Conway's Law and Innovation - a conjecture

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Conway's Law

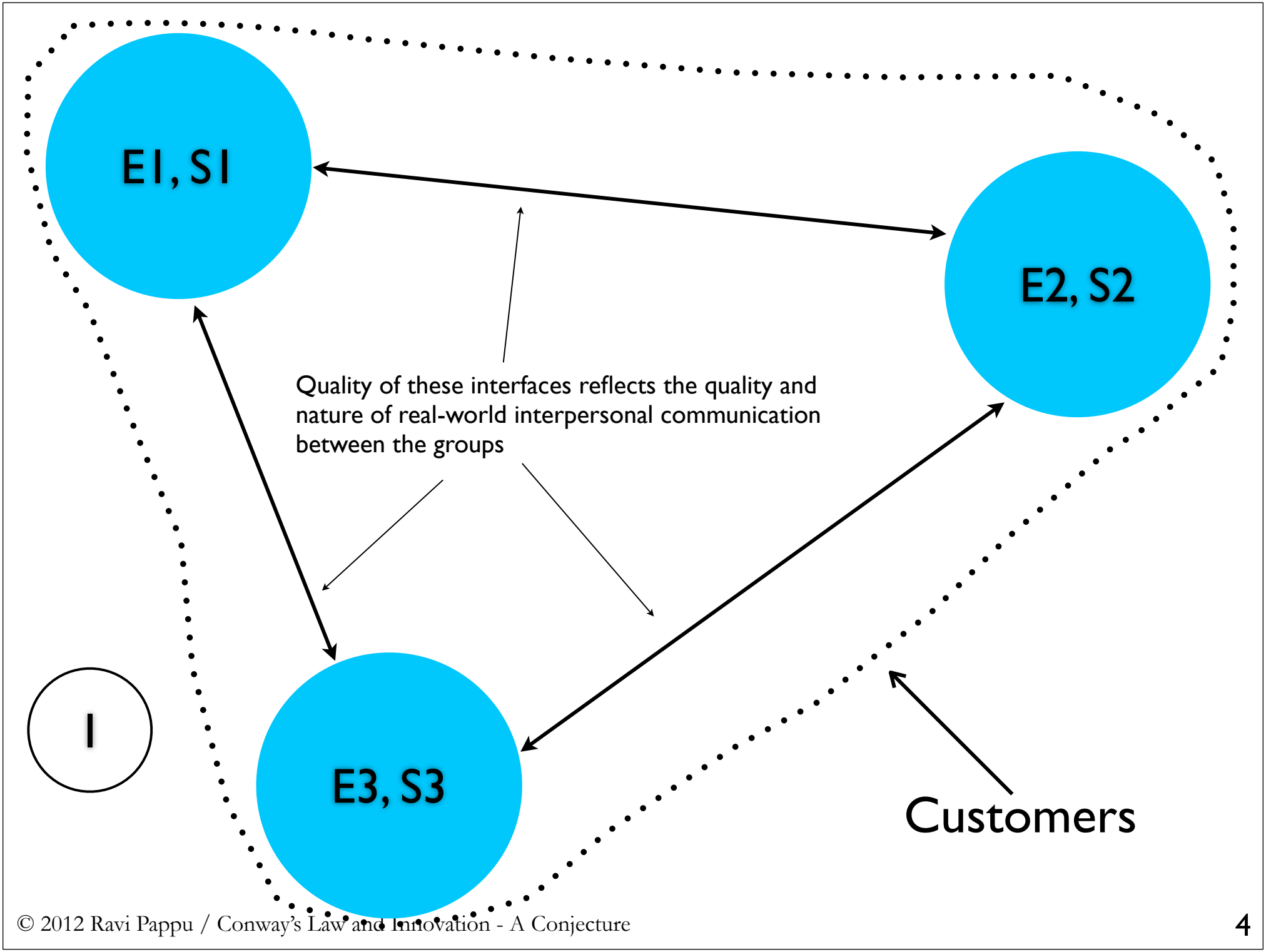
"Organizations which design systems are constrained to produce designs which are copies of the communication structures of these organizations."

Melvin E. Conway, How do committees invent?, Datamation Magazine, April, 1968.

Raymond's corollary

"If you have four groups working on a compiler, you'll get a 4-pass compiler"

Eric S. Raymond (October 1996). The New Hacker's Dictionary - 3rd Edition.



