balanced briefing materials about the issue upon which its members are to deliberate and then given access to experts, stakeholders, and/or advocates and opponents of various approaches who testify to the jury and whom the jury members can question and cross–examine. The citizens jury is provided with professional facilitation to help them speak up, hear each other respectfully and well, and think together effectively about what they're learning and what they wish to recommend. They consider various options and trade–offs and, from their newly informed understandings, craft recommendations to address the issue(s) at hand. Their final report is delivered to their convening authority, the public, the media, and/or other officials concerned – after which they disband.

The other forms of CDC named above vary somewhat from the citizens jury and each other regarding the number and nature of the jurors, the nature of the information they access, the length of their undertaking, the nature of their deliberative and decision-making processes, and the nature of their report-out. But they all involve ordinary randomly selected citizens talking in informed, thoughtful ways about public issues and coming up with considered, coherent opinions that they share with their community. In a limited but almost unprecedented way, they constitute a legitimate collective voice of We the People provided with the resources and context needed to transcend the divisive, ill-informed, and manipulated routines of our existing political cultures. They inject a level of democratic collective intelligence – of public wisdom[6], if you will – into the public discourse, a form of expanded collective intelligence heretofore sorely lacking.

Legitimate questions may be asked about what role such citizen deliberative councils should play in the overall political system and how and how much they should be empowered. Some scholars and visionaries like John Gastil[7] and Ned Crosby[8] have imagined plugging such citizen panels into various parts of democratic process – from reviewing ballot initiatives to evaluating candidates. Some like Ernest Callenbach[9] have proposed an institutionalized citizen legislature – several hundred randomly selected citizens serving for one or more years in a legislative body either replacing the "lower house" (e.g., the House of Representatives or the House of Commons) or, per Ethan Leib[10], being an additional branch of government. Some, like Jim Rough[11], the innovator of Community Wisdom Councils, imagine them happening annually (or more frequently), articulating a sort of people's "state of the community (or country) report", just as is now often done by mayors, presidents, and city managers.

Elsewhere I have raised questions about the strict legitimacy of CDCs, in the sense that public opinion polls are legitimate[12]. If the pollsters do a particular poll on a particular population in a particular way, they know with a particular level of certainty (the "margin of error") how closely a comparable poll on a different but comparable population would come out. So I have wondered if we held three comparable but independent citizens juries on the same topic, how similar the results would be. If they turned out similar, that would be truly revolutionary. If they turned out different, the sources of the differences could be studied and evaluated, and implications could be derived for how we should regard the findings of single citizen juries.

Even better, further experiments – such as mixing and matching the citizen jurors from the three initial groups into three new groups and having them continue their conversations independently using a particular method (I have one – Dynamic Facilitation[13] – particularly in mind when I imagine this) to see if, why, and how *that* creates a higher level of coherence. The point would be that having a demonstrable and unforced level of informed coherence emerge from such citizen deliberative councils would allow us to incorporate the concept of a *coherent* collective intelligence of the society – a true and wise voice of We the People – into our political theories and practices, and to feel confident in empowering that voice to actually shape public policy. If this were to happen, the roles of representatives and bureaucrats might shift, for example, to providing a mix of high-level coordination (such as ensuring that the solution offered for one situation didn't create problems in another area) and legalistic articulation (for example, translating a citizen deliberative council's recommendation into enforceable legislation).

But all that is refining this down to a science. I don't think citizen deliberative councils – even when done one at a time – are intrinsically less legitimate than our existing public officials and representative deliberative bodies. In fact, those established entities have never been subjected to tests of strict legitimacy as I have here proposed for CDCs. They just do what they do and are considered legitimate if they arrive at their positions through due process. Their legitimacy theoretically

derives from their being supposedly answerable through their elections or appointments. However, as the system of elections and appointments has become increasingly corrupted and dysfunctional, that sense of legitimacy has rapidly eroded to the point where 80% of Americans don't approve of their own elected Congress[14]. What does the majoritarian representative system mean, in the face of this?

RANDOM SELECTION

This brings us to the random selection factor. Political scientist Oliver Dowlen[15] notes that random selection – at least in its rigorous forms – creates a "blind break" from all other forms of influence. On the one hand, sortition (as random selection in politics is called) functions free from the guidance of human compassion, intelligence, enlightenment, wisdom, integrity, and concern for the common good. On the other hand, it also provides a break from the depredations of human cruelty, stupidity, ignorance, foolishness, corruption, and narrow self-interest. In short, it is a total break from human intervention and manipulations of all kinds. Most of us think of random selection as a resort to pure chance. The ancient Athenians – who used it extensively in their politics and governance, trusting it to serve the common good far better than elections (which they felt favored elites)[16] – felt random selection represented the will of the gods[17]. Take your pick. Either way, it is a break from human intervention.

