

/

“Knowledge Sharing and its implications for Management”

JOINT TRAINING ACTIVITY

09th May 2024

08.00 – 9.30 AM CET – MS TEAMS

+

Akademia WSB

Dąbrowa Górnicza, Cieszyn, Olkusz, Żywiec, Kraków

WSB University

TECHNICAL UNIVERSITY OF LIBEREC

Lectured by:

Prof. Kateřina Maršíková – TU LIBEREC

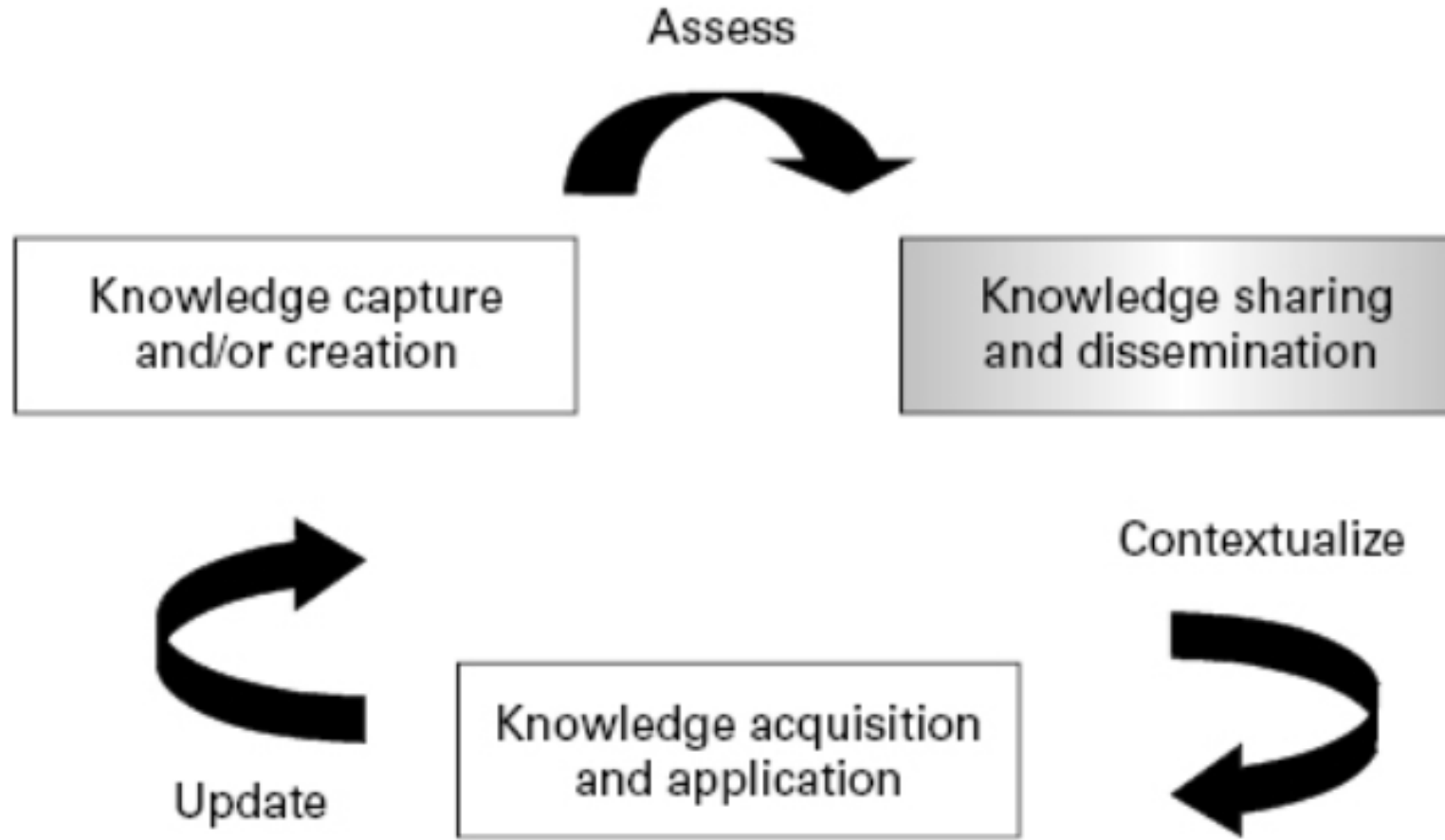
Dr. Tereza Michalova – TU LIBEREC

Dr. Francesco Cappellano – WSB UNIVERSITY

A background network diagram consisting of numerous grey circles of varying sizes connected by thin grey lines, creating a complex web of connections.

KNOWLEDGE SHARING

KNOWLEDGE SHARING within the KM CYCLE



Source: Dalkir, 2009



KNOWLEDGE SHARING

- People are the most critical conduits of information and knowledge (Cross & Parker, 2004)
- Knowledge workers typically spend 30% of their working time looking for information and helping their colleagues do the same.
- People are the best means of getting not only a direct answer but also “metaknowledge” about our search target and our search capabilities.
- LEARNING is a predominantly SOCIAL EVENT (Cohen & Prusak, 2001)
- This social constructivist approach to learning and knowledge transfer seems to suite the discipline of knowledge management