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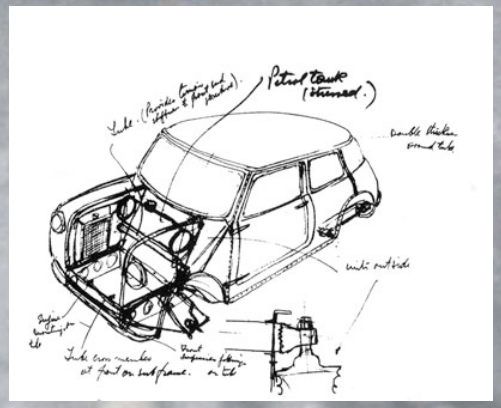
*Products and systems tend to **mirror** the architectures of the organizations in which they are developed.*

*This dynamic occurs because the organization's governance structures, problem solving routines and communication patterns constrain the space in which it **searches for new solutions***



"*A camel is a horse designed by a committee.*"

Sir Alec Issigonis, Designer of the Mini

Bits

How Wall Street Lied to Its Computers

By SAUL HANSELL | September 18, 2008, 7:52 AM | Comments (195)

"There was a willful designing of the systems to measure the risks in a certain way that would not necessarily pick up all the right risks"

Gregg Berman

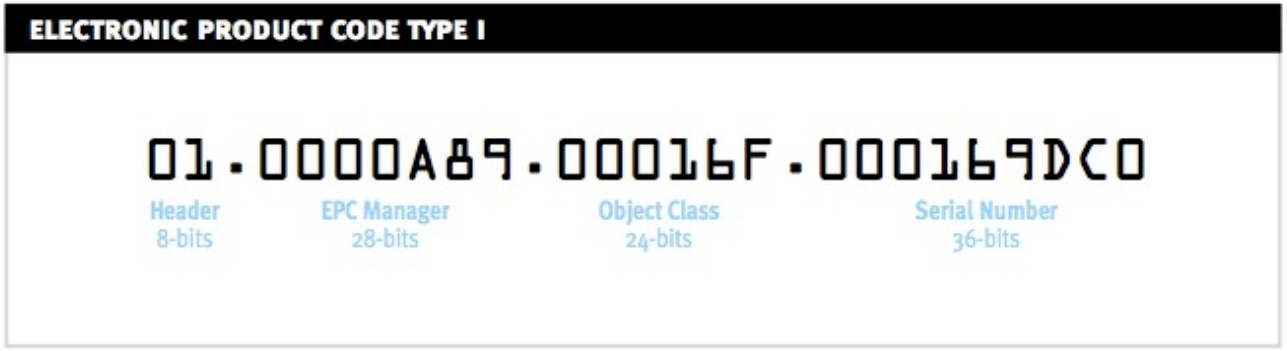
co-head of the risk-management group at RiskMetrics, a software company spun out of JPMorgan.

Software Development

"We find strong evidence to support the mirroring hypothesis."

MacCormack et al. Exploring the duality between product and organizational architectures: A test of the mirroring hypothesis. (2008)

