

From technological possibilities to

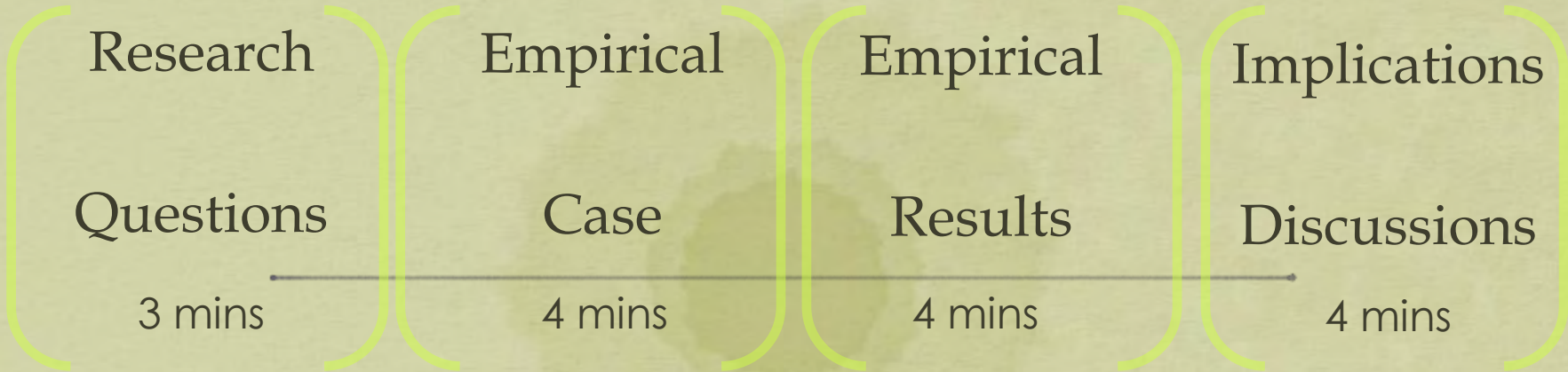
Green implementations :

The intermediary roles of (KIBS)

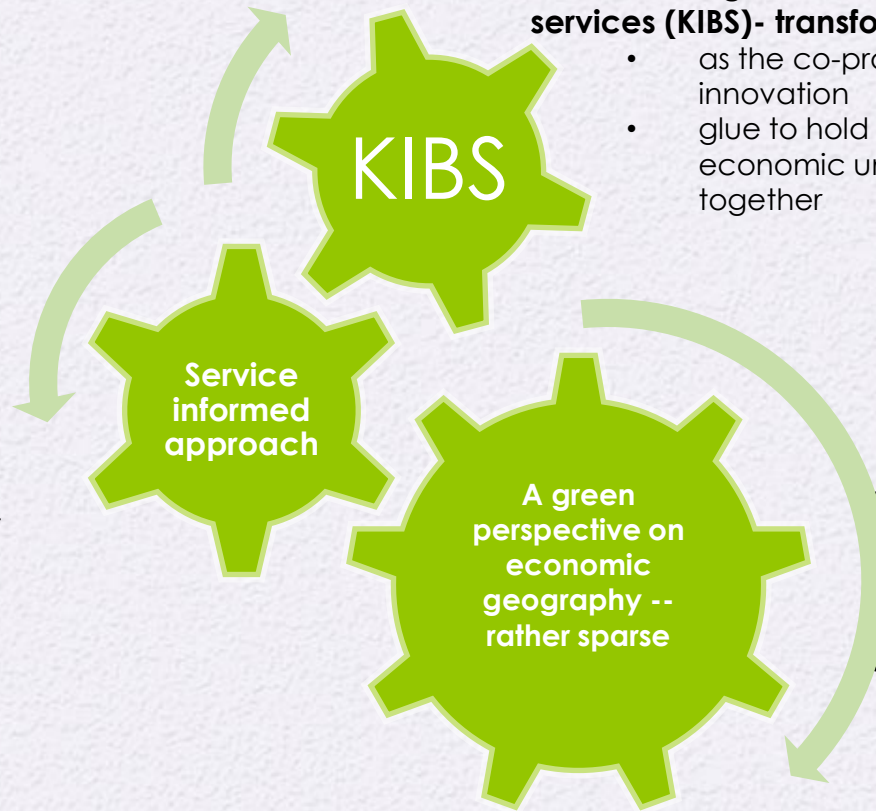


Xiangxuan Xu, Patrick Ström

University of Gothenburg
Centre for International Business Studies
Centre for European Research



viewing **innovation as a service-based process**: “the more fundamental role of service functions to support other activities with specialist expertise”
(Wood, 2005 :429)

