

KCoNnect 2017

KNOWLEDGE SHARING & LEARNING FOR CONTINUOUS IMPROVEMENT



Driving Innovation with Communities of Practice

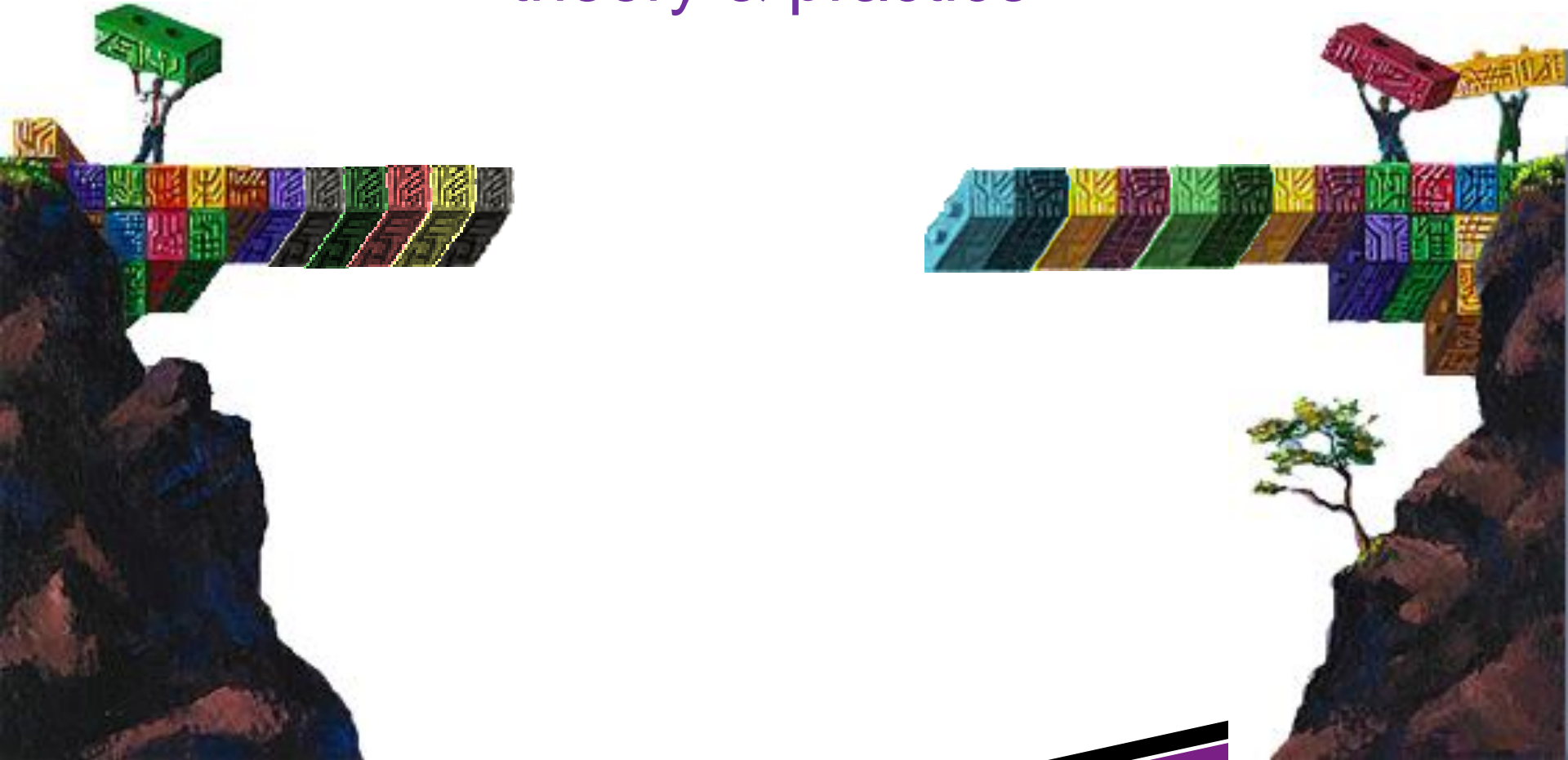
Vincent Ribi re (Ph.D)

IKI-SEA Managing Director
Bangkok University - Thailand

vrubiere@gmail.com



Center of Excellence of Bangkok University
specialized in KM and Innovation Management
Bridging the gap between
theory & practice



IKI-SEA International Team



IKI-SEA Activities



PhD-KIM
Knowledge and Innovation Management



Knowledge Management
Innovation Management
Creativity Management

ASCIM
ASIAN SYMPOSIUM ON
CREATIVITY & INNOVATION
MANAGEMENT



Organizational Knowledge Sharing Certificates

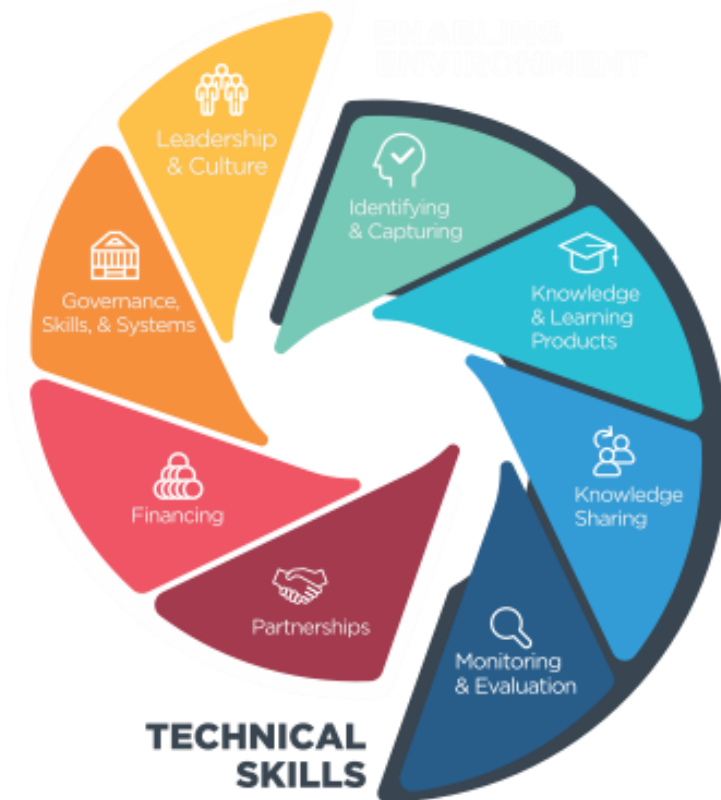


In partnership with the **WORLD BANK GROUP**

Becoming a Knowledge Sharing Organization

Two certificates in Bangkok:

- OKS Strategy Certification Program
May 29th-June 2nd, 2017
- OKS Technical Certification Program
June 5th- June 9th, 2017





<https://kmglobalnetwork.net>

KM Global Network



9 International Communities of KM Practitioners United



9 Members of KM Global Network



AuSKM

LASSIBSociety



KM
RUSSIA



Upcoming KMGN Conference in Bangkok

2017 OCTOBER						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14

More info coming soon ...

