Collective Intelligence (CI)

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Publed Search term	Q
	Conclusion
↓ Full text	Aggregating the
	independent
Boosting medical diagnos	judgments of
by pooling independent	doctors outperforms
judgments.	the best doctor in a
Kurvers RH, et al. Proc Natl Acad	group whenever the
S A. 2016.	diagnostic accuracy
	of doctors is
	relatively similar.

↓ Full text

Pub Med

The Potential of Collective Intelligence in Emergency Medicine: Pooling Medical Students' Independent Decisions Improves Diagnostic Performance.

Search term

Kämmer JE, et al. Med Decis Making. 2017. Conclusion Combining independent decisions may substantially improve the quality of diagnoses in emergency medicine and may thus enhance patient safety

What is Collective Intelligence?



What is Collective Intelligence?

Collective intelligence is groups of individuals doing things collectively that seem intelligent.

Thomas W. Malone

We, *Homo sapiens*, are not the only species with CI



We, *Homo sapiens*, are not the only species with CI



COLLECTIVE INTELLIGENCE Creating a Prosperous World at Peace

Foreword by Yochai Benkler (Remixed by Hassan Masum) The Wealth of Networks: Remixed Highlights

Prefaces by Thomas Malone, Tom Atlee, and Pierre Levy

Edited by Mark Tovey

Afterword by the Rt. Hon. Paul Martin & Thomas Homer-Dixon The Internet and the Revitalization of Democracy



WIKIPEDIA The Free Encyclopedia







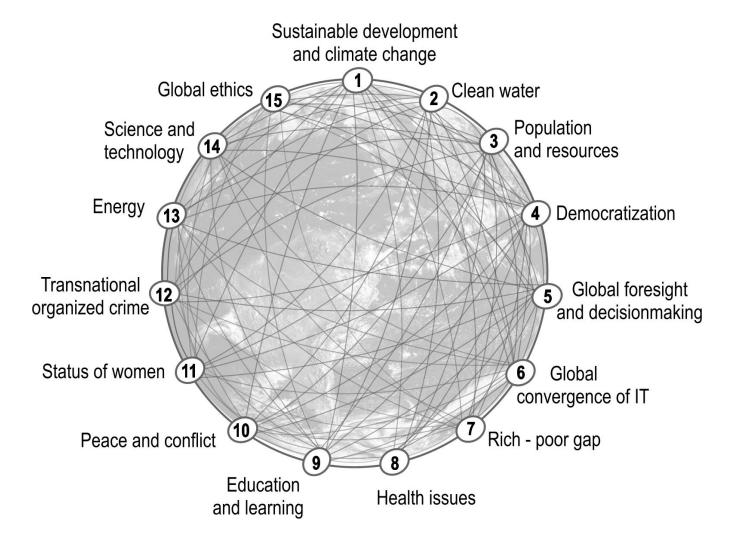
Why do we need Collective Intelligence?

Collective problems today

- Transnational in nature
- Trans-institutional in solution

Collective problems today

State of the future report



SOFI (We're winning)

GNI per capita (PPP, 2011 international \$)	9,878	12,239	14,492	16,929
Poverty (\$1.90/day, PPP) (%)	6.24	5.54	5.87	5.23
Foreign direct investment, net inflows (US\$, billions)	R	3,096	2,144	2,165
Freedom (number of countries rated free)	461.268 81	90	90	90
Women in national parliaments (% of members)	11.69	17.88	23.93	30.85
Share of high skilled employment (%)	14.20	16.40	18.70	19.31
School enrollment, secondary (% gross)	59.08	66.33	78.39	91.02
Literacy rate, adult total (% of people ages 15+)	82.24	88.90	92.17	99.90
Electricity from renewables, excl. hydro (% of total)	1.22 2.34	8.64	24.08	

SOFI (We're winning)