Thus if we have a system of politics and governance that is flourishing with high quality information, citizen engagement, high integrity public officials, productive conversations and deliberations about public issues, and a well-functioning government that the citizenry respects and admires and, when necessary, can readily correct or recall for the sake of answerability, then we don't want to mess with that by using random selection. On the other hand, if our politics and government are rife with misinformation, manipulation, citizen apathy, corruption in high places, endless and unproductive verbal battles and battles on the street, and a government that the vast majority of citizens do not trust and hold in contempt, then random selection can be a very potent doorway into greater sanity.

The trick is to use random selection to provide a clean break from our political horrors and dysfunctions and then immediately follow that clean break with a healthy environment of good information, good human relationships, and good deliberation – and then empower what comes out of *that*, so that it has the independent collective intelligence to reorganize the corrupt system and create something far better in its place. That is what citizen deliberative councils can be designed to do.

A TRUE COLLECTIVE WITH HEALTHY INTELLIGENCE

This brings us to three closely related topics:

- the capacity of We the People to become a conscious collective agent of our own destiny, such that we are a true collective entity that can consciously apply and evaluate our collective intelligence;

- the quality of dialogue and deliberation, such that the diversity of participants becomes a resource rather than a problem; and

- the actual wisdom of what emerges from such conversations, such that it actually generates broad benefit over the long haul.

Diversity can be said to be the dominant factor in all of these. Diversity is often problematic but, used well for collective intelligence, it can be precious.

When faced both with significant differences – especially in the form of conflict – and the need for consensus or agreement, our culture's usual approach is to silence or marginalize dissenters and "extreme" perspectives – and any other voice we find hard to confront – and to coax and manipulate what remains into agreements based on compromise. Every "side" is expected to let go of what they say they want and to do some "horse trading" – "I'll give you this if you give me that." Often this involves subtle (and not so subtle) pressures to defer to leaders and/or to conform to groupthink[18] – and, especially in legislatures, making deals that have nothing to do with the issue at hand.

Unfortunately but understandably this has given the very idea of a coherent collective voice a bad name. People's experience has taught them that reductionist "consensus" and "the manufacture of consent" – in both its process and its final products – more often than not oppress their freedoms of speech and action. Suggesting that "We the People" could speak with one voice that shapes public policy raises red flags and visions of a populist dictatorship subduing all who disagree.

I say "unfortunately" because our current know–how related to collective intelligence can replace that fearsome vision with new possibilities that free us from the suppression and manipulation to which we are today subjected in the pseudo-democratic systems currently in place.

Although compromise and conformist–based approaches to crafting agreements have a rough workability in top-down, competitive, interest-driven systems, they waste the unique gifts of each perspective in comprehending the larger picture in which the conflicted parties are

competing and also the creative potential of people from all sides of the situation working together to come up with solutions that actually meet both their legitimate needs and the demands of the situation itself. More often than not, the repressed perspectives represent factors and options that, if actively included, can make the outcomes wiser – by which I mean that those outcomes take into account more of what needs to be taken into account for long-term broad benefit.

Using the diversity factor well involves 1) a conscious effort at inclusion – such as the use of random selection or inviting a full range of stakeholders involved in the situation – and then 2) using conversational processes that radically enhance the capacity of the participants to hear each other and to feel truly heard. A minimalist approach to this is to establish ground rules that direct people to be respectful and then provide facilitation to help that happen. Facilitation can also ensure that quieter voices speak up and more assertive voices don't dominate. At higher levels of conversational quality and facilitation skill, reflective listening is practiced, such that someone (often the facilitator) reflects back to each speaker what they said in a way that makes the speaker feel fully heard and understood – including their emotions and values – not just mimicked. This practice tends to relax and open up the participants so that their communications flow together more smoothly and collaboratively. Various methods add additional beneficial dynamics that move participants towards creative resolutions: Appreciative inquiry[19], for example, asks about what works and what's possible. Nonviolent Communication[20] explores how to fulfil everyone's underlying needs (much as Principled Negotiation explores how to satisfy legitimate interests[21]). Similarly, restorative justice[22] seeks, through dialogue, to replace punishment and retribution with efforts to meet the deep needs of victims, offenders, and community alike. Dynamic Facilitation repeatedly evokes possible solutions from participants and reframes disagreements as concerns to be clarified and recorded. In the presence of such potent solvents, the positions people arrived with tend to dissolve into larger and deeper insights out of which more holistic solutions can emerge or be created together.