Source: Dalkir, 2009

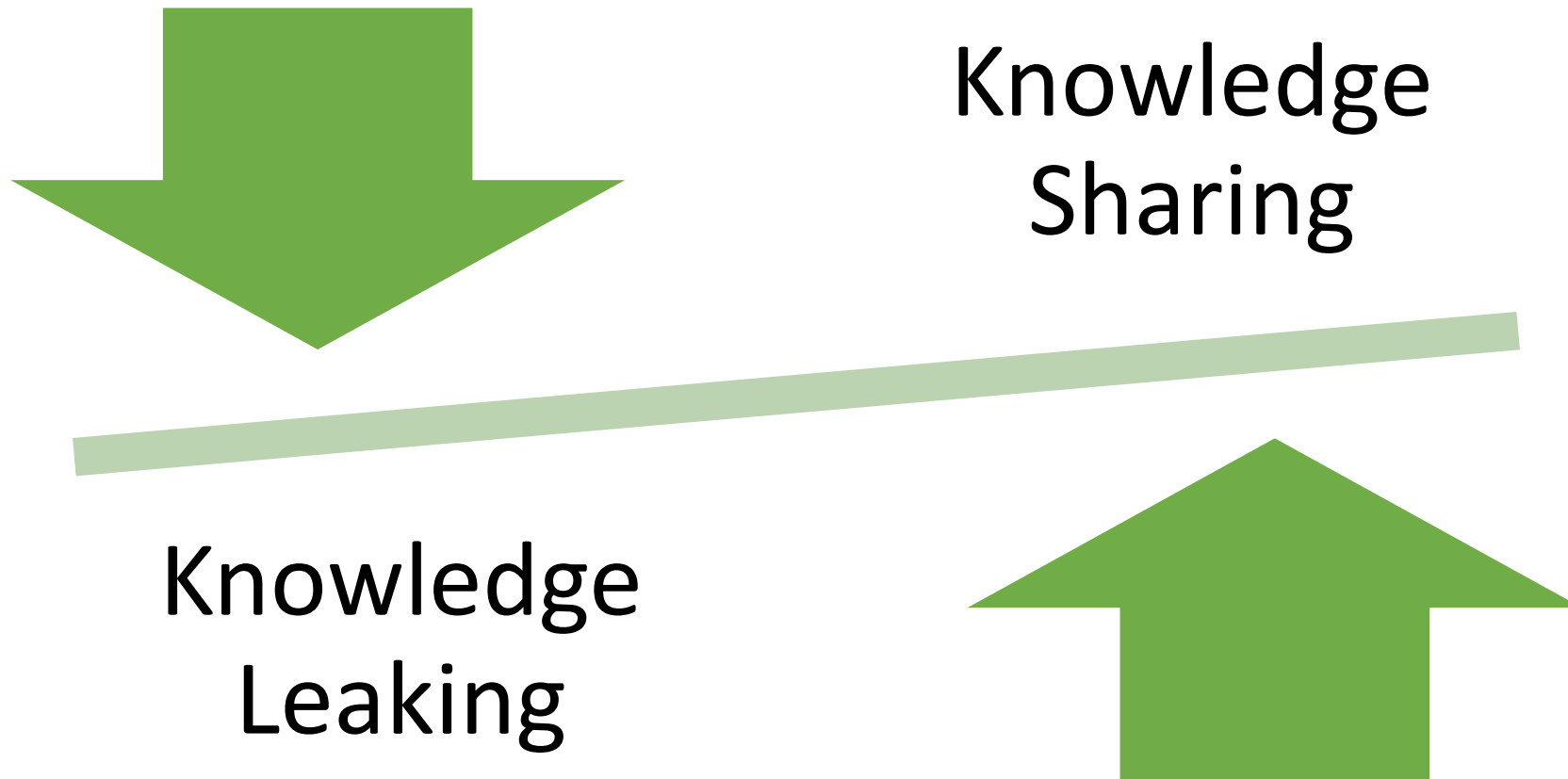
THE SOCIAL BEING OF KNOWLEDGE

- Knowledge management needs to view knowledge as something that is **actively constructed** in a social setting
- Social constructivism views knowledge not as an objective entity but as a subjective, social artifact
- Knowledge is viewed to be produced through **the shared understandings** that emerge through **social interactions**.
- Knowledge is reported to be **context dependent**: something cannot be completely separated from knowers



LIMITS OF KS

SHORTCOMINGS AND CHALLENGES



Knowledge
Leaking

Knowledge
Sharing



Knowledge Sharing

Source of innovation and value creation in both intra- and inter-organizational contexts (Dhanaraj and Parkhe, 2006; Dyer and Signg, 1998; Grant, 1996; Kogut and Zander, 1992)



Knowledge Leaking

Leakage of confidential knowledge could be harmful for an innovative firm, as it might lead to **lost competitive advantage**. In short, it may overshadow the benefit of KS between firms (Hamel and Nickerson, 2004)

External KS

- It offers an excellent opportunity to explore and test the potential value of the knowledge shared and the potential markets for that knowledge (Chesbrough, 2003b). Both factors are important for a firm's innovation.
- KS increases the attractiveness of the firm as a potential collaborative partner in innovation-related inter firm projects.
- Firms that share external knowledge are more likely to establish and engage in more inter-organizational collaborations specifically aimed at enhancing innovation.
- If firms do not share knowledge externally, they may never achieve the full potential of their intended strategy.