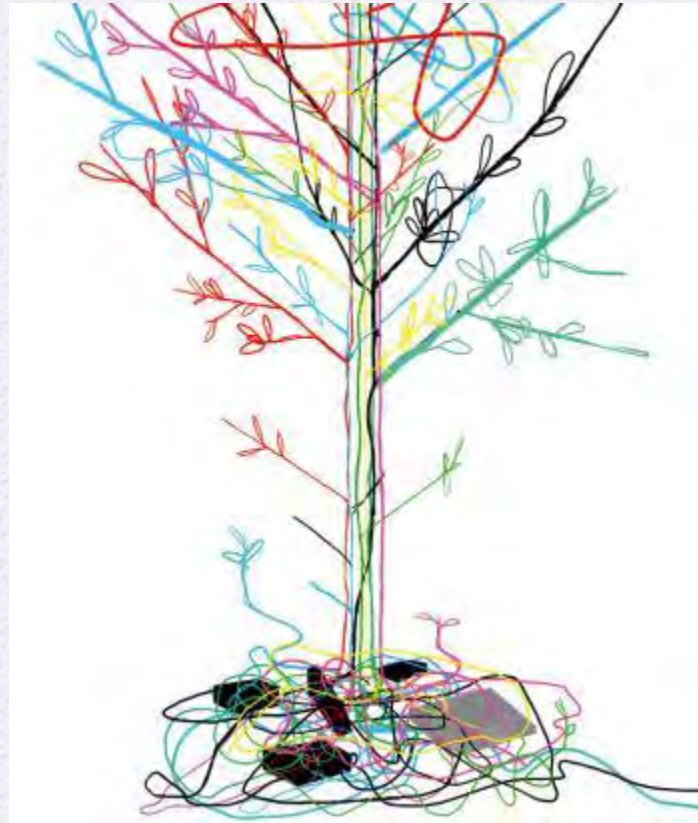


the knowledge-intensive business services (KIBS)- transformative power:

- as the co-producer of innovation
- glue to hold heterogeneous economic units and activities together

- **spatial impacts of economic activities on sustainability** (Soyez and Schulz, 2008; Weiss, 2008; Störmer, 2008; Le Heron et al, 2008; Heidkamp, 2008)
- **ecological modernization, urban regime theories** and **co-evolutionary transition theory** (Aoyama, et al 2010:221 and Cooke 2011)
- **Green regional niche** (Cooke 2011)

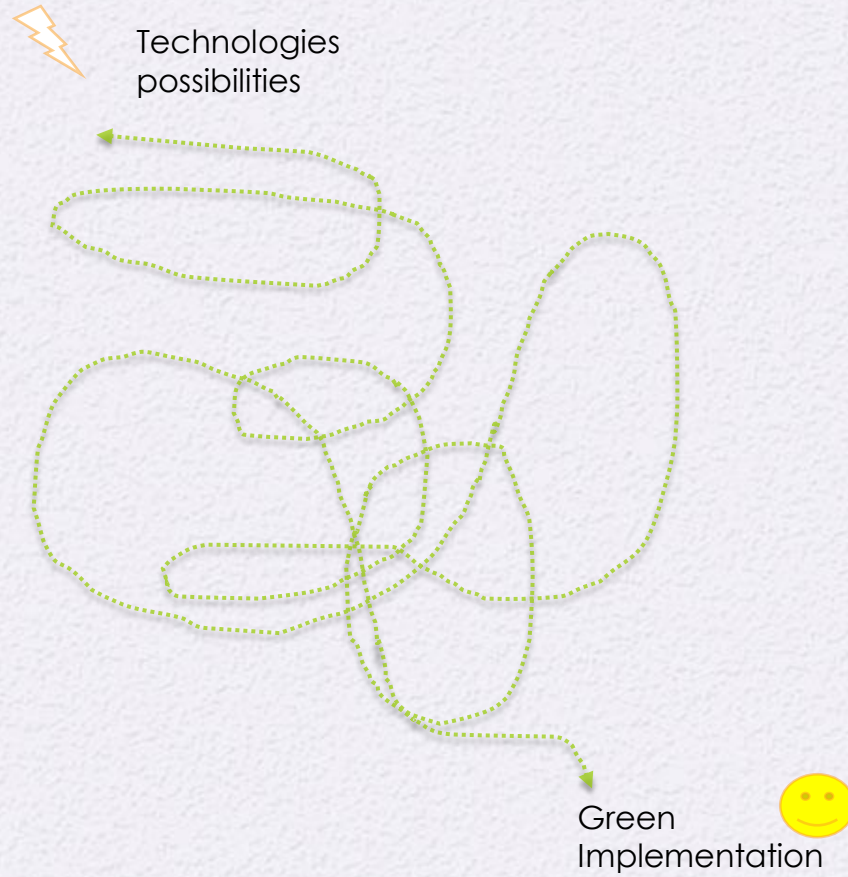
what are the cross-sectorial mechanisms and actors to facilitate such co-evolution to happen?