	1.22 2.34			
Energy-Efficiency (GDP/unit of energy use	e) 6.11	7.15	8.12	9.19
Improved water sources (% population with access	s) 80.58	86.71	91.96	95.89
Physicians (per 1,000 people)	1.29	1.43	1.74	2.20
Health expenditure per capita (US\$	463.50 82	21.14 1,:	234.27	1,658.48
Prevalence of undernourishment (% population	n) 16.1	0	13.70	10.04 6.71
Mortality rate, infant (per 1,000 live births	5) 57.	80	41.40	28.92 23.44
Life expectancy at birth (years) 66.85	69.63	72.24	74.18
Population growth (annual %) 1.43	1.24	1.1	9 1.29
Internet Users (per 100 people	20.00	51.70		92.76
	0% 20	0% 40%	60%	80% 1009
	■1997	□2007	■2017	2027

SOFI (We're losing)

СО _σ equivalent mixing ratio (ppm)	432	460	490	520	
		400	490	520	
Renewable internal freshwater resources (m ³ /capita)	7,371	6,570) 5,650	4,843	
Forest area (% of land area)	31.42	31.03	30.82	30.83	
Biocapacity per capita	1.90	1.80	1.66	1.57	
R&D Expenditures (% of GDP)	1.99	2.00	2.14	2.36	
Social unrest indicator (Protest/Total events) (%)	0.83	0.85	1.02	1.04	
Unemployment (% of world labor force)	6.09	6.22	5.73	6.35	
Income inequality (share of top 10%)	36.18	28.81	32.47	34.36	
Terrorism Incidents	3,201 3,23	5,116 5	36,256	6	
Number of wars and serious arm conflicts	43	47	58	78	
Corruption in the public sector (1=low; 6=high)	2.83	2.88	2.89	2.91	
C)% 20	0% 40%	60%	80%	100%
■ 1	997	□ 2007	2017	□ 202	27

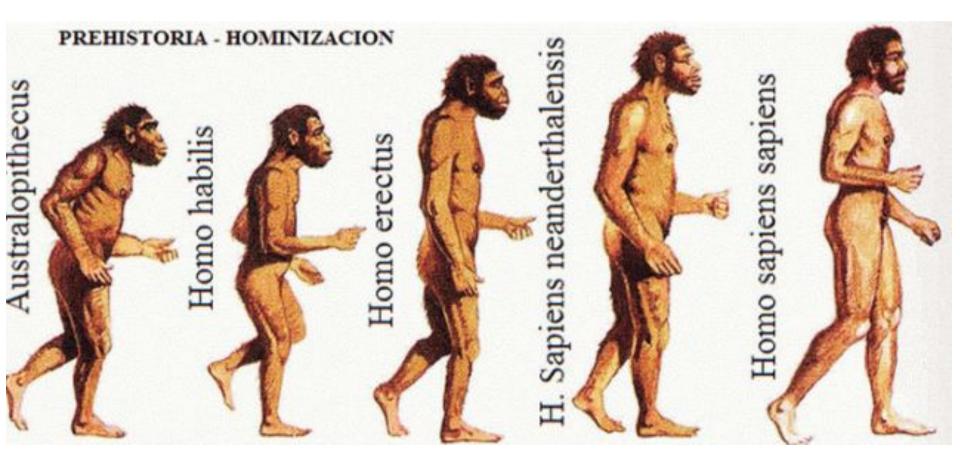
What would our future be

- Bleak, marred by lack of with the land, mass migrations. economic chaos, core solution and other disasters
- Our specie tinct

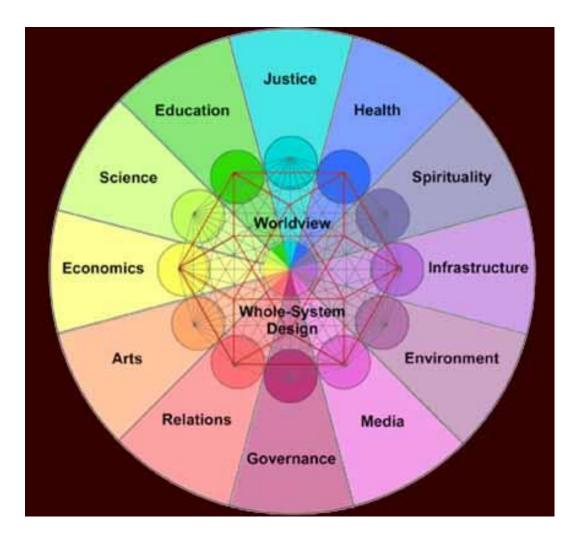
se problems and reach a and livable future for everyone

The conscious evolution





CI may be a solution



How can people and computers be connected so that collectively they act more intelligently than any individual, group, or computer has ever done before?