IKI-SEA clients



Bayer MaterialScience

amADEUS

Your technology partner



WORLD BANK GROUP



ASIAN
SCHOLARSHIP
FOUNDATION



BANGKOK
UNIVERSITY
THE CREATIVE UNIVERSITY

KCoNnect2017

KNOWLEDGE SHARING & LEARNING FOR CONTINUOUS IMPROVEMENT

Driving Innovation with Communities of Practice



KM Evolution

Social
KM

Techno-centric

Leveraging Explicit Knowledge

- Capturing documents & specific/analytical content

1995

Collection

Learning in Private

Need to Know

Management Control of Content

2000

Connection

2005

Conversation

Learning in Public

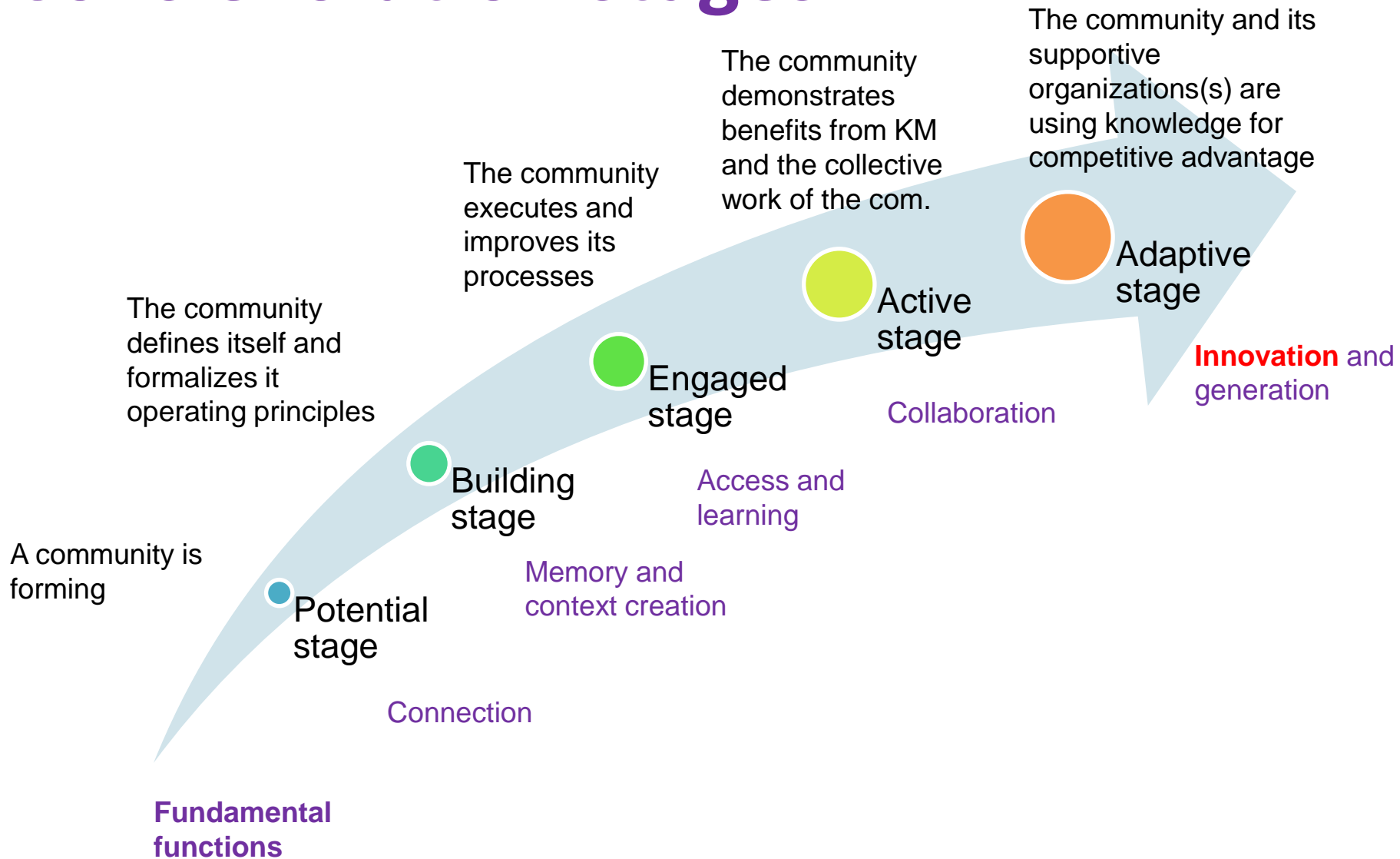
Transparency

User control of content

© Common Knowledge Associates 2008

Source: Nancy Dixon

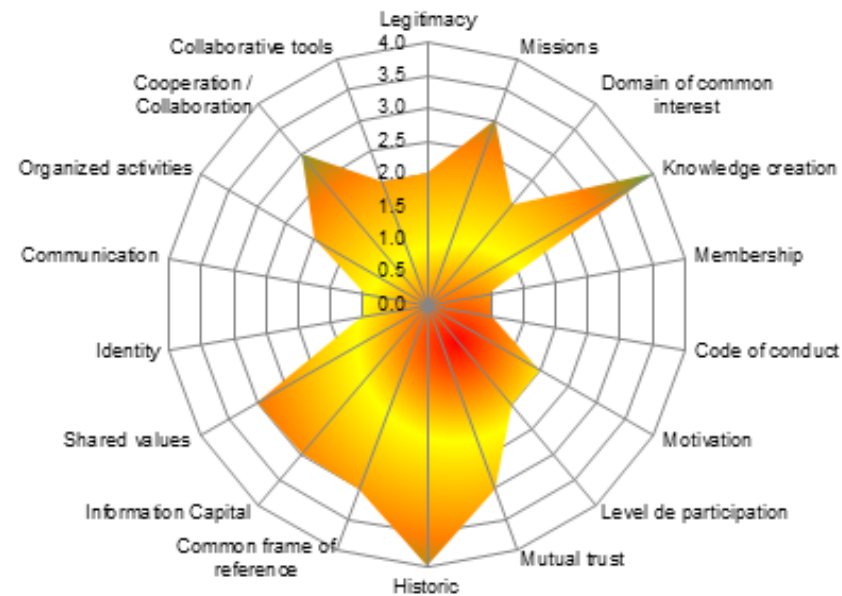
CoPs evolution stages



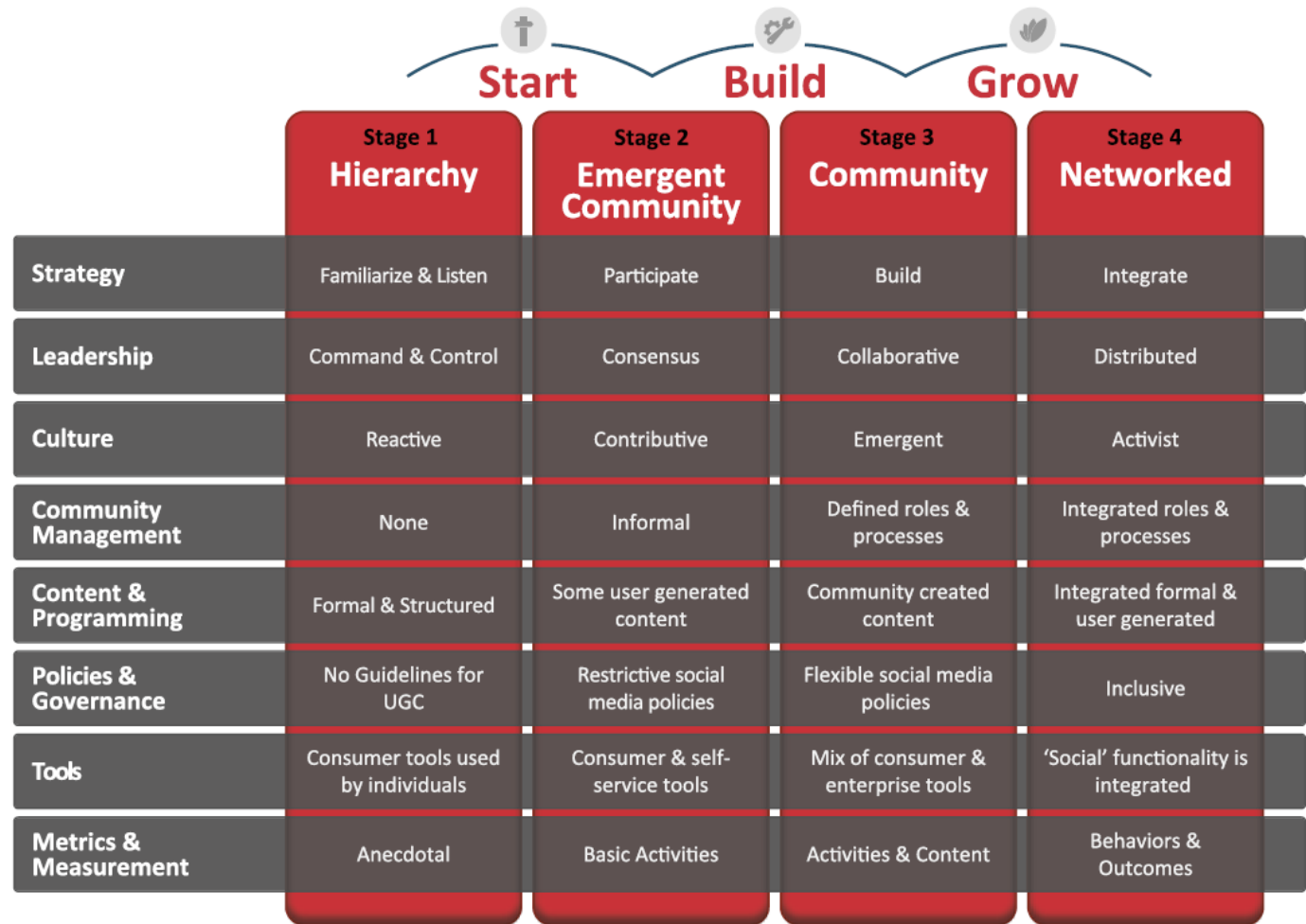
CoMM tool (CoP Maturity Model)

- Based on Etienne Wenger CoP concepts

Theme		Criteria	Level	Average per theme
JOINT ENTERPRISE	1	Legitimacy	2.0	2.8
	2	Missions	3.0	
	3	Domain of common interest	2.0	
	4	Knowledge creation	4.0	
MUTUAL ENGAGEMENT	5	Membership	1.0	1.8
	6	Code of conduct	1.0	
	7	Motivation	2.0	
	8	Level de participation	2.0	
	9	Mutual trust	3.0	
SHARED HERITAGE	10	Historic	4.0	2.8
	11	Common frame of reference	3.0	
	12	Information Capital	3.0	
	13	Shared values	3.0	
	14	Identity	1.0	
COLLABORATIVE WORK	15	Communication	1.0	2.0
	16	Organized activities	2.0	
	17	Cooperation / Collaboration	3.0	
	18	Collaborative tools	2.0	



The Community RoundTable Maturity Model

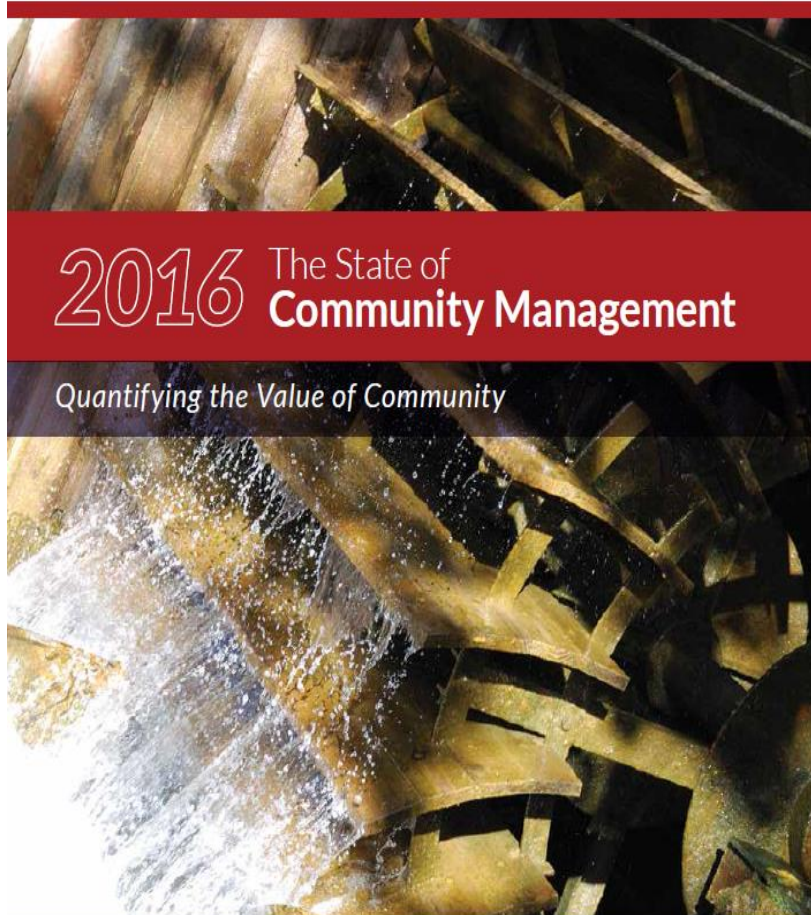


	Stage 1 Hierarchy	Stage 2 Emergent Community	Stage 3 Community	Stage 4 Networked
Strategy	Familiarize & Listen	Participate	Build	Integrate
Leadership	Command & Control	Consensus	Collaborative	Distributed
Culture	Reactive	Contributive	Emergent	Activist
Community Management	None	Informal	Defined roles & processes	Integrated roles & processes
Content & Programming	Formal & Structured	Some user generated content	Community created content	Integrated formal & user generated
Policies & Governance	No Guidelines for UGC	Restrictive social media policies	Flexible social media policies	Inclusive
Tools	Consumer tools used by individuals	Consumer & self-service tools	Mix of consumer & enterprise tools	'Social' functionality is integrated
Metrics & Measurement	Anecdotal	Basic Activities	Activities & Content	Behaviors & Outcomes

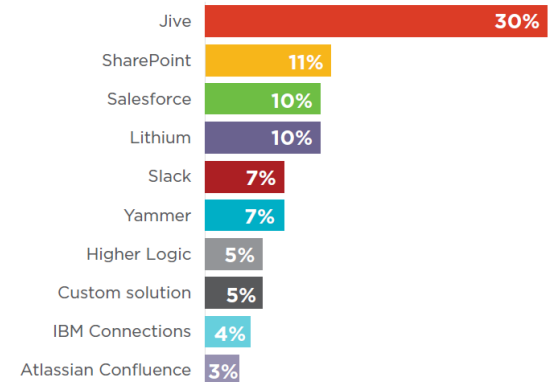
The eight competencies in the model are the building blocks of a productive community.

The four maturity stages track how communities evolve.

Free Annual Report



TOP 10 COMMUNITY VENDORS (SOCM RESPONDENTS):



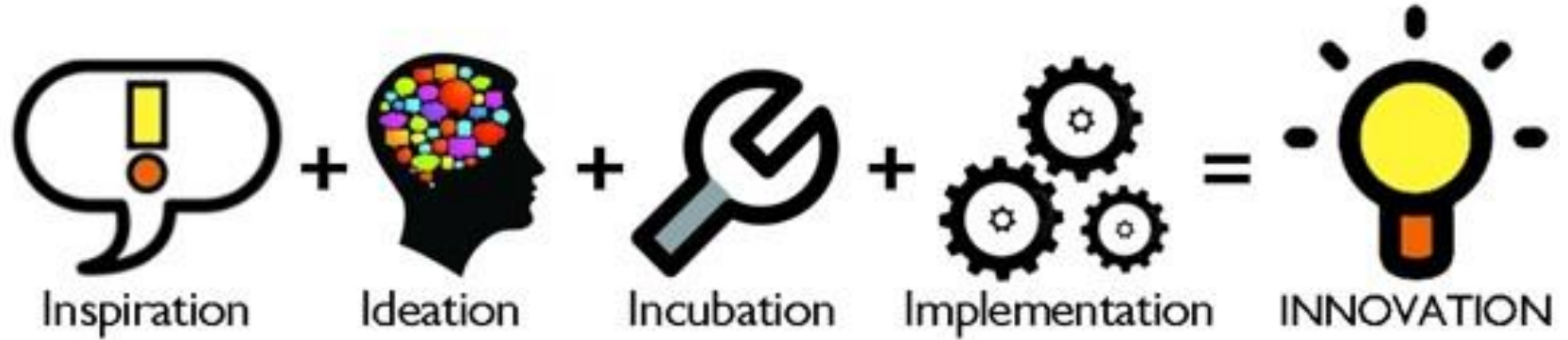
www.CommunityRoundtable.com

Innovation Definition:

Innovation is
the transformation of an idea
into a successful product, service,
process of business model
that will deliver new business value



Innovation Definition:



2 levels of Innovation:

Core/Incremental Innovation

**Improve today's business
either by:**

- Enhancing existing offerings

or by

- Improving internal operations

or by

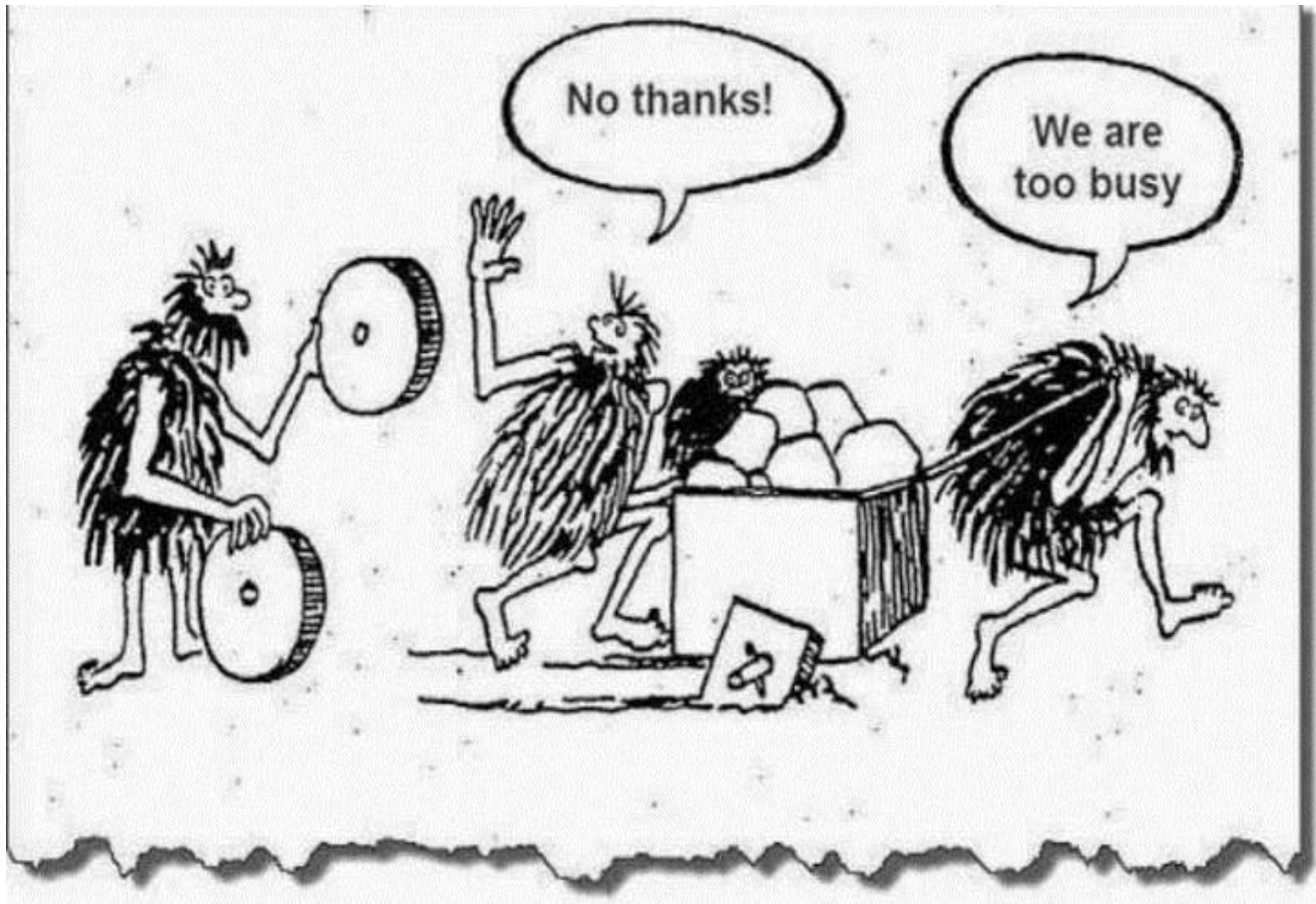
- Adopting/Deploying a breakthrough technology