**synergizing green economy
(and digital economy to foster)
green growth**

ITU, 2008; OECD, 2009a, 2009c; State Council of
China, 2011; EU Digital Agenda 2.7.1

(Research Background)



This paper conceptualizes “green” as

- a **process of going green**, rather than a static goal
- a **co-evolutionary process** which requires efforts and investments from various production and service units across the public and private sectors.

Kondratieff waves

- The current wave (1990s-) **age of digital, knowledge-based economy**, characterized by computerization of the entire economy and the evolution of networks (Malecki and Moriset, 2008:26; Freeman and Louçã, 2001)
- Freeman (1992) suggested the next wave as **a green techno-economic paradigm** that is a future of co-featured environmental imperatives and development

Co-evolution model of economy and environment

- evolutionary institutional perspective -- Hayter (2008)
- does not deny the environment-development trade-off, but rejects the static view of simple trade-offs
- emphasizes over time the possibilities **that innovation will bring to change the relationship of trade-offs**
- From the field of sustainability: a dynamic process that never ends : complex adaptive systems (See Newman, 2006 and Holling, 2001)

Innovation

- innovation has revealed its nature of being **interactive, evolutionary and networked** (Freeman, 1987; Lundvall, 1992; Boschma & Frenken, 2001; Asheim, 2002; Giuliani, 2007; Liu, Chami-nade & Asheim, 2013).

Service informed approach

- viewing **innovation as a service-based process**: "the more fundamental role of service functions to support other activities with specialist expertise" (Wood, 2005:429):
1) the interactivity between sectors and firms;
2) orientation to market outcomes;
3) the importance of intangibles (eg: knowledge, learning and trust)

- 1) What are **the intermediary roles of KIBS** in synergizing green economy and digital economy?
- 2) What are the **opportunities and challenges** KIBS MNCs might have when competing in green business in emerging markets?

The hypothesis: CAT

Roles	Functions	Innovation process	Activates for example
C anal	Cross boundary knowledge/technology transfer	Interactive	Business and technical consultancy, technology transfer, conferences, seminars and exhibitions, training and so on
A dhesive	cohesive forces to facilitate heterogeneous economic activities such as providing meeting place, trust and coordinating functions	Networked	Conferences, seminars and exhibitions, cluster, financial accesses, cross boundaries' project coordinating and so on
T elescope	Knowledge creation to the greener process via digitalization	Evolutionary	R&D, policy guides, business incubator and so on



Table 1: “CAT”- KIBS roles in synergizing green economy and digital economy (Authors' adaptation based on service informed approach and the process of innovation)