These approaches seek to evoke coherence out of diversity. They are complemented by approaches that enable people with diverse passions to coexist in life-affirming ways, especially connecting with each other for dialogue and collaborative action. An Open Space conference (formally called Open Space Technology[23]) enables people passionate about a topic to sort themselves into self–organized workshops and activities in the absence of pre-established

schedules and speakers – for a day or for an extremely stimulating and evolving week. The World Café[24] engages people interested in particular questions in small-group conversations among which they periodically mix and share. In the end the whole group harvests highlights. Everyone gets lots of airtime *and* ends up hearing much of what's happened in the larger group dialogue. Future Search[25] conferences mix the two approaches to diversity by bringing together diverse, often adversarial stakeholders who explore their shared past and the dynamics of their shared present – and then explore what they'd all like to see happen. They then break up into action groups to foster the shared vision(s) they developed together. Finally, Polarity Management[26] helps us understand that certain values (like freedom and equality) cannot both be maximized at the same time. They both can, however, be optimized by managing sensitive balancing feedback dynamics that prevent either from suppressing the other.

So the kind of coherence we're looking for is the kind of coherence that is always provided by policies and laws, but in this case is being generated by using diversity creatively rather than suppressing it – and then by encouraging diverse collaborations within that shared vision and guidance, with mindful management of any polarities that are implicit in the issue being addressed. This is a radical departure from the approaches to coherence used by most societies.

But how does this new "We the People" coherent voice arise from and reach a whole city or society containing millions of people?

The key is to make citizen deliberative councils a visible high point in a larger culture of conversations about public issues – especially by featuring them in news media, social networks, and dramatic narratives. I advocate helping ordinary citizens identify with one or more of the CDC participants and then publicizing the flow of their conversation and/or their energy at the conclusion of their council, so that viewers can vicariously experience the shifts that these diverse people went through on the road to discovering what they came up with. A remarkable experiment along these lines was initiated by *Maclean's* magazine in Canada, a project chronicled in detail on my website[27].

Another powerful approach is the recurrent presentation of a clear We the People voice to a population which is invited to participate in that voice. A particularly good medium for this is an ongoing series of Community Wisdom Councils which facilitate ever-broader community practice of what its innovator, Jim Rough, calls "choice–creating conversation"[28]. Community members and leaders can generate possible topics to

stimulate the randomly selected members of the council, who then choose where they want to begin. In their two dynamically facilitated days together, council members explore wherever their concerns and creativity take them and, in the process, generate breakthroughs and vibrant collective energy. The broader community then participates in the council's final "community wisdom cafe" and/or learns about it through media and then joins further conversations stimulated by the council's work and report-out. Having such councils held one or more times each year accustoms community members to using that kind of collaborative conversation to discover shared insights and solutions. This repeated experience enhances the community's collective identity and confidence as We the People who can take care of our own collective affairs quite well, thank you[29].

<div align="center">WISDOM</div>

As we saw earlier, collective intelligence can be applied very narrowly or more broadly. Its inclusiveness and ultimate broad benefit determine how wise it is. Approaches which help people take into account more big–picture reality, more interconnectedness and interdependence, and more of the co-created, co-creative nature of reality[30] will involve fewer overlooked factors and generate fewer unwanted side-effects, as well as better addressing the needs of more people and better aligning with more of life's natural dynamics. Such factors generate wisdom.

Of course the kind of diversity-harnessing conversations noted above contribute tremendously to comprehending the big picture situation and generating solutions that embrace all involved. To that factor we can add the amount and quality of information accessibly provided to ordinary citizens, especially those selected to speak for We the People. The work of Edward Tufte[31] explores how to present data in meaningful visual ways and argument mapping[32] and framing for deliberation[33] cover the presentation of diverse perspectives in ways that make them easy to understand and compare. High quality information notably includes information based on systems thinking and other perspectives that clarify the complex fabric of public issues and human responses to them. Stories of people from all facets of an issue contain much of the dynamics of the issue in easily accessible, often compelling form. Exploring scenarios[34] and trade-offs[35] helps community-wisdom-seekers to avoid oversimplifying what they are dealing with and to find solutions that minimize the potential downsides that haunt nearly every solution. They

can also productively tap into the accumulated wisdom contained in the patterns and dynamics of nature and in the processes of evolution: the field of biomimicry[36], for example, looks to natural systems and organisms for solutions nature has evolved to deal with problems now faced by engineers and materials scientists.