Some forms of collective intelligence

- Reflective (dialogic) CI
- Structural (systemic) CI
- Evolutionary (learning-based) CI
- Informational (communication-based) CI
- Flow (mutual attunement-based) CI
- Statistical (crowd-oriented) CI
- Relevational (emergence-based) CI

We need to make conversations

• How can we enhance our capacity to talk and think more deeply together?

 How can we access the mutual intelligence and wisdom we need to create innovative paths forward?

The World Café

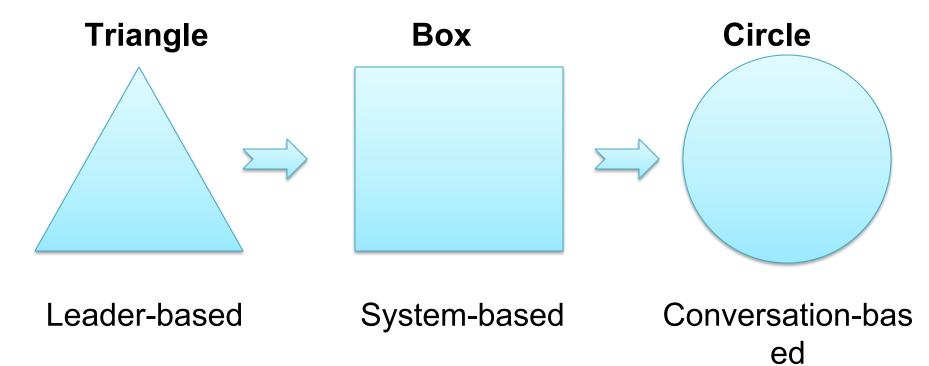
The World Café

Seven Principles

- 1) Set the context
- 2) Create a hospitable environment
- 3) Explore questions that matter
- 4) Encourage everyone's contribution
- 5) Cross-pollinate and connect diverse perspectives
- 6) Listen together for patterns, insights and deeper questions
- 7) Harvest and share collective discoveries

The Circle Organization and Choice-creating

Three Systems of Organizing



The Circle Organization and Choice-creating Three Systems of Organizing

- Different underlying structures
- Promote different attitudes
- Require different leadership compentencies
- Generate different results

The Circle Organization and Choice-creating

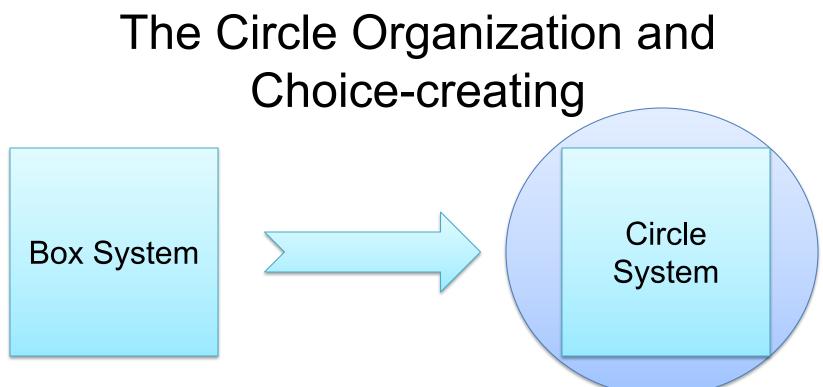
Dead Poets Society

OBIN WILLIAM

He was their inspiration. He made their lives extraordinary.