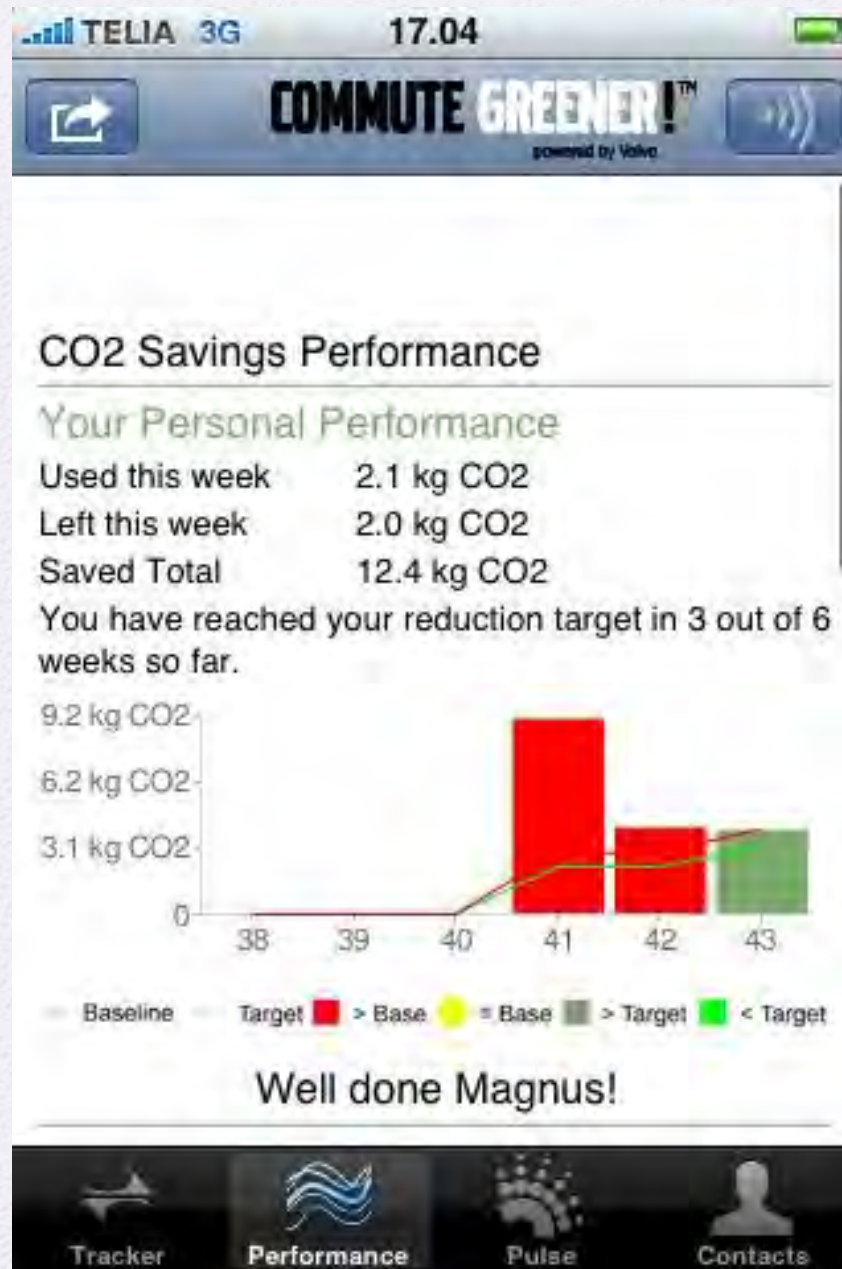
Vermesan, et al (2011:21-22):

The Internet of Things will drive energy efficient applications such as the power grid, or smart grid, connected electric vehicles, energy efficient buildings and will contribute to major savings in fuel consumption and hence carbon emissions. The Internet of Things technologies will allow greening of ICT by CO2 reduction of infrastructure and products in ICT industry and greening by ICT applications by CO2 reduction through convergence with ICT in other industries and industrial sectors. Internet of Things provides the technology and solutions that make full use of the integrated technologies of the communications networks and Internet technologies to build future oriented green intelligent cities, that provides a wide variety of interactive and control methods for the system of urban information and further support for building comprehensive systems for the development of urban ecology.