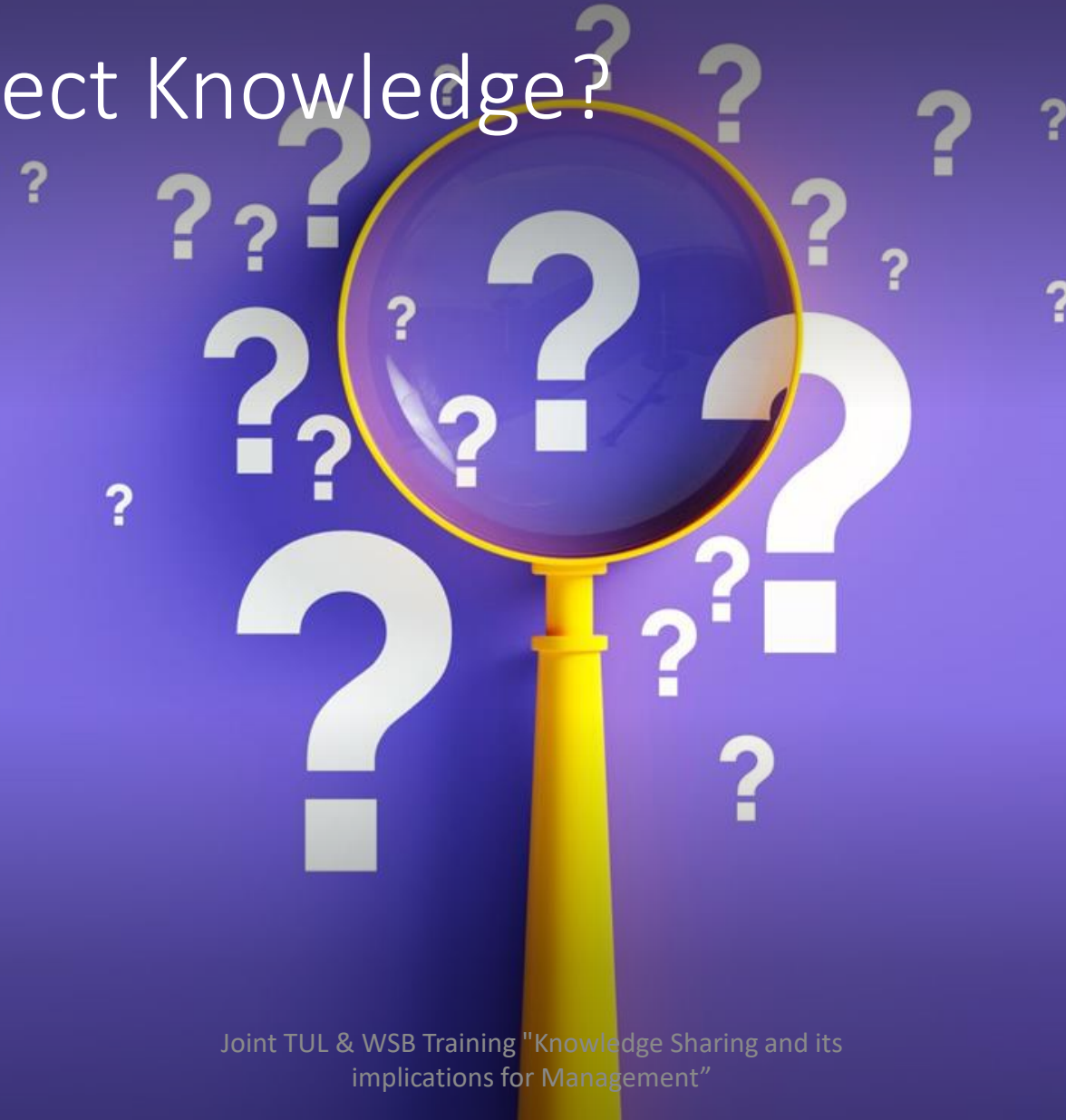


Knowledge Leakage in inter-firm collaborations

- Knowledge may also flow outside organizational borders in an uncontrollable, unwanted and even harmful manner.
- Leaking knowledge is unwanted (accidental or intentional) behaviour by employees who share knowledge that the firm would rather reserve internally.
- Leaking knowledge about a forthcoming product can be devastating for an innovative technology company, especially if the knowledge associated with it is easy to explicate.



How to protect Knowledge?



Different types of Knowledge



Explicit or codified knowledge refers to knowledge that is transmittable in formal, systematic language



Explicit knowledge is discrete or "digital." It is captured in records of the past such as libraries, archives, and databases and is assessed on a sequential basis. It is easy to pass along (share) with others.



Examples of explicit knowledge are handbooks, instruction manuals, step-by-step guides, maps, recipe books, operation manuals

- Tacit knowledge has a **personal quality**, which makes it hard to formalize and communicate.
- Tacit knowledge is deeply rooted in **action, commitment, and involvement in a specific context.**
- Tacit knowledge involves both **cognitive and technical elements**
- Technical element of tacit knowledge covers concrete **know-how**, crafts, and skills that apply to specific contexts.
- Tacit knowledge is a **continuous activity of knowing**

Different Knowledge Protection Mechanisms

Intellectual property rights (IPRs) includes any and all rights associated with intangible assets owned by a person or company and protected against use without consent. Intangible assets refer to non-physical property, including right of ownership in intellectual property.

Source: St. Francis School of Law



Patents



Trademarks



Copyrights



Trade Secrets

Mitigating the risk of Knowledge Leakage

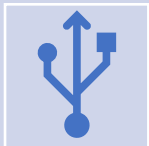
- **Trust** and positive **reciprocity** serve as important moderators between shared tacit knowledge and innovation.
- The norm of reciprocity is one of the underlying principal components of **moral codes** within social systems
- On a strategic level, managers are generally likely to determine the rather clear limits of knowledge sharing. However, such limits may not be as clear to employees
- The individuals in the collaborative interface are those who actually affect the success of the knowledge sharing activities and eventually affect the innovation performance of the firm as a whole.
- **Opportunism** is another related issue that plays a role in a partner's decision whether to take advantage of leaked knowledge.

Impact of Knowledge Leakage over KS

(Ritala et al., 2015)



External KS positively affected innovation performance;