A PETER WEIR FILM



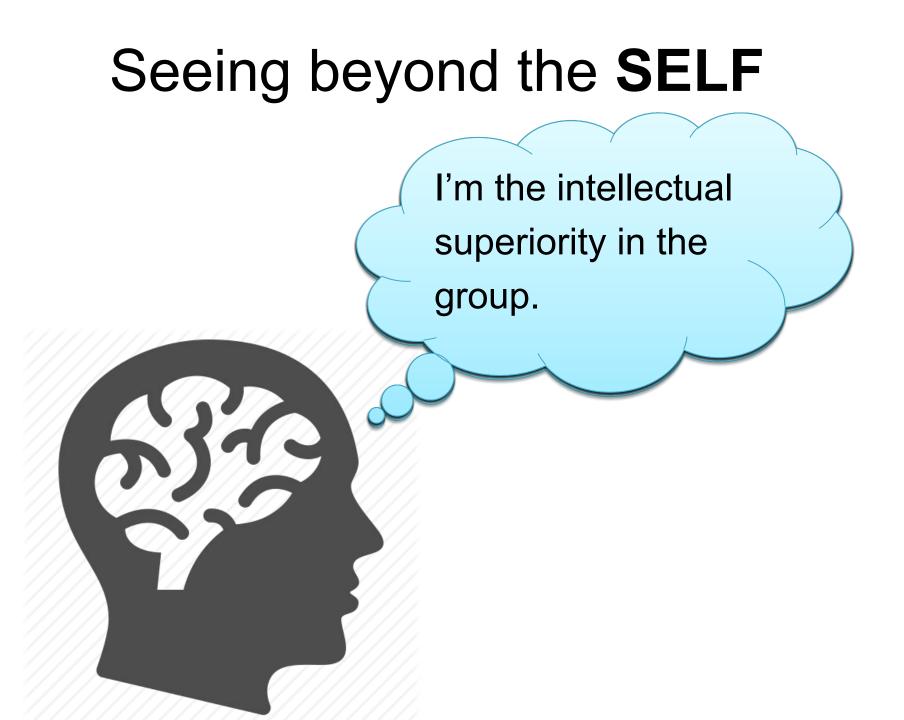
- Choice-creating
- Dynamic facilitation
- The wisdom council

The Circle Organization and Choice-creating

Seeing beyond the SELF



A Primitive psychological and emotional drive for security and certainty



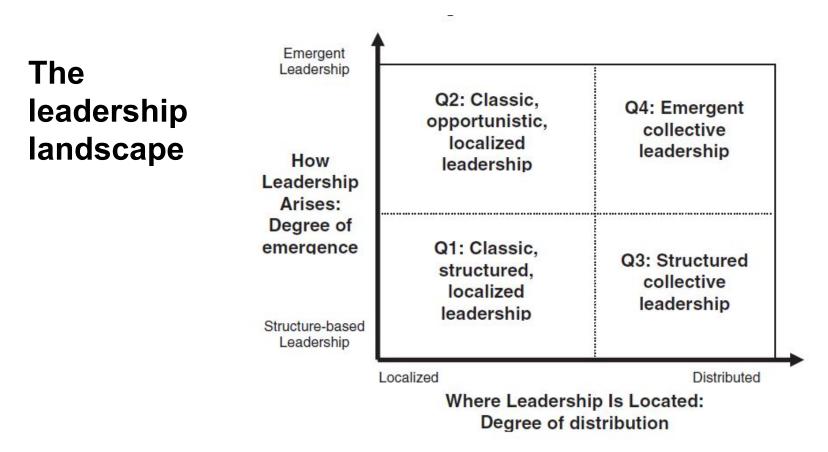
Seeing beyond the SELF

Principles of Evolutionary Culture

- 1) A Commitment to the Greater Good
- 2) A Commitment to Wholehearted Engagement
- 3) A Culture of Self-Responsibility
- 4) A Suspension of Assumptions
- 5) Culture of Deep Listening
- 6) A Commitment to Authenticity
- 7) A Culture of Risk-Taking
- 8) A Culture of Empowered Vulnerability
- 9) A Culture of Constant Resolution
- 10) A Commitment to Grow and Evolve

Collective Intelligence and Leadership

• Collective intelligence is a threatening concept to many leaders.



University 2.0

Informing collective intelligence



- What knowledge do we need?
- How higher education could help inform collective intelligence?
- How can we possibly change higher education?
- What does it mean by universal access to higher education?
- How can we assure universal access to higher education?