Transformational innovation

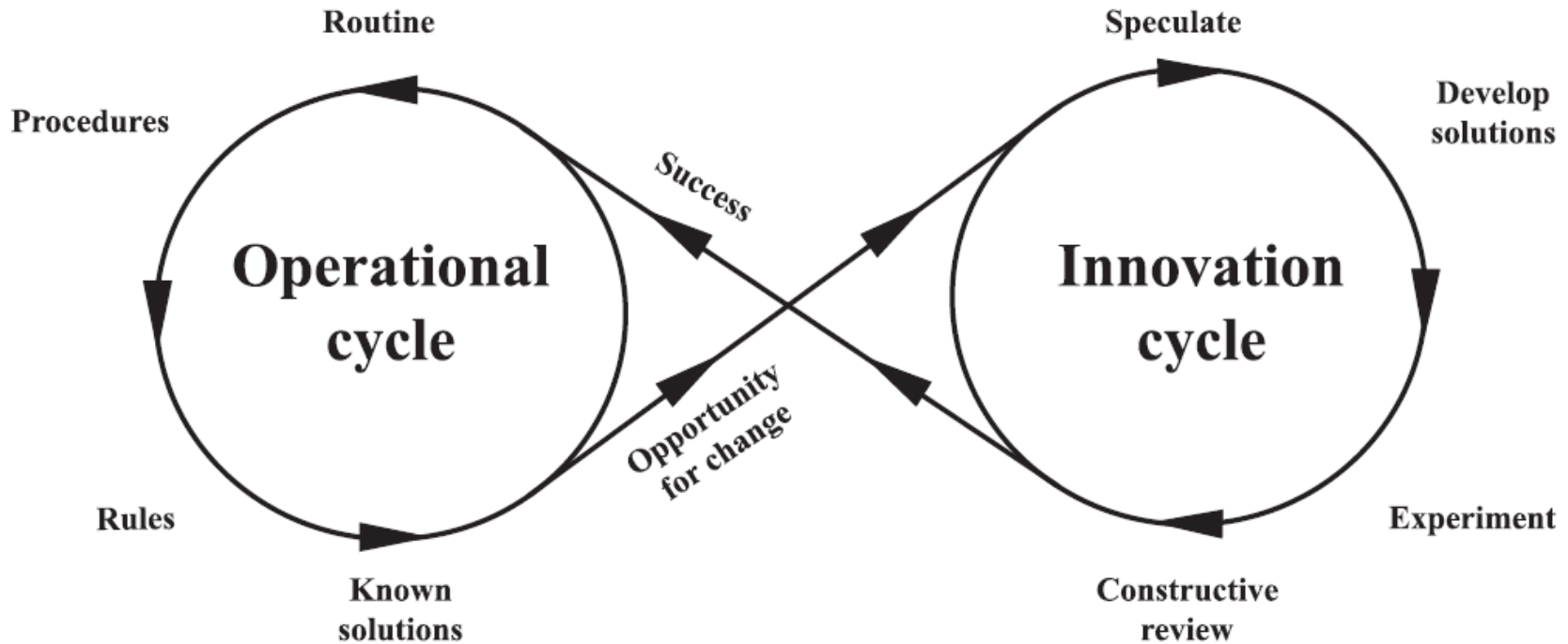
“New to the company business”

Generates new growth by:

- Reaching new customers segments
- New markets
- Developing new business models
- Radical new ways of operating and working
- Adopting/Deploying a disruptive technology



Innovation levels



Continuous improvement
Problem driven (incremental)
innovation

Systematic innovation
“transformational”



No one lives long enough
to learn everything they
need to learn starting from
scratch.

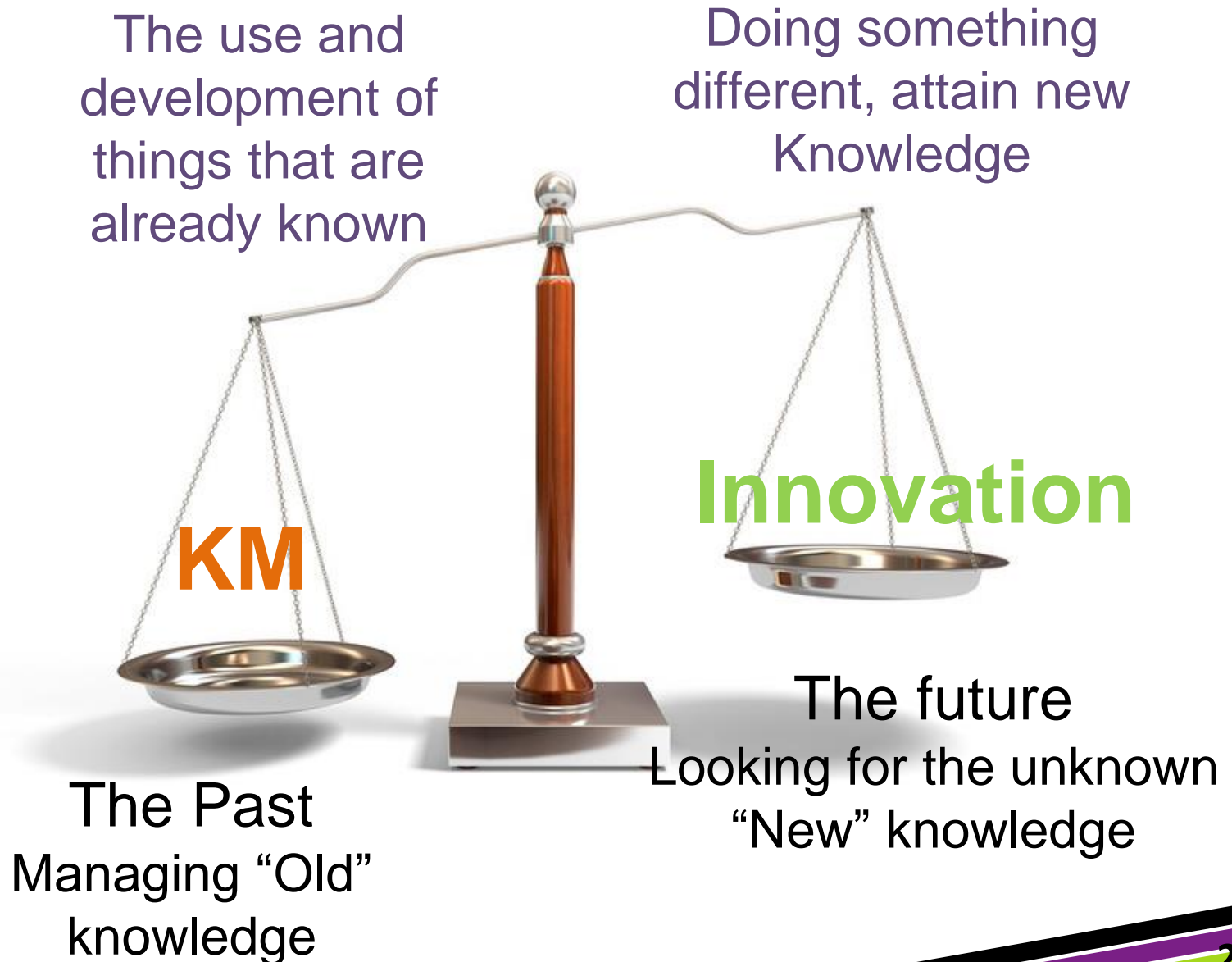
- Brian Tracy

IF I HAVE SEEN FURTHER,
IT IS BY STANDING
ON THE SHOULDERS
OF GIANTS.

- ISAAC NEWTON



KM and Innovation - Contradictory?



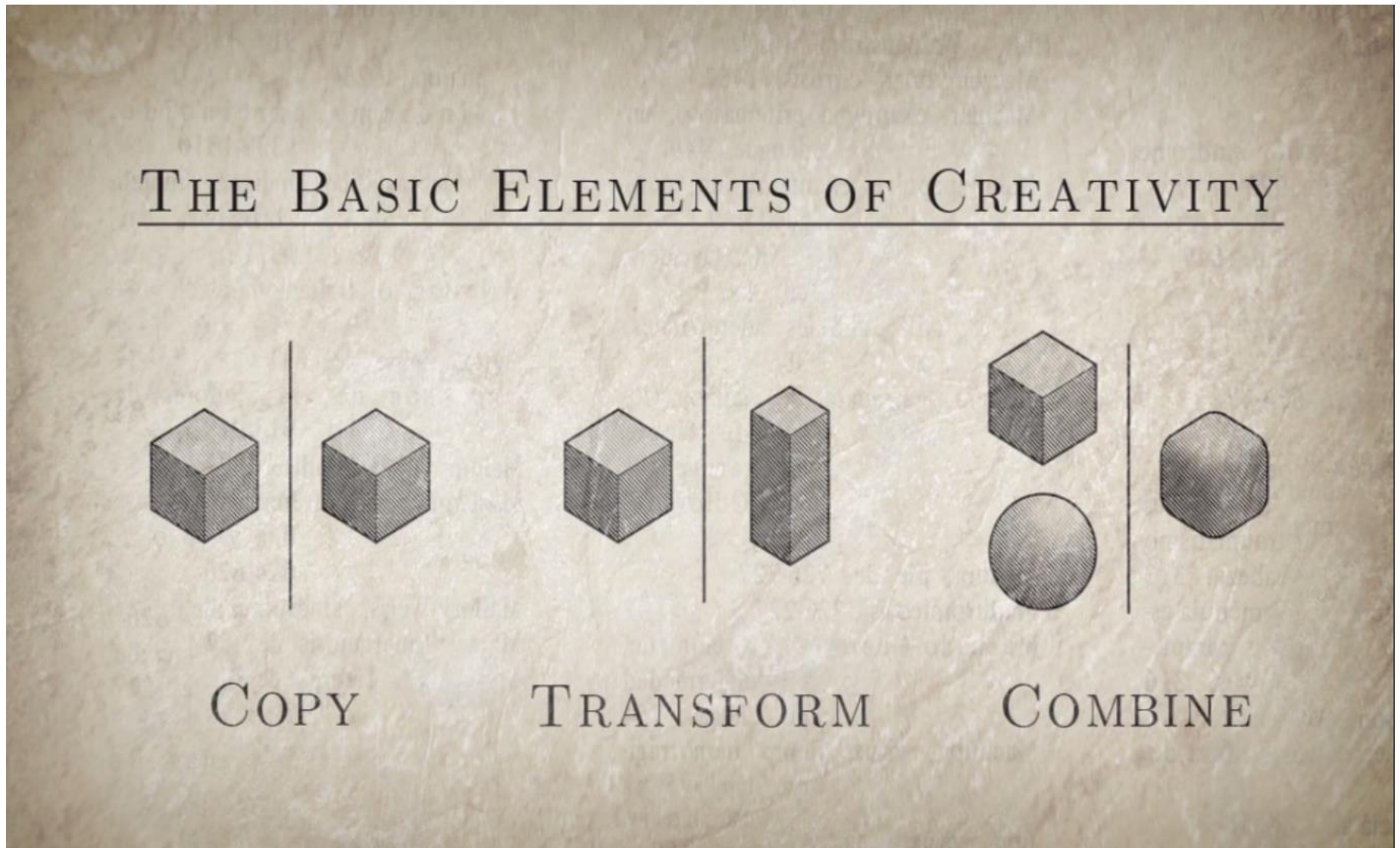


THE FUTURE



IS IN THE PAST

Is everything a remix?