And since we're talking about intelligence – and because we can't actually adjudicate if a solution will have long-term broad benefit until long after it is discovered and applied – iteration plays a tremendously important role in realizing wisdom in practice. We need to do our best to include everything that's relevant (and then some), and to craft approaches that seem to us (without prejudice or denial) to support high quality of life for all involved… and then we need to pay attention to what happens when we actually do it. Intelligence involves reflecting on results, taking in lessons, and revising what we're doing as needed. Therefore, if we wish to be wise, we need to do that even more mindfully.

Other sources of wisdom include engaging all aspects of ourselves, all our varieties of intelligence, including reason, emotion, empathy, intuition, humour, movement, as well as aesthetic and spiritual sensibilities, capacities, and activities[37]. We are also wise to consult global wisdom traditions and broadly shared ethics. Ethical principles common to most major religions and philosophies – such as the Golden Rule – provide time-tested wisdom. (How many nations, for example, practice a Golden Rule foreign policy?) We can augment these with what humanity has learned more recently through science and global dialogue about what serves human needs and happiness. Three good resources for this are the Council for a Parliament of the World's Religions[38], the Universal Declaration of Human Rights[39], and the Earth Charter[40]. Nonviolent Communication and Chilean economist Manfred Max-Neef provide deep insight into universal human needs and how to address them wisely[41].

<div align="center">THE WIDER ECOSYSTEM OF COLLECTIVE INTELLIGENCE</div>

While I have focused here on enhancing community – and society– level collective intelligence through the creative conversational use of diverse perspectives in politics and governance, there are many other varieties of collective intelligence that could be integrated into such a vision. Here I will provide a relatively dense summary of some of the other dimensions of collective intelligence, just to hint at its scope, its variable nature, and the vast resources that could be called upon to enhance its effectiveness. In presenting this

summary, I also want to suggest that it is the tip of a very big iceberg[42].

Power relationships and the design and dynamics of social systems of course play a powerful role, often through impacting the quality and flow of information (as described above), but even by embedding information into society's functioning. Effective transparency laws, nonprofit watchdog organizations, and lenient whistleblower laws facilitate the flow of information and thus the quality of political and government intelligence. The evolving concept of "open source" challenges the proprietary confinement of knowledge, innovation and co-creativity in technology, culture, and economic productivity. Open Source Intelligence[43] challenges over-dependence on spying and secrecy and develops public sources of information and cross-fertilization of intelligence not only in government but also in society at large. Structural factors like the presence and design of public spaces – parks, cafés, libraries, meeting rooms – and cultural factors like the kind, ubiquity, and context of entertainment can facilitate or impede conversation.

We can see information, intelligence and wisdom embedded in an economic system where the social and environmental costs of products are "internalized" into their price – through, for example, taxes on carbon or on financial speculation. This causes people to buy less damaging products because they are cheaper, creating an economic system that has wisdom built into it in the form of less long–term harms and more long-term benefits[44]. Likewise, guiding public policy using quality of life indicators more than Gross Domestic Product creates wiser economic monitoring and governance[45].

Certain electronic systems and networks can and do play a supportive or generative role in collective intelligence. People use collaborative workspaces like wikis and systems like CoDigital.com to originate, evaluate, revise and prioritize items of common interest such as policy options, references, or stories. Aggregation systems like prediction markets can provide high quality crowd-sourced guesstimates[46]. Stigmergic[47] systems like those used by Amazon, Netflix, and Twitter can track and organize the complex weave of diverse people's interests and needs. Such tools can be used to create participatory evolving knowledge systems useful to wide audiences, including citizen deliberative councils[48].

In general, designs for social and natural systems can be informed by the theories and practices of self-organization – including chaos and complexity theories, living systems theory (including cybernetics, ecology, permaculture, and evolutionary biology), network theory, the "invisible hand" of the market, "swarm intelligence"[49], partnership and participatory dynamics, etc. Good design can efficiently promote vitality and wise responsiveness by providing contexts for already present or nascent natural drivers – urges, needs, values, passions, creativity – and moderating dynamics and feedback loops to sustain and evolve the living system for which the designs are intended. Of course the design activity itself must be iterative and rich in feedback dynamics to observe and correct self-organizing tendencies that are drifting towards collective stupidity and folly. I consider initiatives guided by sophisticated understandings of self-organization to be an evolved form of nonviolent social action[50], since physical or managerial force is replaced by respect, resonance, partnership, and interactive design to serve the well being of all. From an evolutionary perspective, I call this "the conscious evolution of increasingly conscious social systems" and have envisioned a movement to promote it[51]).