EPC - early vision

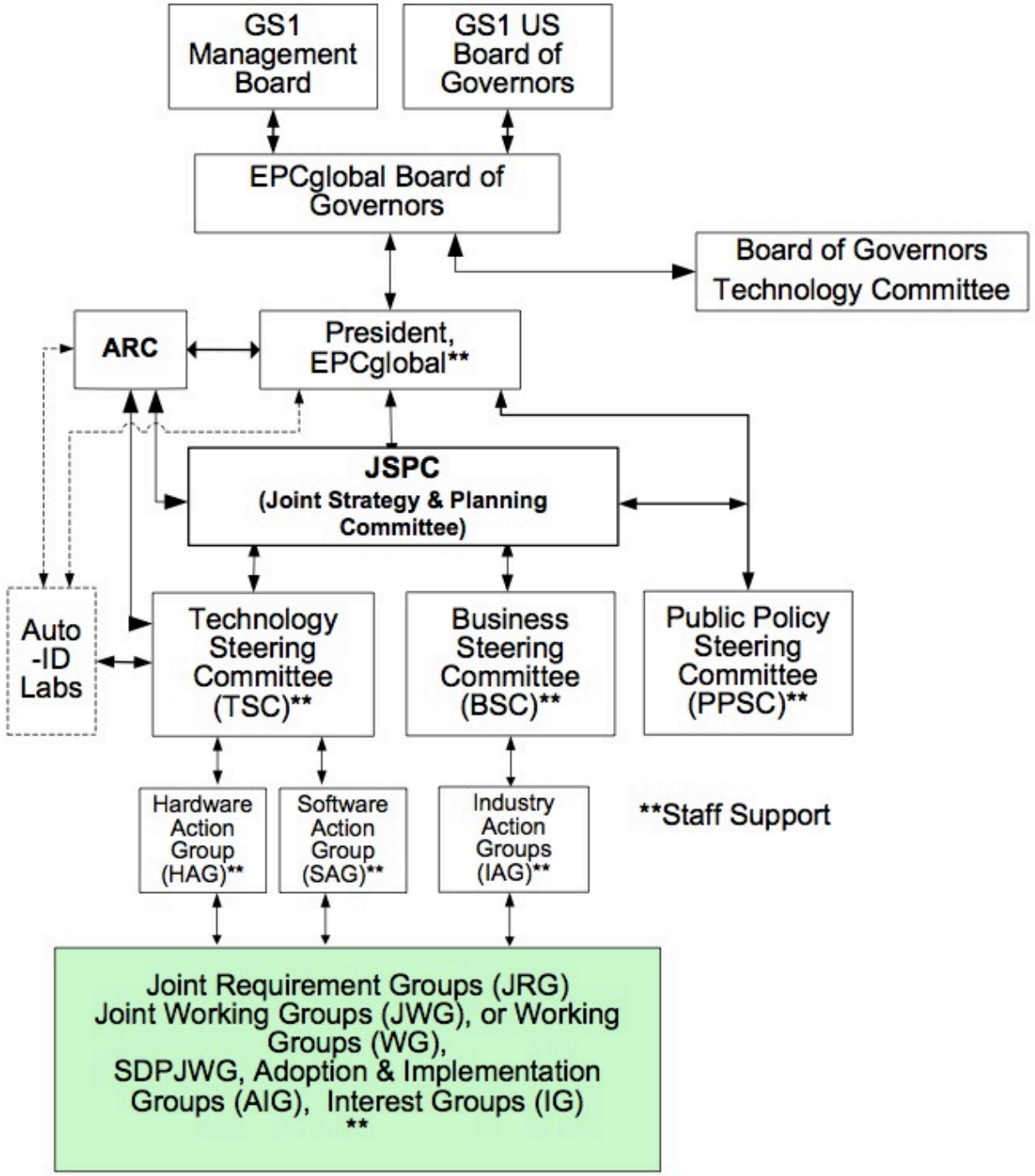


Given our desire for a unique searchable number for every object, we propose a simple scheme for the electronic Product Code: a 96-bit scheme with an 8-bit header and three data partitions, as shown in the above figure. Each 'X' in the figure indicates 8 bits. A 96-bit number was chosen as a compromise between the desire to ensure that all objects have a unique EPC and the current limitations of our proposed tag technology described below. The partitions of the EPC enable a hierarchical search for the information about the object tagged with a particular EPC.

The Networked Physical World: Proposals for Engineering the Next Generation of Computing, Commerce & Automatic-Identification, Sarma, S; Brock, D. L., Ashton, K, MIT-AUTOID-WH-001.pdf, 2000