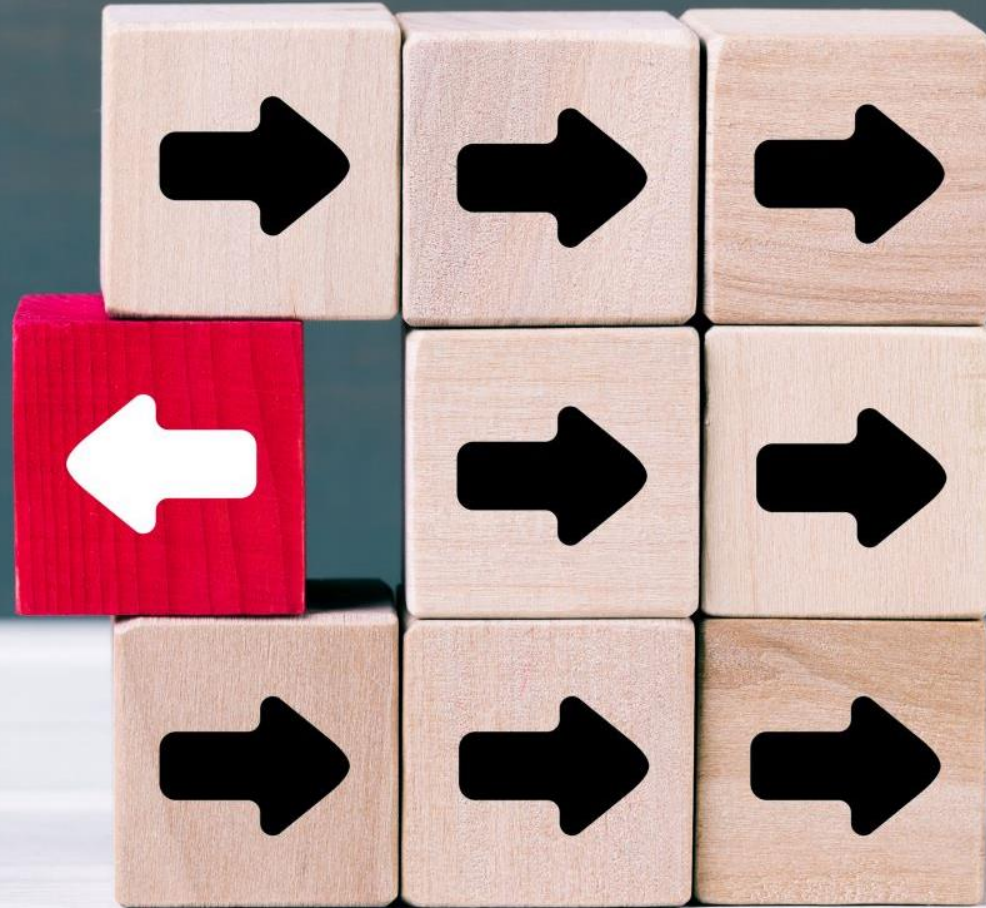
The higher the accidental leakage, the less beneficial the effects of external KS were on innovation;



The lower the accidental leakage, the more beneficial the external KS

- A firm **must share relevant knowledge externally** to be a potential receiver of another party's knowledge, but at the same time, **the firm must consider the potentially harmful effects of leaking** business-critical knowledge.

KS & KNOWLEDGE PROTECTION



COMPETE or COOPERATE? COOPETE!



COOPETITION

- Coopetition is described as a paradoxical phenomenon that triggers a **strong tension between value creation and value appropriation** (Bengtsson & Kock, 2014; Raza-Ullah, Bengtsson, & Kock, 2014)
- Coopetition or **collaboration between two directly competing firms as a viable strategy to stimulate the development of new products** and launch them into the market (e.g. Brandenburger & Nalebuff, 1996; Gnyawali & Park, 2009, 2011; Ritala & Hurmelinna-Laukkanen, 2009; Yami, Castaldo, Dagnino, & LeRoy, 2010)
- Coopetition scholars suggest that collaboration with competitors stimulates **value creation through fostering the recombination of complementary knowledge**, which is a necessary condition to successfully develop new products (e.g. Dussauge, Garrette, & Mitchell, 2000; Ritala & Hurmelinna-Laukkanen, 2013)



EXAMPLE

- When the Covid-19 pandemic hit, two competing pharmaceutical companies, **Pfizer and BioNTech**, were quick to team up in order to get a much-needed vaccine off the ground.
- While BioNTech already had a vaccine candidate, it needed help accelerating its development in the race against the virus. Pfizer stepped in to contribute clinical research and development, as well as its manufacturing and distribution capabilities.
- In this way, the pair were able to quickly get the vaccine ready – in fact, it became the first Covid-19 vaccine to be approved and was named the Pfizer-BioNTech COVID-19 Vaccine.
- By working together, **the pair were able to manufacture hundreds of millions of vaccine doses to meet the global supply** – signing multiple deals with governments (a great example of cross-sector partnership!). This included providing 500 million doses of the vaccine to support some of the poorest countries.
- The pair agreed that BioNTech would receive a payment of \$185 million from Pfizer, as well as almost \$113 million in equity investment. There was also the potential for Pfizer to receive more money down the line once specific milestones were reached.



EXAMPLE

- Remember the **Curiosity rover that landed on Mars in 2012** and showed that the planet would once have been warm and wet? It was launched by the United Launch Alliance (ULA). The ULA is a joint venture between two competing private aerospace companies: **Boeing and Lockheed Martin**.
- The rivals decided to team up in 2006, after realising that together, they could reduce costs and compete more effectively with their main competitor – Elon Musk’s SpaceX.
- To do so effectively, they embarked on a 50/50 joint venture, through which they’ve **successfully delivered more than 100 satellites into orbit over the years**.
- But the pair don’t only work together. **They still compete** against one another in numerous respects and have both received individual contracts for national security and scientific missions since their collaboration began



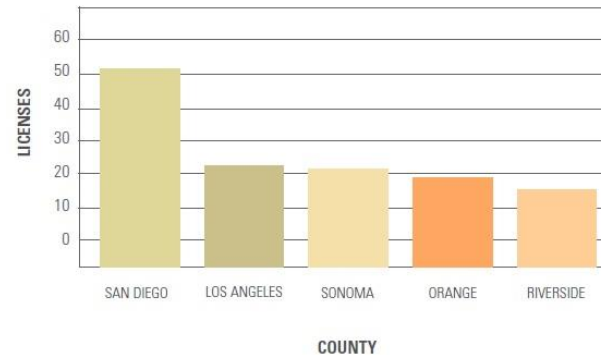
San Diego Brewing Industry

Francesco Cappellano, PhD | WSB University - Dabrowa Gornicza

San Diego Brewing Industry

- specialist product; *
- flexible to adjust;*
- Brewpubs may sell beer directly to the consumer ;*
- cater local clientele;*
- a lifestyle choice;**
- Big connection among craft beer and foodie movement (e.g. connoisseur); **
- **Cooperative attitude** rather than competitive