Theories of collective psychosocial field effects – reminiscent of magnetic and gravitational fields – have profound implications for social change. In their process worldwork[52] Arnold and Amy Mindell seek to shift collective psychosocial fields governing, for example, racism, invoking diverse voices from such a field to converse and co-evolve through their workshop participants. Biologist Rupert Sheldrake hypothesizes collective "morphic fields" where the development of habits by certain kinds of entities – whether crystals, animals, or people – make it easier for others of that type to learn or develop those habits[53]. My own "story field" theory suggest that narrative fields generated by a society's media, advertisements, literature, professional expectations, educational curricula, and so on, shape what we think is real, right, and possible[54]. The Enlightenment, feminism, and using soap operas to reduce spousal abuse[55] are examples of relatively successful interventions to shift cultural story fields, as is the paradigm shift of which this magazine is a part.

Certain spiritual, psychic, and intuitive practices may connect with transpersonal sources of intelligence, collective consciousness, and levels of reality or sources of wisdom beyond normal awareness, usually realms of deep kinship, synchronicity, wholeness, or oneness. Some religious groups make decisions based on collectively waiting on Spirit for guidance. Quakers developed a form of consensus process to integrate the diverse concerns and insights that "come through" individuals in such a "meeting for worship for business", yielding a "sense of the meeting"[56] (a process I like to call "co-sensing", which can manifest in other processes, as well). In its secular forms, this consensus process spread widely through activist groups

and intentional community networks. Some practices – ranging from Bohmian Dialogue[57] to the evolutionary enlightenment of Andrew Cohen[58] – can generate or access a shared experiential consciousness among practitioners – as can music (sometimes with the help of drugs)[59]. Dream research and dream-sharing cultures suggest that dreaming can access a shared aspect of our consciousness[60]. The Collective Wisdom Initiative[61] explores other meditative approaches in this category.

The Global Consciousness Project notes changes in random number generators around the world in the presence of – or even right before – major collective events like the 9/11 World Trade Center attack[62]. Also the collective consciousness involved in millions of people simply watching the same media imagery – as in the WTC attack – or being told of the same intense event or reality – such as a war, a famine, or melting glaciers – is also a very significant factor in society–wide collective intelligence (or stupidity), even though it involves few if any esoteric dimensions.

Finally, there are a number of other fields where our growing understanding provides insights highly relevant to enhancing collective intelligence. These include subjects like the nature of intelligence itself (from neurology and multiple intelligences[63] to cognitive limitations, biases, and blind spots); the nature of human diversity and human potential (both individual and collective); the nature of wholeness[64] and holistic patterns (from fractals and holographics to holons and the relations between wholes and parts); and the dynamics of evolution[65], transformation, and the responsiveness of people and life.

A particularly important realm for research and development in this regard is the evolved human bias for individuals to respond most readily to challenges that are visible, immediate, and personal. Unfortunately, most of the collective crises we face – from pollution and climate disruption to war and technological folly – involve factors that are largely invisible to most individuals (from imperceptible radiation and toxins to distant social disruptions), slow developing (until a sudden phase shift or "point of no return" is reached), and systemic (particularly when built into the structures of society's functioning)[66]. Fortunately, this individual human bias for visible personal immediacy can be compensated for by collective cultural factors like scientific research and sensors, citizen deliberative councils and compelling media related to them, systemic channelling of self-interest (as in the "internalization of costs" noted above), and broad promotion of systems thinking and holistic awareness (from systemic curricula and educational fiction and film to meditation practices and shamanic training). Although

we can see examples of such transpersonal capacities all around us, they clearly fall short of what is needed to meet 21st century challenges, creating a social-evolutionary pressure for further research and development.

CONCLUSION

Given the role of intelligence in monitoring and adjusting our relationship with reality, and given the extent to which our civilization has been built largely on a uniquely dysfunctional relationship to reality that now threatens humanity's continued existence, work to develop systemic collective intelligence takes on a new urgency.

Collective intelligence is a vast and varied field. The application of collective intelligence in groups and organizations is important and well-paid work that has led to very important developments in this field. But now we need to prioritize the study, understanding, practice, and embedding of collective intelligence in our collective social systems, most urgently in our political, governance, and economic systems. This includes the evocation of a self–conscious collectivity – a We the People – capable of generating and moderating its own collective intelligence – a phenomenon for which citizen deliberative councils are a crucial resource.