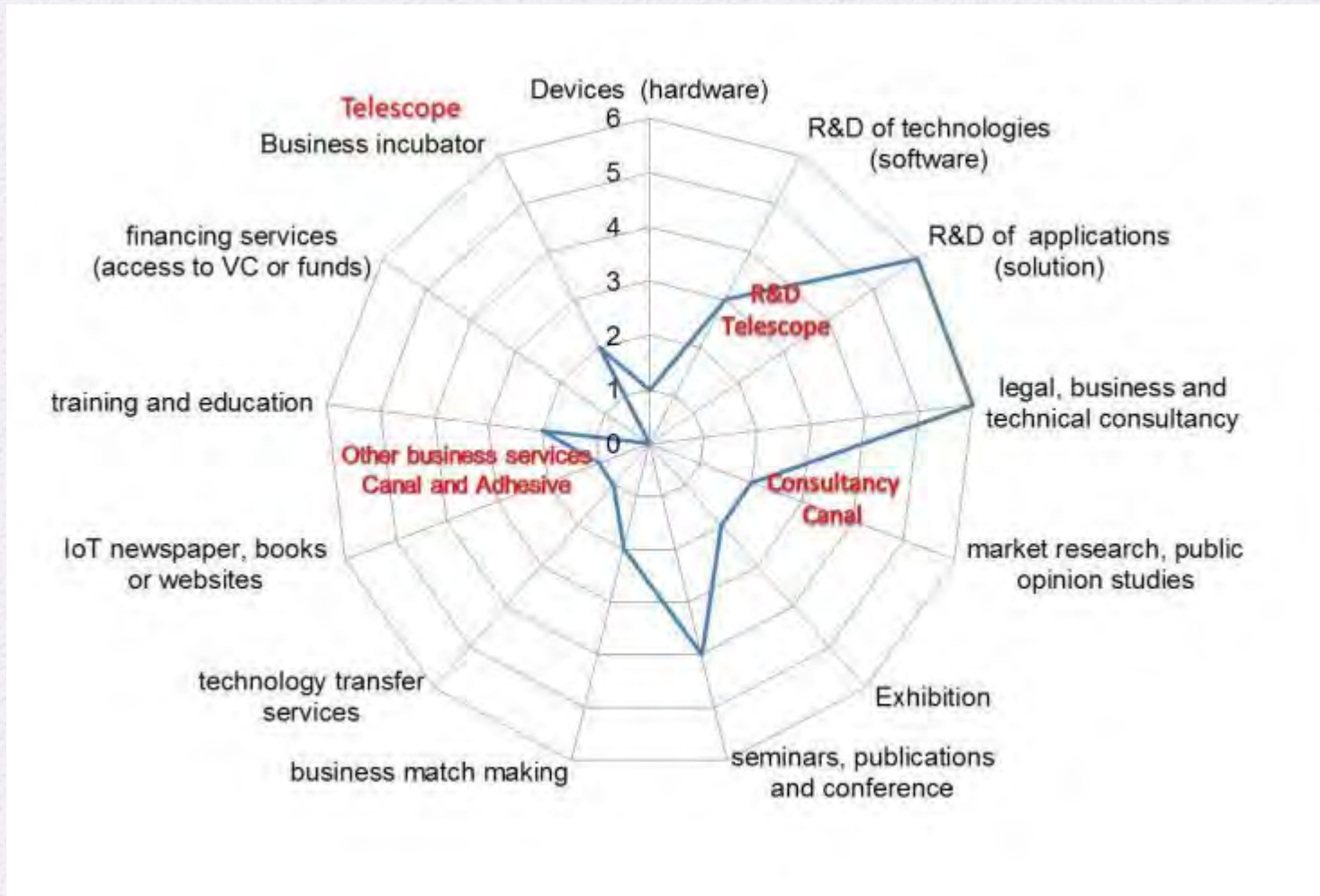
Case Selection

Applications	1. Commute Greener	2. Free-floating Car Sharing	3. Megacity smart transportation services
Location	Mexico City, India, Sweden, San Francisco	Pilot at Jiading district, Shanghai City, China	A city with over 10 million population at a developing country
Description	A mobile application to measure the time, efficiency, and environmental impact of commuting and help to record, reduce CO2 footprints as well as help people to use greener ways of commuting	It is a new type of location-based car-sharing service to provide one-way rentals without fixed docks to return in the service areas.	The project makes the public transportation data available to all travelers and develops easy-to-use mobile services, with the purpose of reducing environmental impact in megacities and encourage the use of high-capacity public transportation
Application areas	sustainable lifestyle	sustainable mobility	sustainable transport
Main partners and their roles	Volvo IT (inventor and project leader), Pocketweb (technical service platform provider), VIP clients who asked for tailor-made programme	Viktoria Institutes (Concept Development, feasibility study); China-Shanghai International Automobile City Group(client); Technology providers (one company from Sweden and one from China); Electric Car manufacturer (at Jiading); VINNOVA and MOST (funding agencies)	One R&D Institute from Sweden (concept development and project plan) ; A technology consulting partner; Municipal S&T department in that city (local support)