Francesco Cappellano, PhD | WSB University - Dąbrowa Górnicza



Sources:

Chart: NUSIPR - San Diego Craft Brewery Economic Impact, 2016

Photos: Ernie Liwag and Matthew Schiff, San Diego's Craft Brew Culture (2016)

* Chapman, N.G. ; 2015 - Craft Beer in the US: A Production of Culture Perspective

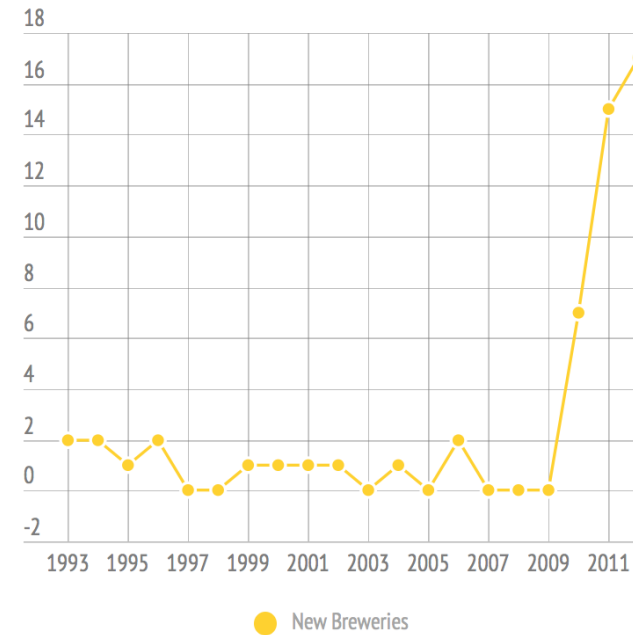
** Lenhoff, L.L. ; 2016 - Craft Beer in San Diego: Social Consumption And A New Urban Identity



The rise of craft breweries in San Diego



New Brewery Licenses in San Diego, by Year



The number of new brewery licenses issues each year since 1993, according to a NUSIPR study.

KS in Craft Brewery San Diego Scene

- “*massive support system through the camaraderie of other breweries*” attract other business of similar type and plays a significant role for these microbreweries’ location.
- Sense of belonging to the community of brewers and citizens
- Co-brewing practices across breweries
- Sharing equipment
- Co-creation of new beer products
- San Diego GUILD as NGO vehicle knowledge as well as lobby municipal government for brewers’ interests
- Universities also share knowledge through courses

Public commitment to ignite economic development



FUNDING



PERMITS



LAND USE

Economic Externalities

INNOVATION

- CERTIFICATES



UC San Diego Extension



- R&D CENTERS

RELATED CLUSTERS

- TOURISM



- WHOLESSELLING
- RETAIL

Economic Externalities

- Recognized quality: 18 medals at the Great American Beer Festival in 2016.
- Economic impact: San Diego's brewing industry generated \$851 millions, and 4,512 jobs in 2015.
- Local Revitalization: Charity & Community events, recycling waste products to sustainable purposes.
- Social innovation: training courses for low-income people to work in the craft brewing industry

	2011	2012	2013	2014	2015 CRAFT	2015 TOTAL
BREWERIES & BREWPUBS	37	58	82	97	109	114
TOTAL ANNUAL SALES				\$726,6	\$734,7	\$851,0
INDUSTRY JOBS	1630	1820	2279	3752	4005	4512

Source: NUSIPR - San Diego Craft Brewery Economic Impact, 2016

EVENT	DATE	EST. ATTENDANCE
SAN DIEGO WINTER BREW FEST	Early Feb	2000
EPICE BEER FESTIVAL	Mid-March	2000
CITYBEAT FESTIVAL OF BEERS	Late April	2000
BEERFEST AT PETCO PARK	Early May	270548
SAN DIEGO INTERNATIONAL BEER FESTIVAL	Late June	9700
SAN DIEGO BREW FEST	Early July	2500
STONE BREWERY ANNIVERSARY CELEBRATION & INVITATION BEER FESTIVAL	Mid-August	
BEERFEST AT PETCO PARK	Early September	254039
SAN DIEGO FESTIVAL OF BEER	Early September	5000
SAN DIEGO BEER WEEK	Early November	20000

COOPETITION DILEMMA



Value Creation



Value
Appropriation



How to navigate the dilemma

- Formal knowledge protection mechanisms enable the firm to **define knowledge sharing boundaries** and to mitigate the risks of unintended knowledge spillovers.
- **Protecting knowledge with legal instruments** is particularly important in a coopetition context where firms have similar knowledge bases and strategic goals (Kim & Parkhe, 2009; Park et al., 2014).
- Misappropriation liabilities associated with unintended spillovers of core knowledge are likely to offset the benefits gained by recombining knowledge from the competitor (Das & Teng, 2003; Ritala & Hurmelinna-Laukkanen, 2013)

EMPIRICAL EVIDENCE

- Collaboration with competitors only has a positive impact on product innovation performance when firms are able to internally disseminate and recombine new knowledge and, at the same time, actively protect their own knowledge from unintended spillovers.
- When only one of the two mechanisms is in place, competitor collaboration does not have a significant impact on product innovation performance.
- Source: Estrada et al., 2016