As we develop society's collective intelligence capacities, we can keep in mind the need to always expand how much of reality is taken into account and how many needs of how many beings and systems are being served over how long a time period so that the guidance provided by our collective intelligence is more likely to be wise.

Given how far and powerfully we have strayed from wisdom in the past centuries, and the criticality of the resulting state of affairs in which we find ourselves, I can imagine few more pressing undertakings.

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[1] Worldwide Indigenous Science Network 2013, "What is Indigenous Science?".

[2] Joy 2000, "Why the future doesn't need us". This remarkable, controversial article stresses that within decades individuals and small groups will be empowered by syngergistic developments in robotics, nanotechnology, biotechnology, and computing power to create self-replicating entities capable of destroying humanity and/or its support systems. This dystopian possibility would be easily dismissed except that Bill Joy is co-founder of Sun Microsystems and one of the creators of Java, considered the most important programming language on the Web.

[3] Permaculture is an ecological design science and philosophy used to guide the creation of sustainable living systems and

habitats by working *with* nature. Its design principles are seen as subsidiary to the observed needs and dynamics of the natural realities of the specific site being designed. For more, see <http://bit.ly/1DljMqu> and Mollison 1997, *Introduction to Permaculture.*

[4] Integrative medicine seeks to integrate allopathic medicine and so-called alternative and traditional healing practices into therapeutic regimes that enhance the health of "the whole person", embracing their physiological, psychological, social, and spiritual wellbeing. For more, see <http://bit.ly/1ta1gyR> and Weil 2004, *Health and Healing.*

[5] The characteristics and forms of citizen deliberative councils are described briefly at <http://bit.ly/1oQUz6s> and their uses at <http://bit.ly/44zEUg>. For more detailed information see Atlee 2012, *Empowering Public Wisdom:* 57-88.

[6] See Atlee, *ibid.*: 25-44. Those chapters are online – the *need* for public wisdom at <http://bit.ly/1zdLaJe> and its *nature* at <http://bit.ly/10vpM47>.

[7] Gastil 2000, *By Popular Demand*: 112–96.

[8] Crosby 2003, *Healthy Democracy.* Ned Crosby is the creator of Citizens Juries.

[9] Callenbach and Phillips 1985, *A Citizen Legislature.*

[10] Leib 2004, *Deliberative Democracy in America.*

[11] Rough 2002, *Society's Breakthrough.* Jim Rough is also the creator of Dynamic Facilitation (as described in endnote 13 below) used in Community Wisdom Councils (see endnote 29).

[12] Atlee 2012, *op. cit.*: 234-36.

[13] By listening in ways that make participants feel fully heard, Dynamic Facilitation uses the energy of their passions and beliefs to open their minds and hearts and thus engage them in discovering new ways of looking at a shared situation that makes sense to all of them. I see it as the most powerful broadly applicable method I know of for transforming conflict, differences, and dissonance into new shared understandings and relationships. See <http://bit.ly/1wCoShZ> for an introduction and Zubizarreta 2014, *From Conflict to Creative Collaboration* for an in-depth exploration.

[14] Gallup 2013, "Congress Job Approval Drops to All-Time Low for 2013".

[15] Dowlen 2008, *The Political Potential of Sortition*: 11-30.

[16] "It is accepted as democratic when public offices are allocated by lot; and as oligarchic when they are filled by election." Aristotle, *Politics* 4.1294be.

[17] Dowlen 2008, *op. cit.*: 33-4.

[18] Groupthink – in which the desire for group harmony produces irrational or dysfunctional decisions by avoiding dissent and critical thinking – is actually the opposite of collective intelligence. For mainstream views on groupthink, see <http://bit.ly/1rOjKlw> and Janis 1972, *Victims of Groupthink*. For my related views on "co-stupidity" see <http://bit.ly/1wD8dsC>.

[19] For an overview, see Cooperrider and Whitney n.d., "What is Appreciative Inquiry?" and <http://bit.ly/12VAFNF>. For further reading, see Cooperrider, et al. 2008, *Appreciative Inquiry Handbook.*

[20] For a quick summary see <http://bit.ly/1wG6Ahi>. For more in depth coverage, see Rosenberg 2001, *Nonviolent Communication.*

[21] The essentials of principled negotiation are described well at <http://bit.ly/1sxwtYX>. For the original source material, read Fisher and Ury 1981, *Getting to Yes.*

[22] For an excellent overview of the restorative justice movement, see <http://bit.ly/1pSYTgm>. For more detail by one of its founders, see Zehr 1990, *Changing Lenses.*