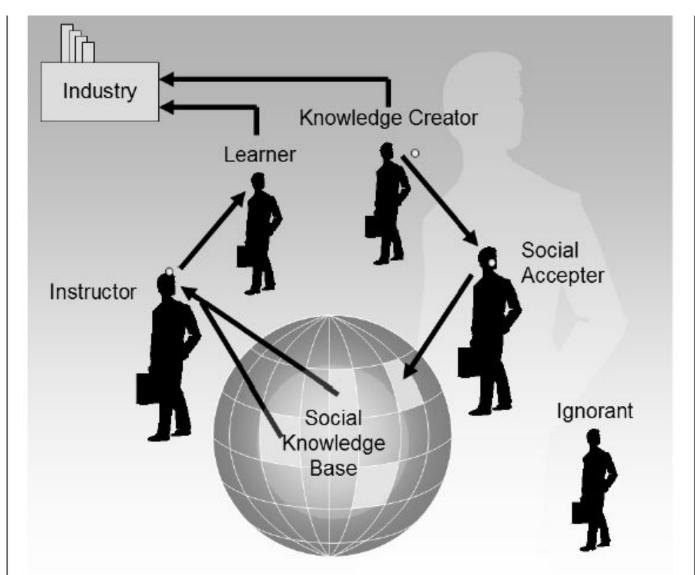
Knowledge Creation in Collective Intelligence

- The source of all knowledge
- Society cannot advance without it

Intelligence

 Knowledge that is stored, and can be recalled, at the individual, group, or societal level

Knowledge Creation in Collective Intelligence



Knowledge Creation in Collective Intelligence

Who	What	When	Where	Why	How
Known The Cutting Edge					
			nown		

Centralization or Decentralization

The1920 University Act

No longer a centre for learning, but a network for learning



How can we possibly change higher education?

- Create access to global knowledge network
- Distribute to all, learning, knowledge management, and communication tools
- Teach how to learn
- Assure skill in using knowledge
- Offer a map of what knowledge there is
- Expand the concept of "critical thinking"

How can we possibly change higher education?

- Teach new conceptions of citizenship
- Teach the values of conflicting views
- Study and institutionalize as norms, the conditions known to develop mutual trust among people and concern for each other's needs and for the good of the whole.
- Envision and prepare for a culture of deliberative democracy and participatory design

Knowledge about knowledge

 Formal schooling will be less and less about learning content, and more and more about how to handle content.

Learning to learn

• Learning is itself a skill, and one that can be taught.

Mapping human knowledge

- Most of the content from school is soon forgotten.
- But that such content exists and where to find it again, is not.
- It is the challenge and privilege of our times to redraw the map.

Critical thinking

r the questions from material we've given themr the questions that take them beyond that material.eir own questions

•to find answers to their questions

to question answers

•to question the questions.

Questioning the questions

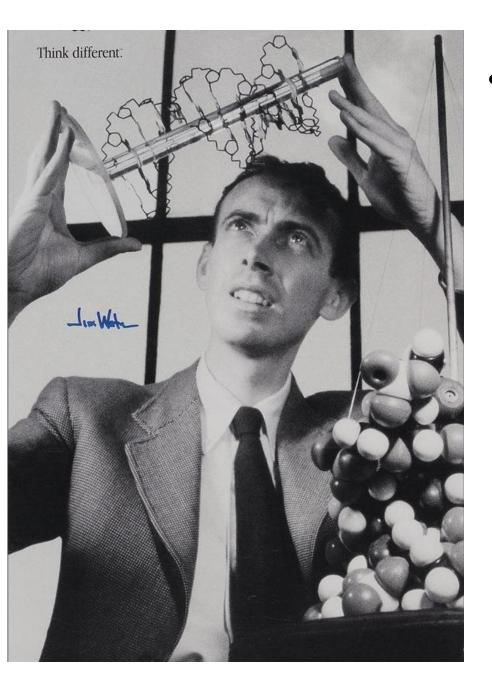
Learn and teach as we go

Participatory Democracy

 Having not only the will, but also the competence, to work collaboratively, and to involve effectively in the making of decisions

Not all collective capacities are intelligent.

•We need Collective Wisdom.



 Excellence demands the pursuit of seemingly unattainable goals. Those schools and teachers that really succeed are those which inspire their students move beyond the expectation of conventional wisdom. James D. Watson **THANK YOU!**