Periodic Table of Elements



PRODUCED BY THE FOUNDATION FOR EDUCATION, SCIENCE AND TECHNOLOGY FOR NATIONAL SET WEEK 2003

PERIODIC TABLE of the ELEMENTS



Proudly sponsored by the
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Tel: 01753 690 100 | Fax: 01753 690 100 | www.shuttleworthfoundation.org



1	H Hydrogen 1.01
2	Li Lithium 3 6.94
	Be Beryllium 4 9.01
3	Mg Magnesium 12 24.31
	Na Sodium 11 22.99

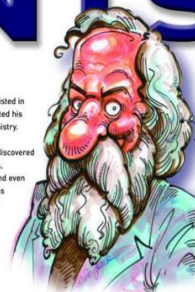
ALKAALI METALS	H	1.01
ALKAALI EARTH METALS		
TRANSITION METALS		
OTHER METALS		
POST-TRANSITION METALS		
HALOGENS		
NOBLE GASES		
AT ROOM TEMPERATURE THE ELEMENT IS:		
Gas		
Liquid		
Natural solid		
Man-made solid (synthetic)		

DMITRI MENDELEYEV (1834 - 1907)

The Russian chemist, Dmitri Mendeleev, was the first to observe that if elements were listed in order of atomic mass, they showed regular (periodical) repeating properties. He formulated his discovery in a periodic table of elements, now regarded as the backbone of modern chemistry.

The crowning achievement of Mendeleev's periodic table lay in his prophecy of then, undiscovered elements. In 1869, the year he published his periodic classification, the elements gallium, germanium and scandium were unknown. Mendeleev left spaces for them in his table and even predicted their atomic masses and other chemical properties. Six years later, gallium was discovered and his predictions were found to be accurate. Other discoveries followed and their chemical behaviour matched that predicted by Mendeleev.

This remarkable man, the youngest in a family of 17 children, has left the scientific community with a classification system so powerful that it became the cornerstone in chemistry teaching and the prediction of new elements ever since. In 1955, element 101 was named after him, Md, Mendeleevium.



4	<div><div></div><div>K Potassium 19 39.10</div></div>	<div><div></div><div>Ca Calcium 20 40.08</div></div>	<div><div></div><div>Sc Scandium 21 44.96</div></div>	<div><div></div><div>Ti Titanium 22 47.88</div></div>	<div><div></div><div>V Vanadium 23 50.94</div></div>	<div><div></div><div>Cr Chromium 24 52.00</div></div>	<div><div></div><div>Mn Manganese 25 54.94</div></div>	<div><div></div><div>Fe Iron 26 55.85</div></div>	<div><div></div><div>Co Cobalt 27 58.93</div></div>	<div><div></div><div>Ni Nickel 28 58.69</div></div>	<div><div></div><div>Cu Copper 29 63.55</div></div>	<div><div></div><div>Zn Zinc 30 65.39</div></div>	<div><div></div><div>Ga Gallium 31 69.72</div></div>	<div><div></div><div>Ge Germanium 32 72.61</div></div>	<div><div></div><div>As Arsenic 33 74.92</div></div>	<div><div></div><div>Se Selenium 34 78.96</div></div>	<div><div></div><div>Br Bromine 35 79.90</div></div>	<div><div></div><div>Kr Krypton 36 83.80</div></div>						
5	<div><div></div><div>Rb Rubidium 37 85.47</div></div>	<div><div></div><div>Sr Strontium 38 87.62</div></div>	<div><div></div><div>Y Yttrium 39 88.91</div></div>	<div><div></div><div>Zr Zirconium 40 91.22</div></div>	<div><div></div><div>Nb Niobium 41 92.91</div></div>	<div><div></div><div>Mo Molybdenum 42 95.94</div></div>	<div><div></div><div>Tc Technetium 43 (98)</div></div>	<div><div></div><div>Ru Ruthenium 44 101.07</div></div>	<div><div></div><div>Rh Rhodium 45 102.91</div></div>	<div><div></div><div>Pd Palladium 46 106.42</div></div>	<div><div></div><div>Ag Silver 47 107.87</div></div>	<div><div></div><div>Cd Cadmium 48 112.41</div></div>	<div><div></div><div>In Indium 49 114.82</div></div>	<div><div></div><div>Sn Tin 50 118.71</div></div>	<div><div></div><div>Sb Antimony 51 121.76</div></div>	<div><div></div><div>Te Tellurium 52 127.60</div></div>	<div><div></div><div>I Iodine 53 126.90</div></div>	<div><div></div><div>Xe Xenon 54 131.29</div></div>						
6	<div><div></div><div>Cs Caesium 55 132.91</div></div>	<div><div></div><div>Ba Barium 56 137.33</div></div>	<div><div></div><div>Lanthanide Series</div></div>	<div><div></div><div>Hf Hafnium 72 178.49</div></div>	<div><div></div><div>Ta Tantalum 73 180.95</div></div>	<div><div></div><div>W Tungsten 74 183.85</div></div>	<div><div></div><div>Re Rhenium 75 186.21</div></div>	<div><div></div><div>Os Osmium 76 190.23</div></div>	<div><div></div><div>Ir Iridium 77 192.22</div></div>	<div><div></div><div>Pt Platinum 78 195.08</div></div>	<div><div></div><div>Au Gold 79 196.97</div></div>	<div><div></div><div>Hg Mercury 80 200.59</div></div>	<div><div></div><div>Tl Thallium 81 204.38</div></div>	<div><div></div><div>Pb Lead 82 207.20</div></div>	<div><div></div><div>Bi Bismuth 83 208.98</div></div>	<div><div></div><div>Po Polonium 84 (209)</div></div>	<div><div></div><div>At Astatine 85 (210)</div></div>	<div><div></div><div>Rn Radon 86 (222)</div></div>						
7	<div><div></div><div>Fr Francium 87 (223)</div></div>	<div><div></div><div>Ra Radium 88 (226)</div></div>	<div><div></div><div>Actinide Series</div></div>	<div><div></div><div>Rf Rutherfordium 104 (261)</div></div>	<div><div></div><div>Db Dubnium 105 (262)</div></div>	<div><div></div><div>Sg Seaborgium 106 (263)</div></div>	<div><div></div><div>Bh Bohrium 107 (264)</div></div>	<div><div></div><div>Hs Hassium 108 (265)</div></div>	<div><div></div><div>Mt Meitnerium 109 (266)</div></div>	<div><div></div><div>La Lanthanum 57 138.91</div></div>	<div><div></div><div>Ce Cerium 58 140.12</div></div>	<div><div></div><div>Pr Praseodymium 59 140.91</div></div>	<div><div></div><div>Nd Neodymium 60 144.24</div></div>	<div><div></div><div>Pm Promethium 61 (145)</div></div>	<div><div></div><div>Sm Samarium 62 150.36</div></div>	<div><div></div><div>Eu Europium 63 151.96</div></div>	<div><div></div><div>Gd Gadolinium 64 157.25</div></div>	<div><div></div><div>Tb Terbium 65 158.93</div></div>	<div><div></div><div>Dy Dysprosium 66 162.50</div></div>	<div><div></div><div>Ho Holmium 67 164.93</div></div>	<div><div></div><div>Er Erbium 68 167.26</div></div>	<div><div></div><div>Tm Thulium 69 168.93</div></div>	<div><div></div><div>Yb Ytterbium 70 173.04</div></div>	<div><div></div><div>Lu Lutetium 71 174.97</div></div>



Design and production: Learning Design Group, Design Studio, Plymouth. Illustrations: Dr. John. Technical editor: Carl Morris. Copyright

Periodic Table of Elements



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The Muppet Show



Sesame Street





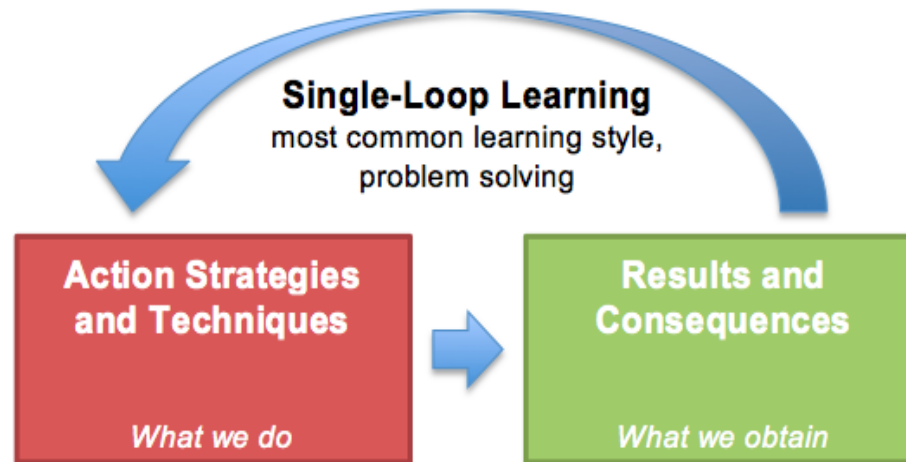
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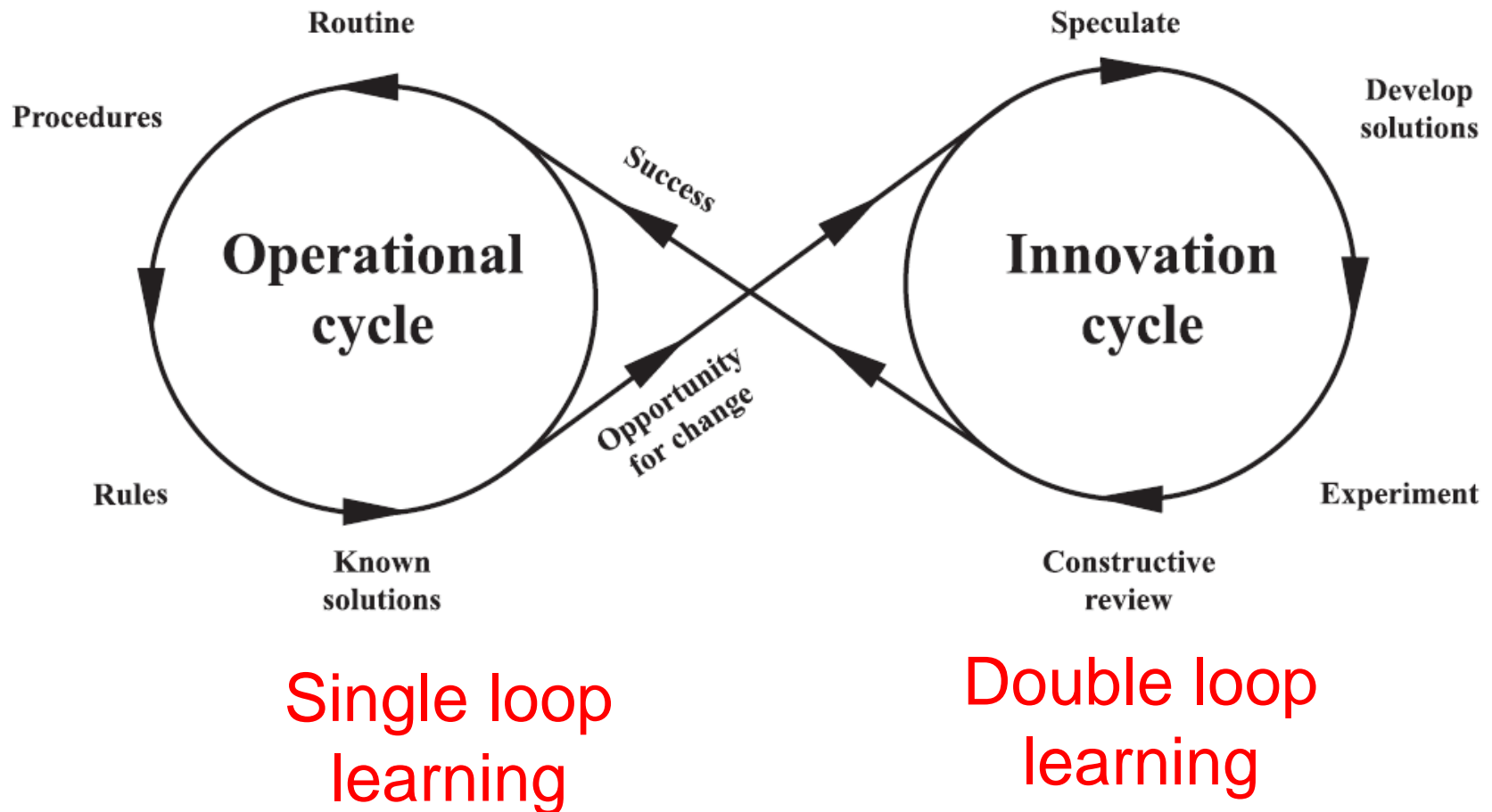
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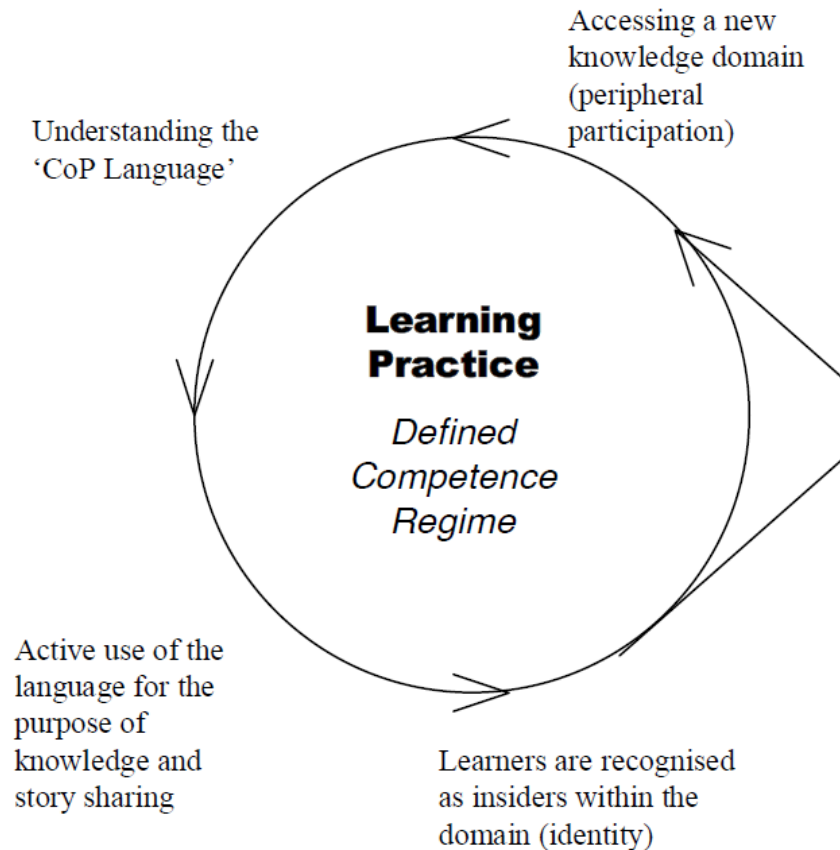
Single and Double Loop Learning