	Internal knowledge sharing (KS) mechanisms present	Internal knowledge sharing (KS) mechanisms absent
Formal knowledge protection (KP) mechanisms present	<p>Hypothesis 1a:</p> <ul style="list-style-type: none"> - The presence of internal KS mechanisms enhances the ability to capture knowledge recombination benefits - The presence of formal KP mechanisms enhances the ability to mitigate unintended knowledge spillovers risks 	<p>Hypothesis 2b:</p> <ul style="list-style-type: none"> - In the absence of internal KS mechanisms, knowledge recombination benefits are less likely to be captured - The presence of formal KP mechanisms enhances the ability to mitigate unintended knowledge spillovers risks
Formal knowledge protection (KP) mechanisms absent	<p>Hypothesis 2a:</p> <ul style="list-style-type: none"> - The presence of internal KS mechanisms enhances the ability to capture knowledge recombination benefits - In the absence of formal KP mechanisms, unintended knowledge spillovers are more likely to emerge 	<p>Hypothesis 1b:</p> <ul style="list-style-type: none"> - In the absence of internal KS mechanisms, knowledge recombination benefits are less likely to be captured - In the absence of formal KP mechanisms, unintended knowledge spillovers are more likely to emerge

Positive impact
 Neutral impact
 Negative impact

KNOWLEDGE NETWORKS

- A network is all about sharing with those they are connected with
- Network members may not know all that much about one another other than some preferences
- Knowledge networks are collections of individuals and teams who come together across organizational, spatial and disciplinary boundaries to invent and share a body of knowledge (pugh & prusak, 2013)
- Goals of KN:
 - Coordination
 - Learning/innovation
 - Translation/local adaptation
 - Support of individual members
- New knowledge, new practices, new models, and so on , are cocreated and shared by members





SOCIAL NETWORK ANALYSIS



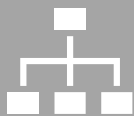
SOCIAL NETWORK ANALYSIS

- SNA is the mapping and measuring of relationships and flows between people, groups, organizations computers or other information/knowledge processing entities
- SNA provides both visual and empirical analysis of complex human systems to identify patterns of interaction, such as average number of links between people in an organization or community, the number of subgroups, information bottlenecks, knowledge brokers, and knowledge hoarders.
- SNA (usually) identifies relationships between people exchanging knowledge flows. It facilitates visualizing relationships

SOCIAL NETWORK ANALYSIS



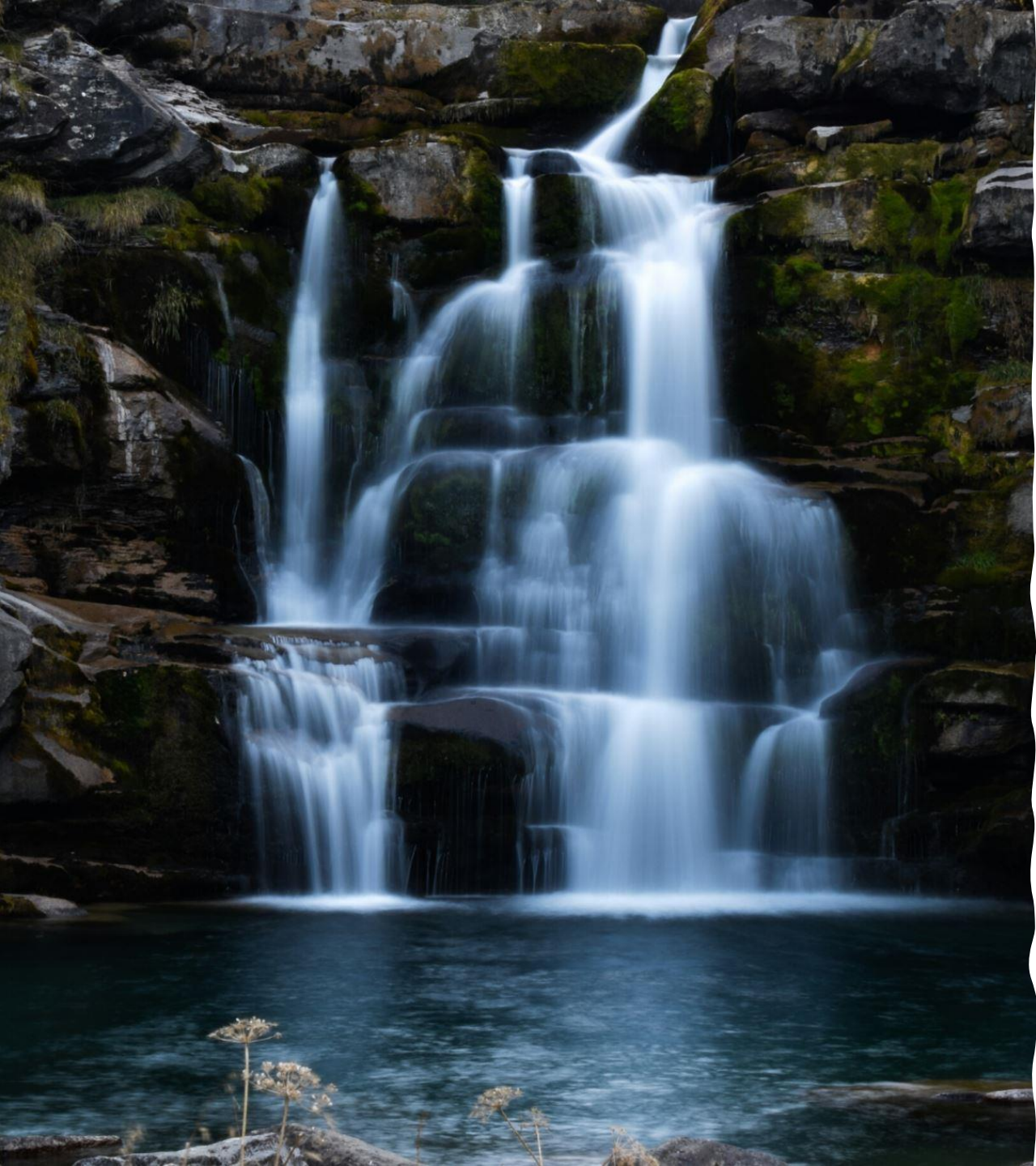
Once social relationship and knowledge flows can be seen, they can be evaluated and measured. Network theory is sympathetic with systems theory and complexity theory



The results of social network analysis can be used at the level of individuals, departments or organizations to unstopper information bottlenecks and to accelerate the flow of knowledge and information across functional and organizational boundaries



The process of social network analysis typically invokes the use of questionnaires and/or interview to gather information about the relationships among a defined group or network of people



The proximity paradox in Cascadia

Is the proximity framework working properly to explain diffusion of knowledge across territories?