[23] In Open Space conferences, participants spend the first 20 minutes or so being taught how to initiate sessions about which they are passionate and then how to participate in ways guided by their interests and energy rather than by any external

rules or expectations that interfere with that. For more about the process see <http://bit.ly/1tcx5bW>. For full treatment, refer to Owen 2008, *Open Space Technology.*

[24] For a short description of the process and its underlying principles, see <http://bit.ly/1sxxy2V>. For more detail get the book by its founders: Brown, *et al.* 2006, *The World Café*. In fact, I recommend this book as one of the best group process books. Read my review of it at <http://bit.ly/ZWtsun>. It offers invaluable insights into conversation-based collective intelligence and many examples of powerful questions that create change. For more on this latter topic, see also <http://bit.ly/1rwIwpo>.

[25] For a good overview of the process, see <http://bit.ly/12Y3EQV>. For more thorough treatment by the founders, see Weisbord and Janoff 2010, *Future Search.*

[26] For an excellent overview of this profoundly useful idea, see <http://bit.ly/1v83gpz>. For full context and instructions on its application, see Johnson 1992, *Polarity Management.*

[27] In 1991 *Maclean's* – Canada's national glossy newsweekly – selected 12 citizens who represented Canada's diversity and had them spend a weekend with *Getting to Yes* co-author Roger Fisher and two aides. *Maclean's* published their bios and a detailed story of their rocky but ultimately productive conversation culminating in a remarkable agreement. *Maclean's* 40 pages of coverage – combined with an hour long public affairs TV documentary about the process – allowed the entire country to vicariously experience a totally different form of dialogue and citizenship, triggering months of citizen conversation across Canada. The entire initiative and media coverage are detailed with analysis at <http://bit.ly/ZVfSYC>.

[28] "Choice–creating is a heartfelt, creative mode of thinking where people address important issues with the best interests of all in mind." See <http://bit.ly/1wHWtIO> for more.

[29] I find the Community Wisdom Council process – which has been initiated from both government and grassroots levels and is evolving rapidly – to be one of the most promising innovations for shifting democracy into more citizen-based collective intelligence and wisdom. This year (2014) I have been participating with the Center for Wise Democracy and others in its evolution. For its original vision see Rough 2002, *ibid.* For examples and to track its ongoing development, see <http://bit.ly/CWD2014>.

[30] For my essay on intrinsic participation and co–creation see <http://bit.ly/1zfv6qF>.

[31] See <http://bit.ly/TufteW> for an overview. For in depth and books see <http://bit.ly/TufteSite>. <http://bit.ly/1zet0qQ> has some of his favourite visual examples.

[32] Argument mapping involves visually representing the arguments supporting and opposing a proposition, including arguments supporting and opposing each subsequent assertion. See <http://bit.ly/ArgueMap>.

[33] Framing an issue for deliberation involves providing 3-5 competing approaches for dealing with the issue – ideally embracing most positions in the public discourse around that issue – along with argumentation and evidence for each one. For a detailed description, see Kadlec and Friedman 2008, "Framing for Deliberation".

[34] See <http://bit.ly/132wRtV> and Schwartz 1991, *The Art of the Long View.*

[35] For an example of how trade-offs are handled in a deliberative framing for energy policy, search for "trade-off" in National Issues Forums n.d., "The Energy Problem".

[36] See <http://bit.ly/1nNjRBu> for an overview, or Benyus 2002, *Biomimicry* for more depth.

[37] For my own views on multiple intelligences, see Atlee 2003, "Multi-Modal Intelligence and Multiple Intelligences".

[38] See <http://bit.ly/1tBRdnF>.

[39] See <http://bit.ly/1nNnGGP>.

⁴⁰ See <http://bit.ly/1FSShsw>. The Earth Charter was the product of a global grassroots consultative process. Its excellent but Western-oriented effort to be universal stimulated Indigenous Peoples to create an Indigenous Peoples Earth Charter. See <http://bit.ly/1zF13tu>.

⁴¹ For my discussion of these and other needs-based approaches, see <http://bit.ly/CI–needs>.

⁴² In 2006 George Pór <http://bit.ly/GPorCI> and I formed the Collective Intelligence Convergence initiative <http://bit.ly/CI-Convrgnc> and worked with Robert Steele <http://bit.ly/RS–EIN> to convene a conference to track and evolve the entire field of collective intelligence. This conference didn't happen, but the effort did generate a book, Tovey 2008, *Collective Intelligence*. Also relevant to the size of the collective intelligence iceberg are works that attempt to embrace all conversational methodologies and/or to articulate the underlying dynamics and design elements that make them work or make them magic. In this latter category we find Holman et al. 2007, *The Change Handbook*; Holman 2010, *Engaging Emergence*; and Group Pattern Language Project 2011, *Group Works.*

⁴³ See Steele 2012, *The Open-Source Everything Manifesto.*

⁴⁴ See <http://bit.ly/1Ds7Ovk>.