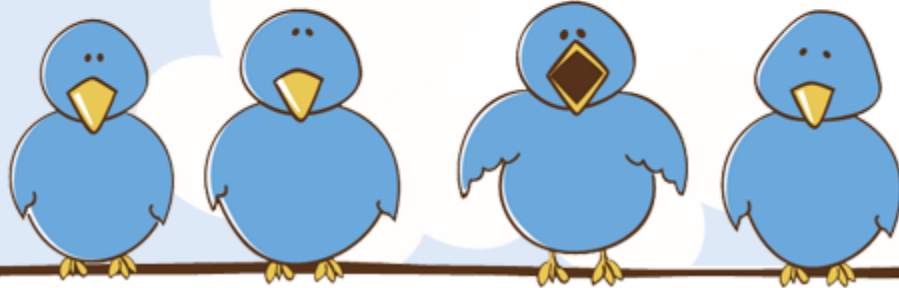
Cycling Worlds



Learning and Innovation in CoPs



CoP Homophily



Birds of a Feather
Flock Together



A need for members diversity in CoPs



Skills

Abilities

Cognition

5 Innoversity drivers for CoPs

- **Absorptive capacity** (Cohen Levinthal, 1990)
Ability to recognize the value of new, external information, assimilate it and apply it.
- **Requisite Variety**
Ability to control discontinuities/perturbations
- **Network Variety**
Ability to tap into broad networks of contacts
- **Creative Destruction** (Levitt, 1962)
Being willing to destroy the old in the heart of innovation and the means to profits
- **Problem Solving**
Diversity of perspectives and points of views

(Justesen, 2004)



CASE STUDIES

BOMBARDIER OVERVIEW



Bombardier Aerospace Activities

(Fiscal year ended December 31, 2014)

- Revenues: \$10.5 billion
- Customers in more than 100 countries
- Presence in 26 countries
- Employees: 34,100
- Headquarters in Montréal, Canada



Bombardier Transportation

(Fiscal year ended December 31, 2014)

- Revenues: \$9.6 billion
- Customers in more than 60 countries
- Presence in 41 countries
- Employees: 39,700
- Headquarters in Berlin, Germany

BOMBARDIER OVERVIEW

We offer a broad aircraft portfolio

Business Aircraft



Learjet Family



Challenger Family



Global Family

Commercial Aircraft



Q-Series Turboprops



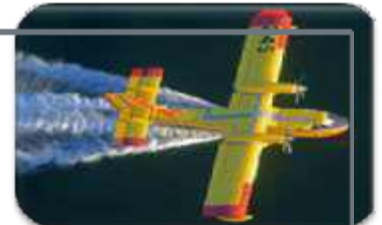
CRJ Family



CSeries Family



Specialized Aircraft



Amphibious



KNOWLEDGE DOMAIN SUPPORT

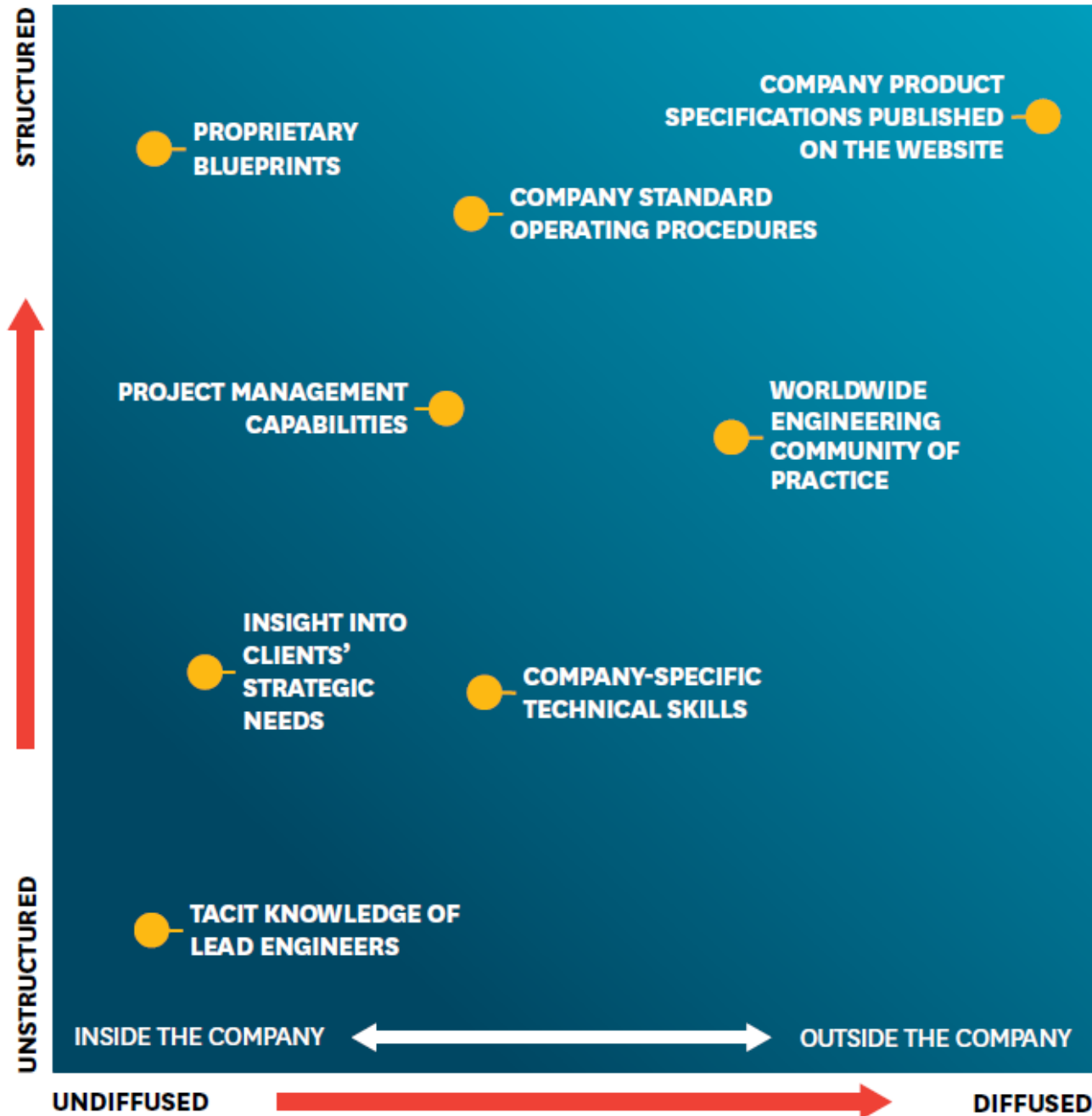
28 Engineering Communities of Practice

KNOWLEDGE DOMAINS	
Acoustics	Flight Test
Aerodynamics	Flight Deck Design
Aircraft Configuration	Loads & Dynamics
Airworthiness	Mass Properties
Airframe Structure	Materials and Processes
Avionics	Pneumatics
Cabin Interior	Product Integration
Cabin Systems	Program Management
Configuration Management	Project Management
Control Systems	Propulsion
Electrical	Reliability Maintenance & Safety
Electronic Equipment Design Assurance	Stress
Electromagnetism	System Simulation
Experimental	Thermodynamics



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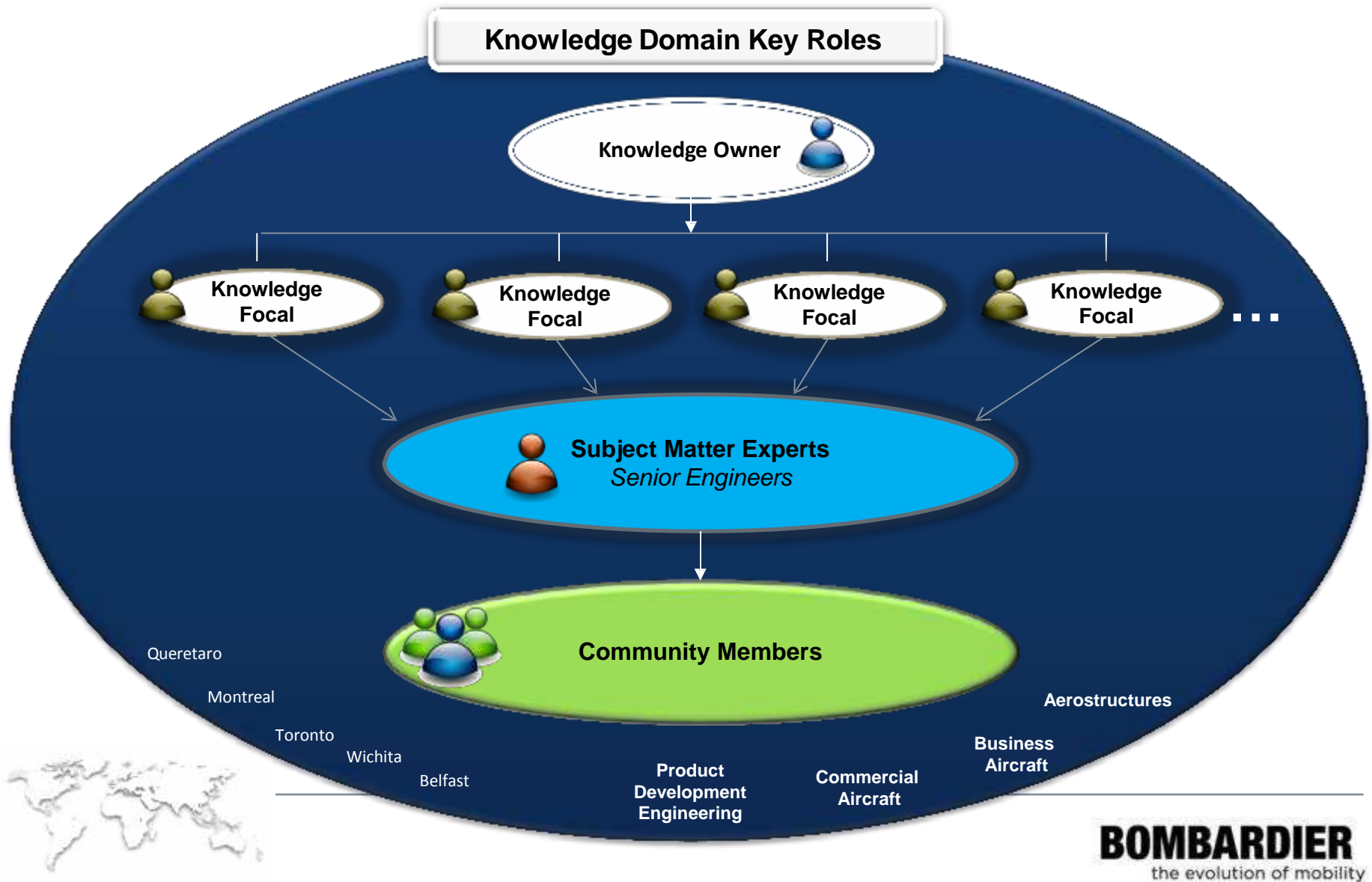
A GENERIC ENGINEERING COMPANY'S KNOWLEDGE ASSETS



The
Knowledge
domains
Cops serve
as a catalyst
to develop
Patents and
IP

Managing Your
Mission Critical
Knowledge (HBR
2015)