Outline



Case study



Empirics



Forms of proximity



Social proximity as proxy
of cross-border
interaction

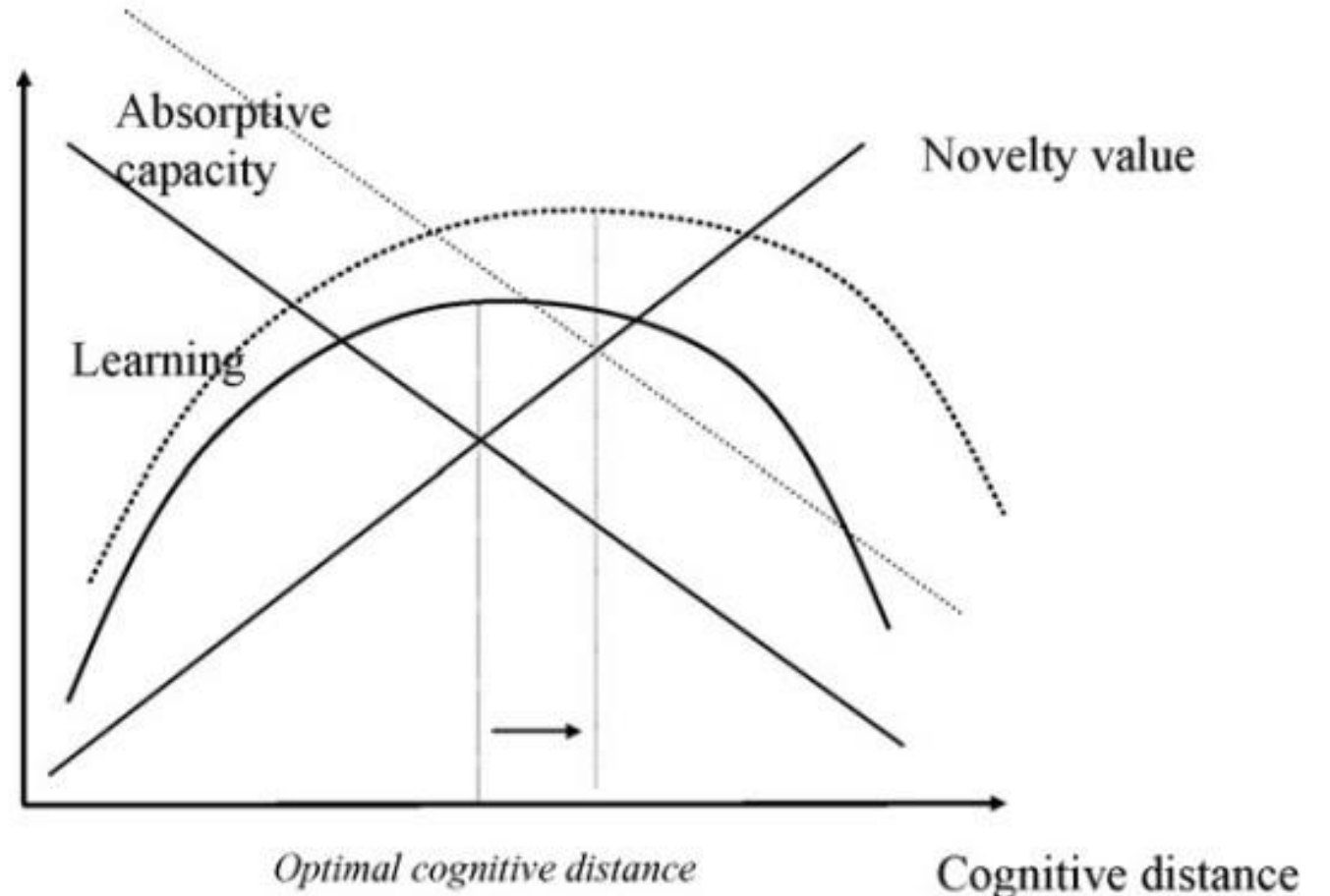
The cross-border Cascadia

- Region at the border between U.S. and Canada
- Large innovation hubs including Seattle, Vancouver B.C and Portland
- 220 km between Vancouver B.C. and Seattle
- Gateway for Asia



Cognitive distance and the innovation

- For organizations to achieve a common purpose, people need to share certain basic perceptions and values to sufficiently align their competencies and motives. This requires a certain shared 'interpretation system' (Weick, 1979, 1995), 'system of shared meanings' (Smircich, 1983) or organizational 'focus' (Nootboom, 2000), established by means of shared fundamental categories of perception, interpretation and evaluation inculcated by organizational culture (Nootboom, 2007)
- On the relation between cognitive distance and innovation performance, Nootboom (1992, 1999) proposed that there is an inverted-U shaped relationship



Main clusters

	SEATTLE	VANCOUVER, BC
1	Business Services	Business Services
2	Aerospace Vehicles and Defence	Distribution and Electronic Commerce
3	Distribution and Electronic Commerce	Education and Knowledge Creation
4	Information Technology and Analytical Instruments	Hospitality and Tourism
5	Hospitality and Tourism	Financial Services
6	Education and Knowledge Creation	Transportation and Logistics
7	Transportation and Logistics	Marketing Design and Publishing
8	Marketing, Design, and Publishing	Wood Products
9	Financial Services	Information Technology and Analytical Instruments
10	Insurance Services	Communications Equipment and Services