⁴⁵ For a quick intro, see <http://bit.ly/1vce9Xn>. For a thorough review, see Costanza 2009, "Beyond GDP" <http://bit.ly/1yGStGo>. For a larger vision of wiser economics, see Eisenstein 2011, *Sacred Economics.*

⁴⁶ Aggregation here refers to the phenomenon described in James Surowiecki's book *The Wisdom Of Crowds* <http://bit.ly/1vcoAu3> whereby many people operating independently can generate remarkably accurate predictions regarding current realities (how many beans in the bottle, or the location of a sunken submarine) and future events (where terrorists will strike next, or who will win the election). This phenomenon is manifested formally in what are called "prediction markets" <http://bit.ly/1ryb9SQ>. As useful as prediction markets may be, I take issue with using the word "wisdom" to describe them: see <http://bit.ly/1nO91LC>.

⁴⁷ Stigmergy is a mechanism of indirect coordination between agents: a trace left in the environment by one agent shapes the behaviors of subsequent agents. See <http://bit.ly/1zeMCuX>. In an ant colony, chemical traces left by one ant stimulate specific actions in other ants passing over the first ant's track. Previous customers buying products from Amazon leave digital traces out of which Amazon's algorithm (not a human analyst) informs you that "people who bought this product also bought these other products".

⁴⁸ For example, a Wikipedia-like site could be developed on which diverse experts and partisans could use the dynamics in this paragraph to generate evolving issue framings (see endnote 33) for any and all issues, which could then be consulted by individual voters and citizen councils. For a vision about this, see Atlee 2012, *op. cit.*: 141-7.

⁴⁹ Swarm intelligence is the intelligence manifested by self-organized collective systems such as bird flocks or their digital equivalent – "boids" – that interact according to simple rules that generate emergent, environmentally responsive flocking behaviour. See <http://bit.ly/135vNp2>.

⁵⁰ Atlee 2003, *The Tao of Democracy*: 250-67.

⁵¹ See <http://bit.ly/1pW5tTp> and <http://bit.ly/1sFtrlx>. This evolutionary movement initiative was derailed by the long terminal illness of my life partner and subsequent changes in the lives of myself and other organizers. The initiative did, however, produce two significant products: the launching of a wiki on evolutionary spirituality <http://bit.ly/1zfxVrD> and the publishing of Atlee 2010, *Reflections on Evolutionary Activism.*

⁵² See <http://bit.ly/1sBCaoU>.

⁵³ For a brief description see <http://bit.ly/1pWipsk>. Efforts to experimentally prove or disprove morphic resonance have produced quite a number of intriguing results: see <http://bit.ly/1vd0hw0> for examples.

⁵⁴ See <http://bit.ly/1DYYP6W>.

⁵⁵ See, for example, <http://bit.ly/1tCjESu>.

⁵⁶ See <http://bit.ly/1vdeFEk>.

⁵⁷ See <http://bit.ly/136O1qd>. For two and a half years in the early 1990s I spent 2 hours every Wednesday night in a Bohmian Dialogue group. The exercise put us vividly into present time and, on one occasion, into actual group mind where we all experienced thinking and seeing the same things (a phenomenon that lasted only about 3 minutes but was truly remarkable).

⁵⁸ See <http://bit.ly/1yH7l7K>.

⁵⁹ See <http://bit.ly/1Dtksdp> exploring the musician-audience communion evoked by the Grateful Dead, the Beatles, and Paul McCartney, among others.

⁶⁰ See <http://bit.ly/1vdyMT3>.

⁶¹ See <http://bit.ly/CWInitiative>.

⁶² See <http://bit.ly/1nOHqd5>.

⁶³ Re multiple intelligences, see endnote 37.

⁶⁴ I have an ongoing effort to embrace and model the many aspects of wholeness noted by all students of the subject. For the current state of that inquiry, visit <http://bit.ly/CIW-holeness>.

⁶⁵ See <http://bit.ly/1tCrZpb>.

⁶⁶ See especially Ornstein and Ehrlich 1990, *New World New Mind*. Much of collective intelligence theory and methodology could help address this major challenge – *if we use them for that purpose.*

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