EPC Standards Process

http://www.epcglobalus.org/Standards

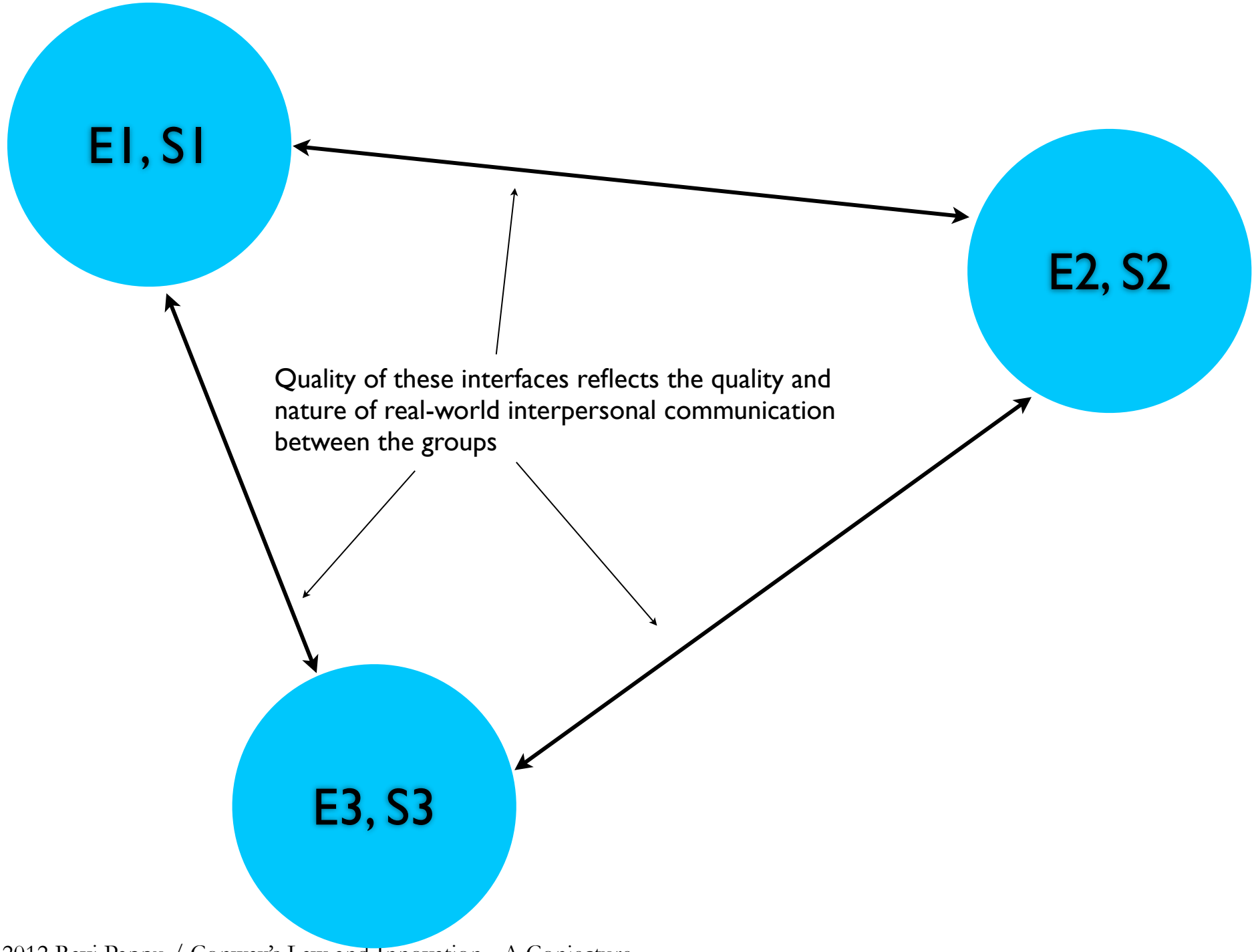


Tag Data Structure

EPC Scheme	Related GS1 Identification Key	Use	Tag Encodings
SGTIN	GTIN (with added serial #)	Trade items	SGTIN-96 SGTIN-198
SSCC	SSCC	Pallet or other unitized loads	SSCC-96
SGLN	GLN (with optional extension #)	Locations	SGLN-96 SGLN-195
GRAI	GRAI (serial number mandatory)	Returnable/reusable assets	GRAI-96 GRAI-170
GIAI	GIAI	Fixed assets	GIAI-96 GIAI-202
GDTI	GDTI (serial number mandatory)	Documents	GDTI-96 GDTI-113
GSRN	GSRN	Service relations (e.g., loyalty card)	GSRN-96
GID		Auto-ID Center legacy	GID-96
DoD		US Dept of Defense	DoD-96

The Conjecture

A necessary condition for breakout innovation is a systematic violation of Conway's Law i.e. elimination of existing patterns of communication



S0 - designed and implemented by team E0, outside the existing development organization

Practically speaking...

- Create a protected chunk of spacetime for the team working on the new system.
  - No other "day-job".
- Free them from meetings/reports etc. Let them set up their own internal and external communication structure.
- Let system architecture drive group organization
- Constraints - require a demonstrable prototype as soon as possible
- Everybody should be a contributor.