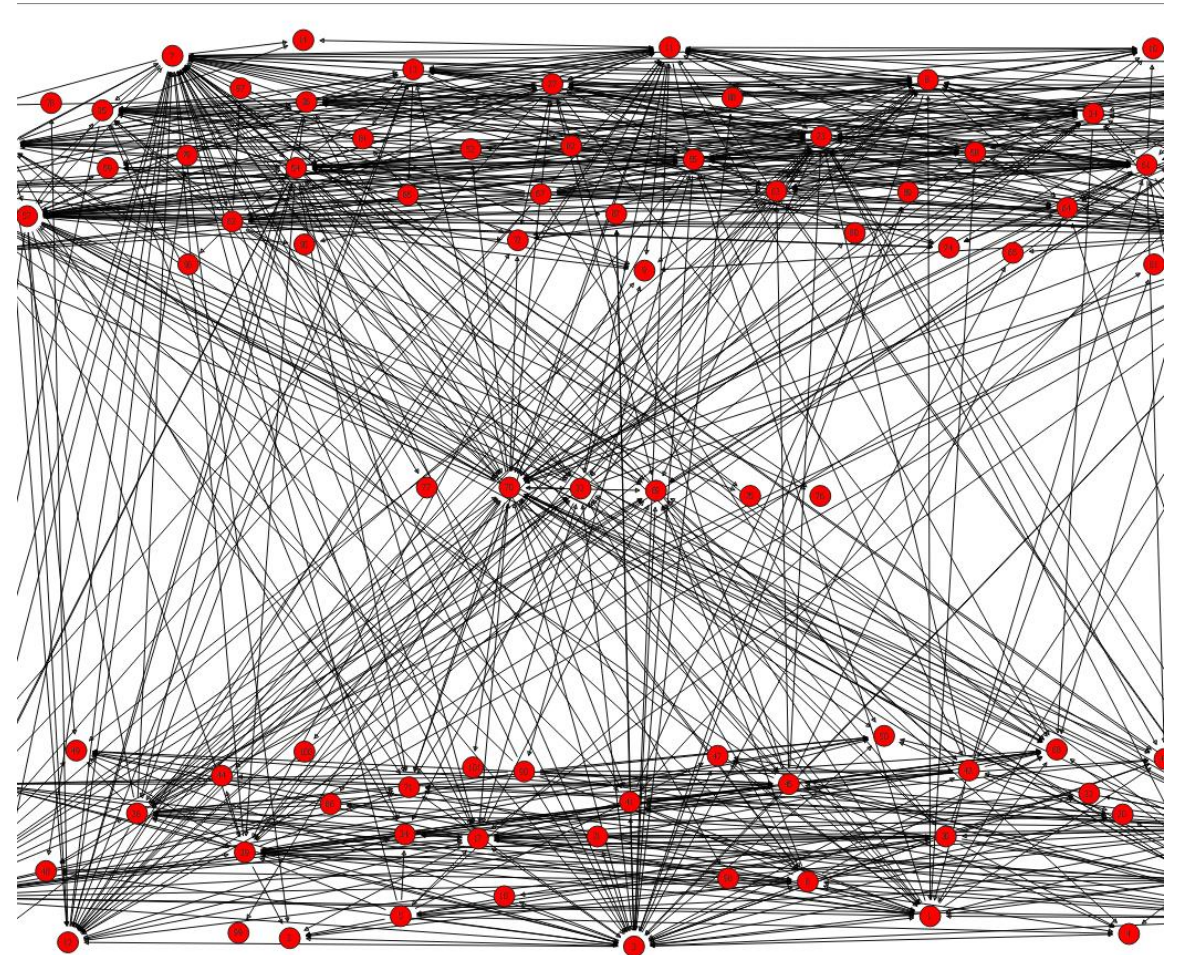
WASHINGTON STATE – USA

BRITISH COLUMBIA - CANADA

	Web of Science Categories	records	% of 345218	Web of Science Categories	records	% of 265453
1	BIOCHEMISTRY MOLECULAR BIOLOGY	17006	4.926	BIOCHEMISTRY MOLECULAR BIOLOGY	11542	4.348
2	NEUROSCIENCES	11374	3.295	NEUROSCIENCES	9638	3.631
3	MEDICINE GENERAL INTERNAL	11265	3.263	CLINICAL NEUROLOGY	7312	2.755
4	IMMUNOLOGY	10914	3.161	ASTRONOMY ASTROPHYSICS	6805	2.564
5	PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH	10723	3.106	ENGINEERING ELECTRICAL ELECTRONIC	6286	2.368
6	ONCOLOGY	10038	2.908	PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH	6084	2.292
7	CELL BIOLOGY	9706	2.812	MEDICINE GENERAL INTERNAL	5985	2.255
8	MULTIDISCIPLINARY SCIENCES	9358	2.711	ECOLOGY	5959	2.245
9	MEDICINE RESEARCH EXPERIMENTAL	9011	2.610	GENETICS HEREDITY	5946	2.240
10	CLINICAL NEUROLOGY	8808	2.551	CHEMISTRY MULTIDISCIPLINARY	5944	2.239

Social Network Analysis

- 8.3% for the whole cross-border network;
- 12.5% for the US sub-network;
- 11.6% for the Canadian sub-network.



	Organization	US	Canada	Sum
1	Microsoft	12	16	28
2	Canadian Consulate in Seattle	15	12	27
3	University of British Columbia	8	18	26
4	British Columbia Province Government	6	18	24
5	City of Vancouver	5	17	22
6	Washington State Government	15	7	22
7	Boeing Commercial Airplanes	13	8	21
8	Business Council of British Columbia	5	16	21
9	Simon Fraser University	4	17	21
10	University of Washington	12	8	20
11	Amazon	11	8	19
12	Cascadia Venture Acceleration Network	8	11	19

Most connected actors

Conclusions

- High potential for innovation in this cross-border region
- Potential for tighter integration
- US and Canadian sub-networks paint a clear picture of homophily: the networks are still far denser domestically than across the border
- Proximity works well to explain the potential but governance is crucial to spark more integration