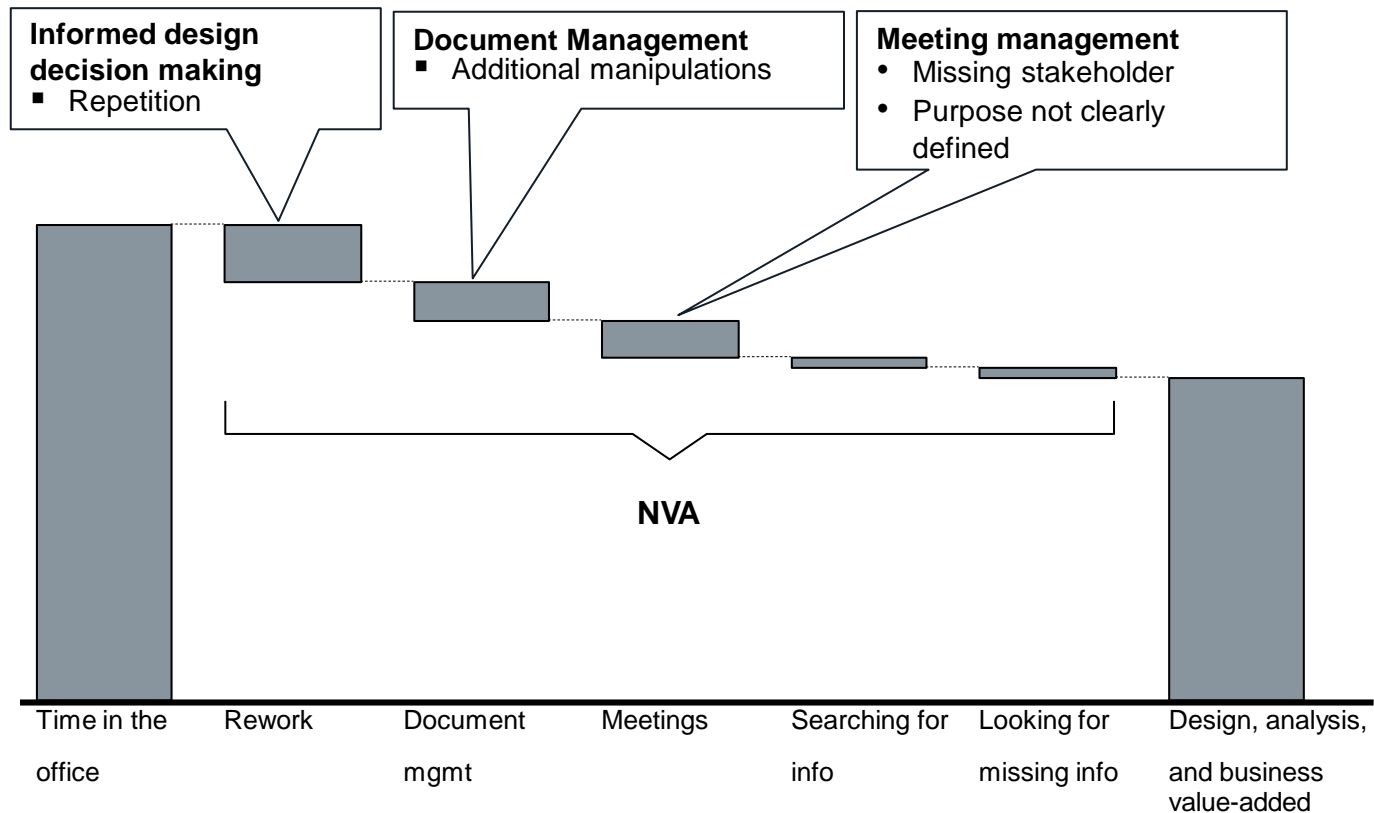
KNOWLEDGE DOMAIN SUPPORT Structure



KNOWLEDGE MANAGEMENT JOURNEY

Case for change

Engineers report more than 30% of their time in office is spent on non value-added (NVA) tasks



KNOWLEDGE MANAGEMENT JOURNEY

Case for change

BEFORE:

- 1 • Multiple uncoordinated databases
- 2 • Poor search functionalities
- 3 • A loose network of engineers
- 4 • Experts fire fighting on programs
- 5 • Existing knowledge that is not shared
- 6 • Poor incentives to create new knowledge

REOCCURRING DESIGN ISSUES AND
TIME LOSS IN SEEKING KNOWLEDGE
AND EXPERTISE

NOW:

Efficient knowledge marketplace :

- Knowledge communities
- Detailed company directory
- One-stop search tool
- Codification systems for reusable knowledge

REDUCED REPEATED MISTAKES AND
INCREASED EFFICIENCY FOR OUR
EMPLOYEES

KNOWLEDGE MANAGEMENT JOURNEY

How do we support BOMBARDIER's priorities?

ACHIEVE FLAWLESS EXECUTION



Harness collective **knowledge**



Increase **communication** alignment and efficiency



Improve professional **networking** between experts



Provide high **quality** end-products



Improve organizational effectiveness & **productivity**



How to
collaborate?

Where to
find stuff?

Anything
new?

Who
knows
what?

What is
Knowledge
Management?

How to be more
effective in my
job? (Know
How)

How can I
improve my
competency?

KNOWLEDGE DOMAIN SUPPORT

What's in it for knowledge domain community members?

Easily **find**
experienced
individuals with the
most appropriate expertise
across BOMBARDIER

Have **BOMBARDIER**
wide knowledge
documents and links at
the end of your
fingertips

Work through the barriers to
your productivity by **reusing**
“**what we know**”

Improved
communication and
bridge silos around you

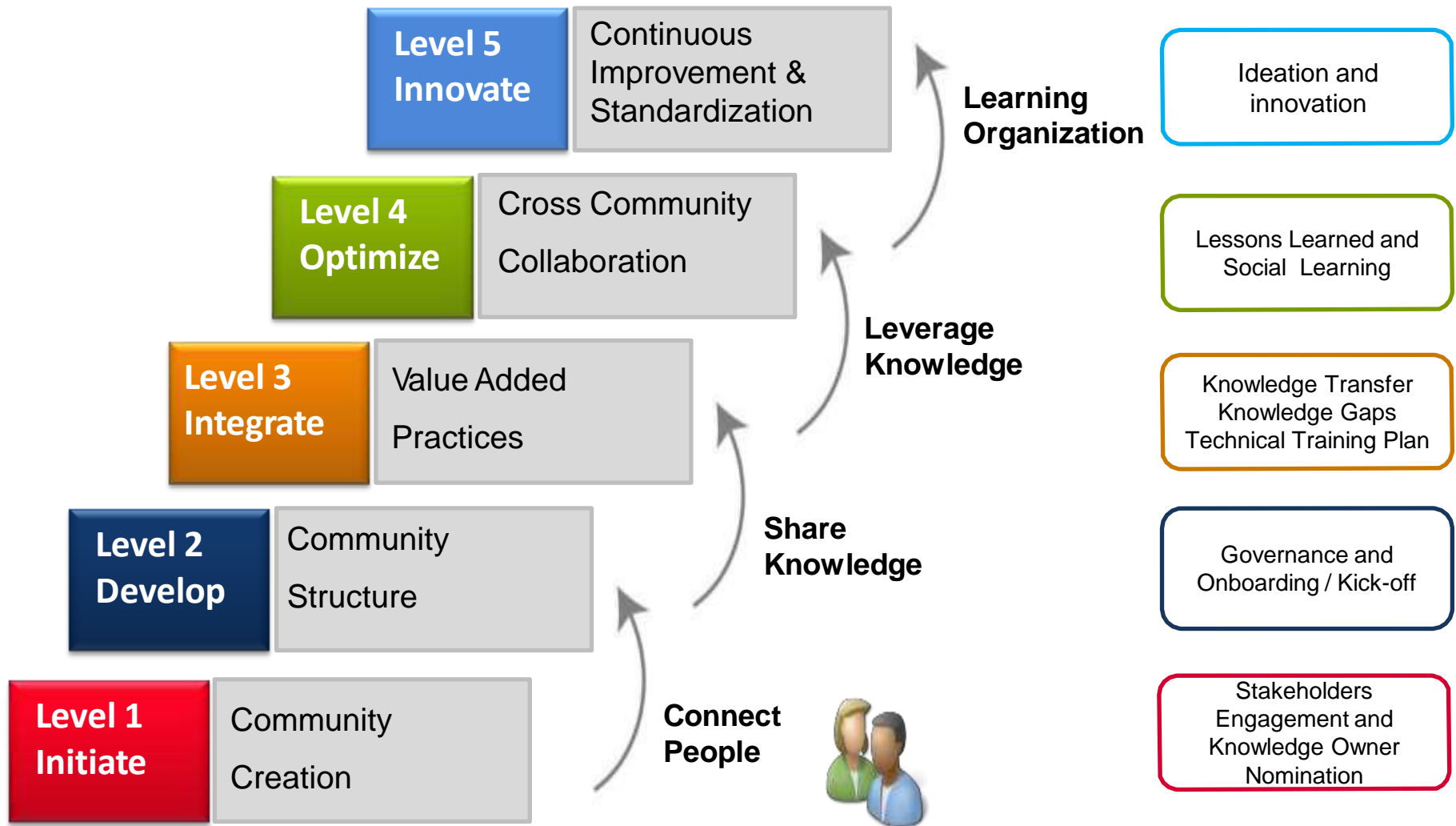
COLLABORATION PLATFORM

High level scope



KNOWLEDGE DOMAIN SUPPORT

How did the APQC's maturity model help us structure our reality?



Innovation Units (IU) and CoPs

- IU closely work with knowledge owners and their community to get the latest knowledge
 - What do we know and don't know about a particular technology (knowledge gaps)?
 - What will be the level of maturity of this new technology in 24-36 months from now?
- The knowledge owners help to validate ideas/hypotheses from innovation teams

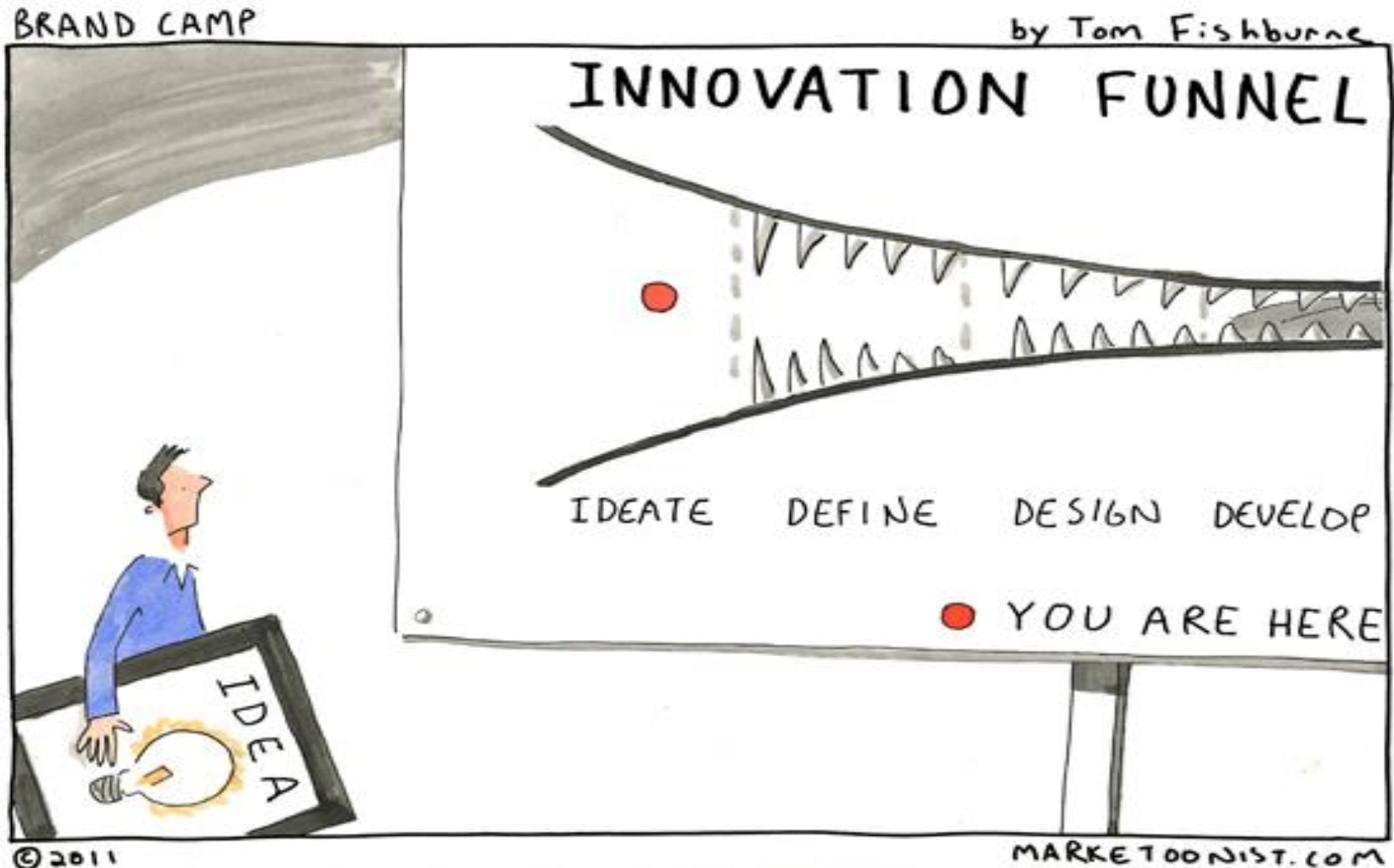
Innovation Units and CoPs

- Innovation teams ask CoPs **where improvements should be made?** (Since CoP members attend various conferences, they know what competitors are doing, read publications, ...) so they can suggest new technology choices.
- CoPs serve to **crowdsource ideas** from different locations and shortlist the best ideas

Case Study #2

- Hydro-Québec is a public utility that manages the generation, transmission and distribution of electricity in Quebec (Canada)
- 20,000 employees
- Research Institute 500 employees (300 Researchers and technicians)
- CoPs has a way to manage Knowledge and to Innovate

Challenge faced



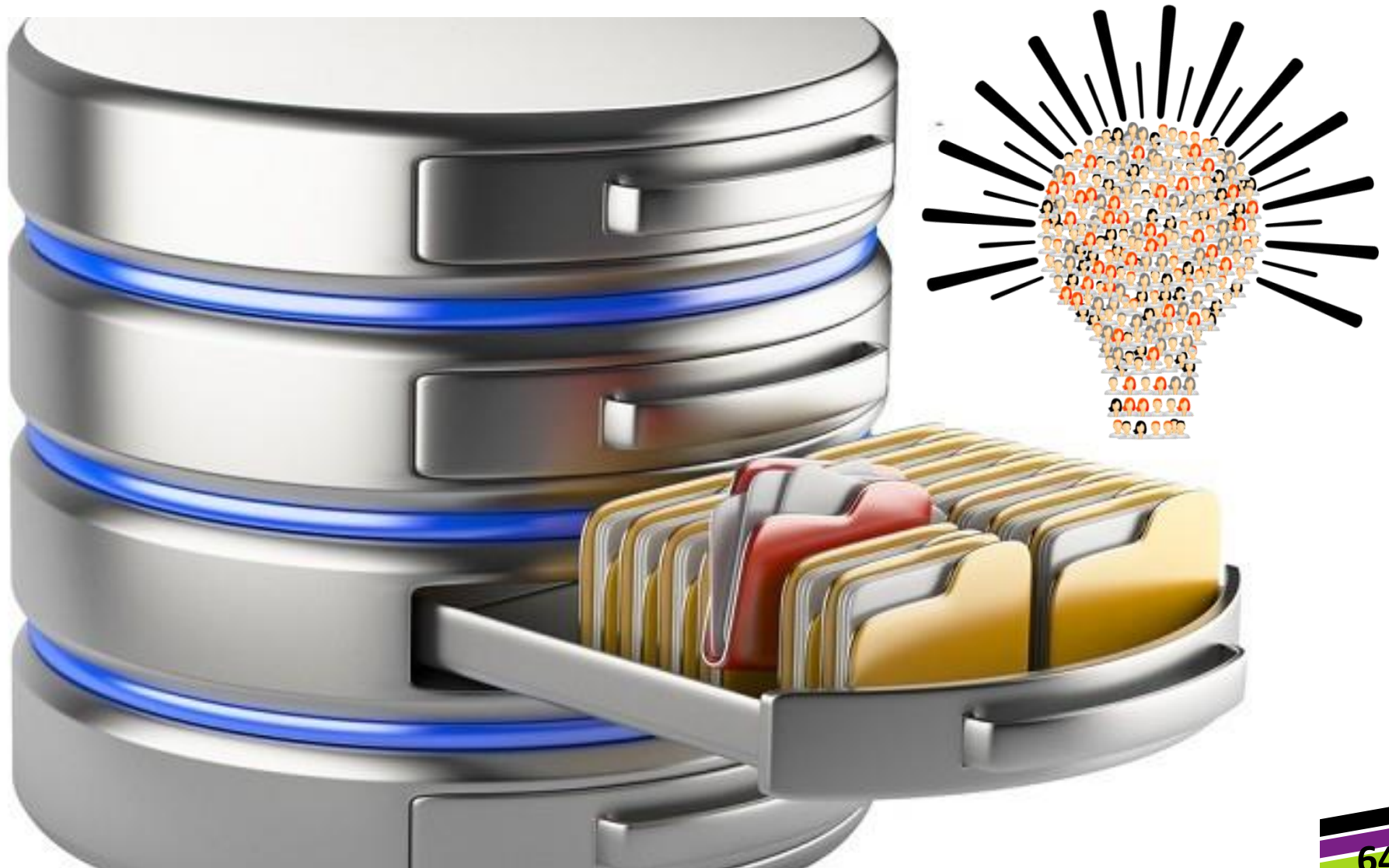
New ideas (tacit or explicit) are now first submitted to a CoP (remains confidential to the CoP)



The idea is discussed, improved,
strengthened and potential
markets/projects usage identified



The idea is stored in an idea database



Flow between Idea <--> Knowledge



Back to basics!

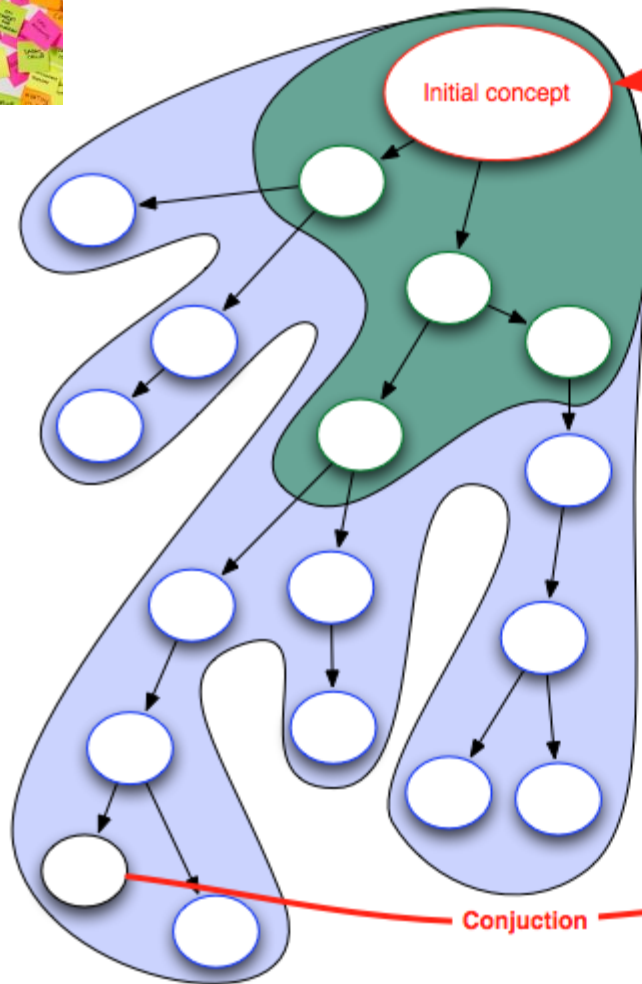
The Flow of Knowledge



C-K Theory



Concept Space (C)
No logical status (nor true or untrue)



Knowledge Space (K)
Proposition with a logical status

Disjunction

K1: Existing knowledge

K2: Added Knowledge from concept exploration

K3: Added Knowledge from further exploration

Conjunction

Final concept becomes new knowledge



C-K Theory

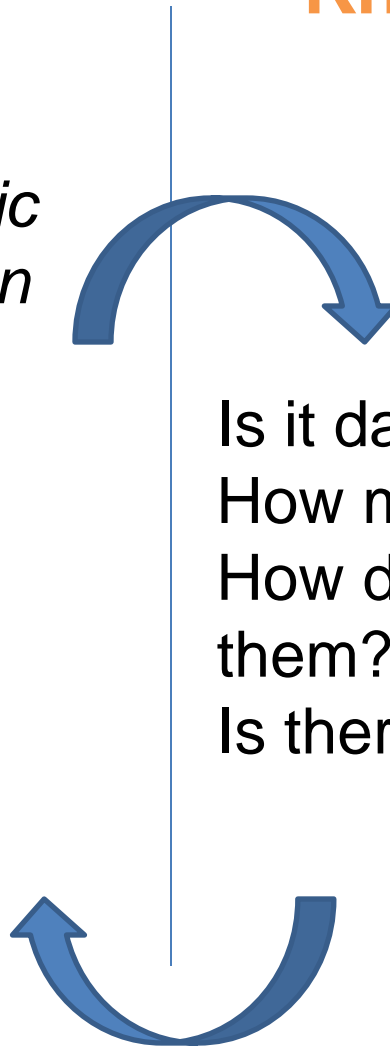
Concept space

Could we place electric lines under sidewalk in the streets?



Knowledge space

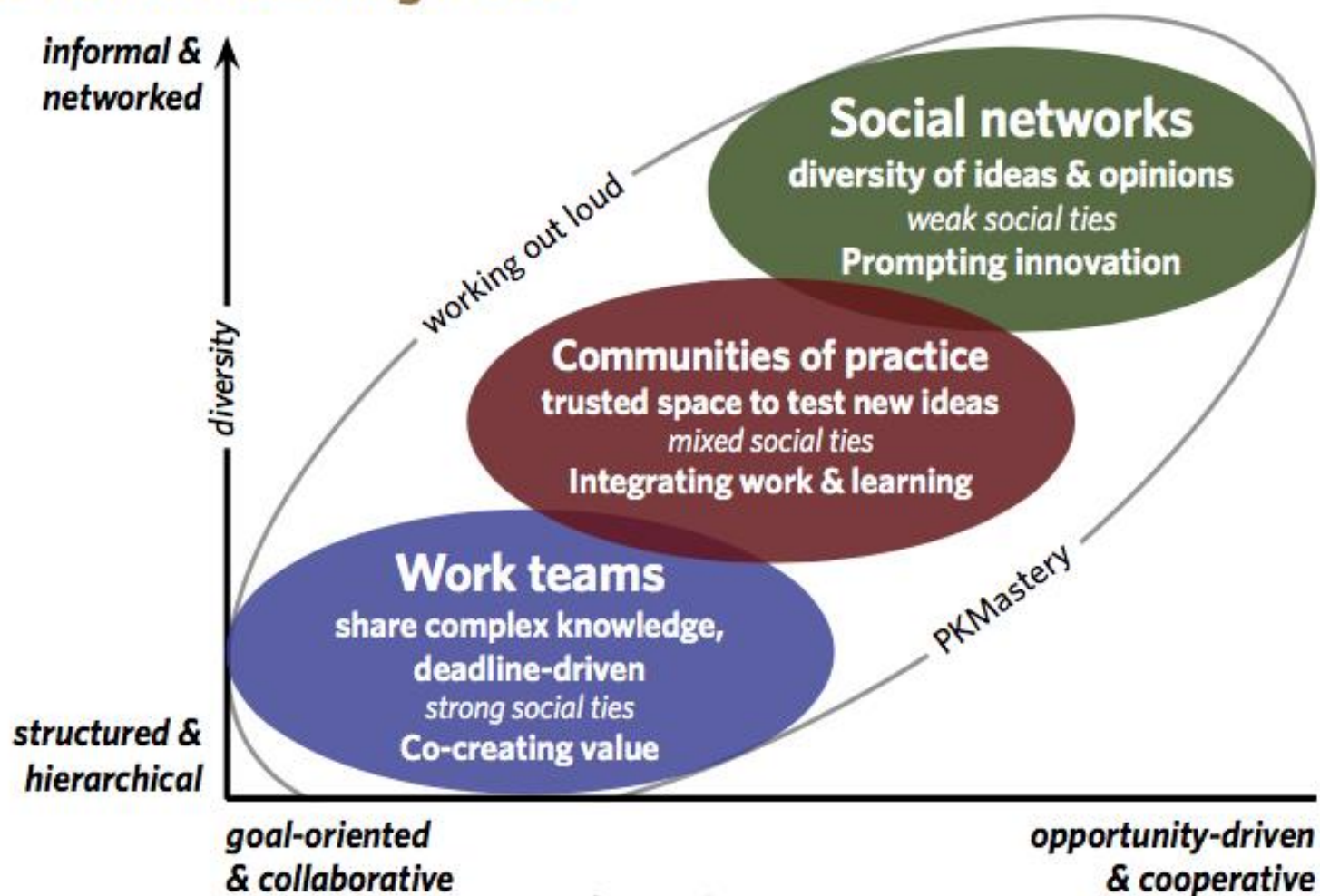
Is it dangerous to do so?
How much will it cost?
How deep should we place them?
Is there any risk of explosion?



In order to lead to innovation
knowledge has to **Flow**
inside and outside the CoPs



The Network Learning Model

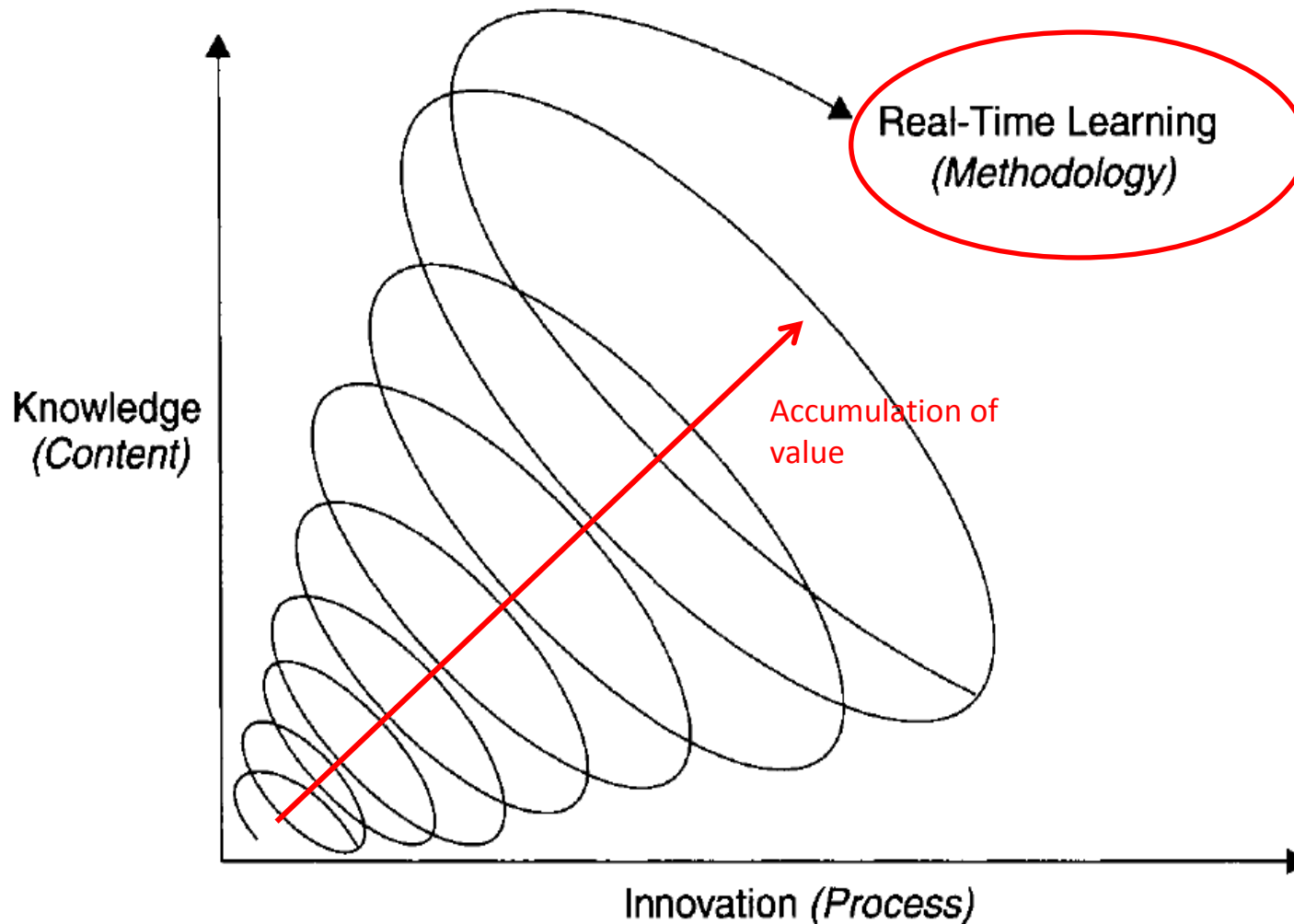


jarche.com

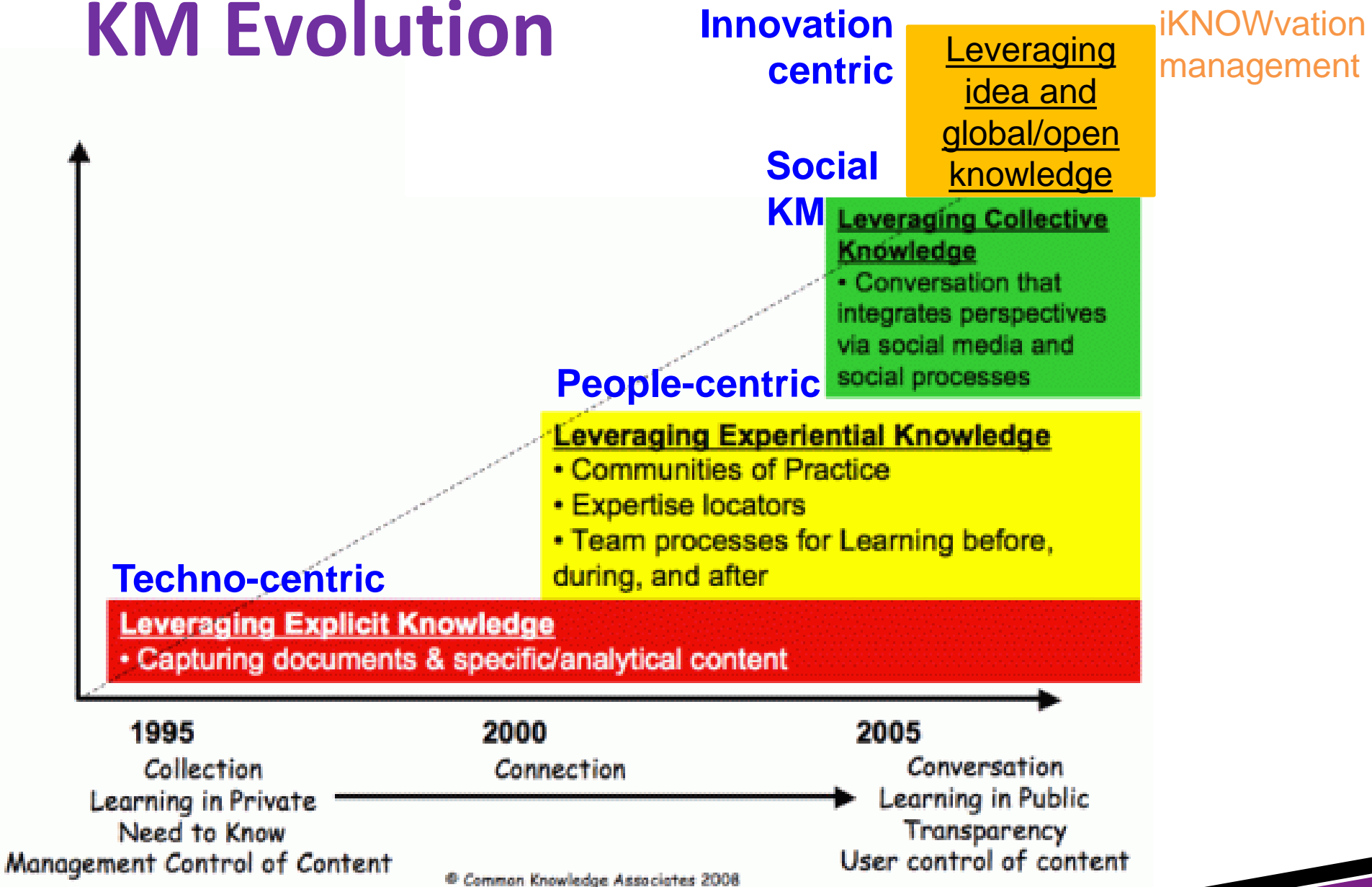
Implementing the Network Learning Model

jarche.com	Work Teams	Communities of Practice	Social Networks
Experience	Share Your Work	Discuss Lessons in Context	Share General Lessons
Ideas	Incorporate Ideas	Test Ideas	Share Ideas
Opinions	Make Opinions Clear	Discuss & Debate Opinions	Connect to Diverse Opinions
Relationships	Reinforce Social Ties	Develop Social Ties	Find New Social Ties
Models	Test New Models	Develop New Models	Share Working Models
Value	Co-create Value	Test New Value Creation	Explore Value Networks

Integrated focus: Knowledge and Innovation



KM Evolution



Adapted from Nancy Dixon

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Distinction between CoPs and other Structures

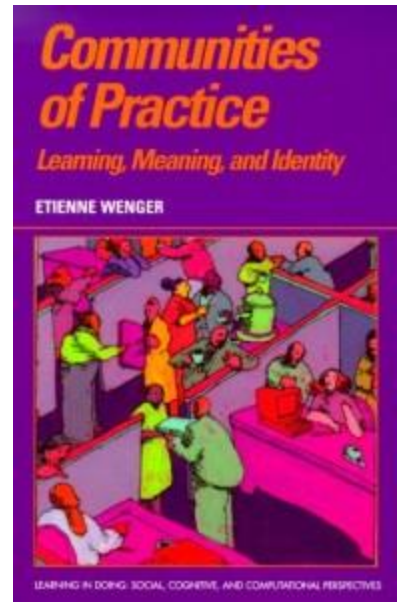
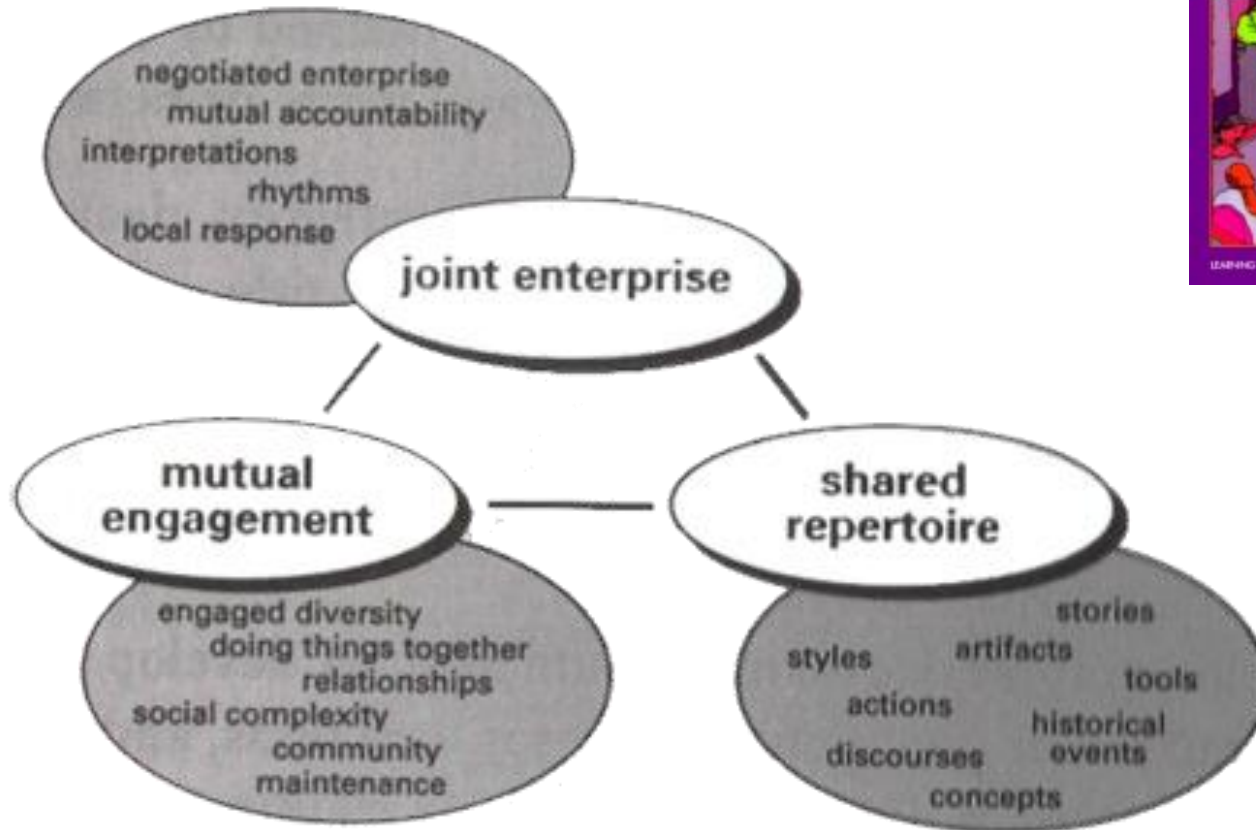
	WHAT'S THE PURPOSE?	WHO BELONGS?	HOW CLEAR ARE THE BOUNDARIES?	WHAT HOLDS THEM TOGETHER?	HOW LONG DO THEY LAST?
Communities of Practice	To create, expand, and exchange knowledge, and to develop individual capabilities	Self-selection based on expertise or passion for a topic	Fuzzy	Passion, commitment, and identification with the group and its expertise	Evolve and end organically (last as long as there is relevance to the topic and value and interest in learning together)
Formal Departments	To deliver a product or service	Everyone who reports to the group's manager	Clear	Job requirements and common goals	Intended to be permanent (but last until the next reorganization)
Operational Teams	To take care of an ongoing operation or process	Membership assigned by management	Clear	Shared responsibility for the operation	Intended to be ongoing (but last as long as the operation is needed)
Project Teams	To accomplish a specified task	People who have a direct role in accomplishing the task	Clear	The project's goals and milestones	Predetermined ending (when the project has been completed)
Communities of Interest	To be informed	Whoever is interested	Fuzzy	Access to information and sense of likemindedness	Evolve and end organically
Informal Networks	To receive and pass on information, to know who is who	Friends and business acquaintances, friends of friends	Undefined	Mutual need and relationships	Never really start or end (exist as long as people keep in touch or remember each other)

Three CoP characteristics are crucial:



- **The domain** (minimum level of knowledge of domain)
- **The community** (engage in joint activities, help each others, share info, interactions and discussions)
- **The practice** (develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems)

Three dimensions of CoP



Wenger, E. (2008) *Communities of Practice: Learning, Meaning, and Identity*, New York. USA, Cambridge University Press, p. 73.

It's all about connecting the dots!