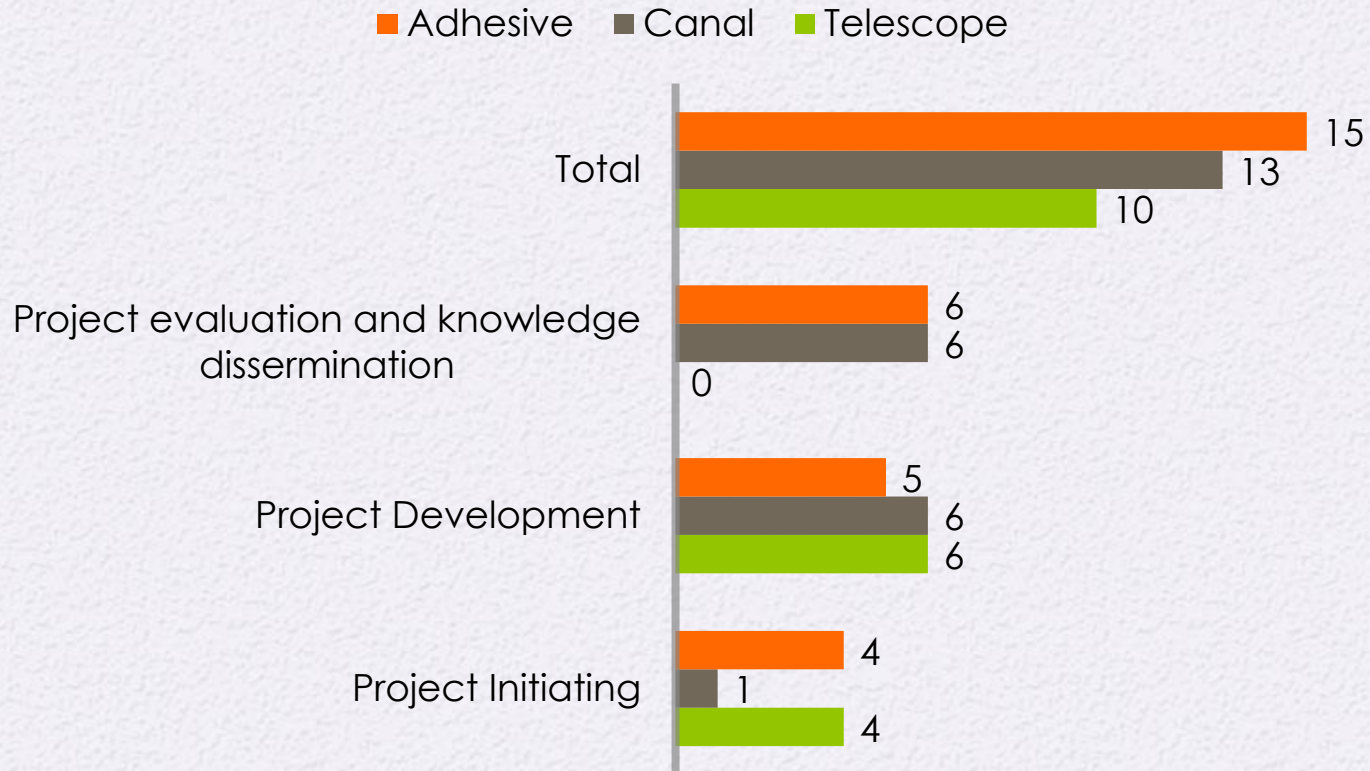
4. Connected filter in the cloud	5. HeERO	6. Connected vehicle cloud
Sweden	pilot in 9 countries (Croatia, Czech Republic, Finland, Germany, Greece, Italy, The Netherlands, Romania and Sweden) and aiming to cover the service in all member states in EU	Global; So far the platform has been used by 100+ service providers in five continents
Connected filters powered by cloud computing for air pollution in paper industry which increases the efficiency by automation	a pan-Europe interoperable and harmonized in-vehicle emergency call system aims to make it possible for any vehicle from any European country travelling across Europe to use the e-call system when there is a crash either manually or automatically by vehicle in case passengers are not able to operate.	CVC is based on the multiservice delivery platform in Ericsson service enablement to create new communication channels for drivers, passengers and connected cars to support new business models and revenue streams
Smart manufacture	safety	Horizontal telecom service platform
Semcon AB (Consulting engineering in industrial engineering), the Client from paper industry	The Swedish team are made by L: Security Arena, Lindholmen Science Park AB (Expert Organization); Actia Nordic AB (Vehicles Electronics Provider); Swedish Transport Administration (Public Authority); Ericsson (Telecommunication Products Provider); Volvo Cars (OEMs)	Ericsson (telecom service provider); Automotive manufacturers ;Other partners; developers and drivers



What kind of G-IoT related KIBS activities are performed at your organizations?



Roles of KIBS activities in the realization of technological possibilities to green application



The most common application areas of G-IoT technologies

Reducing CO2 emissions and improve the energy efficiencies

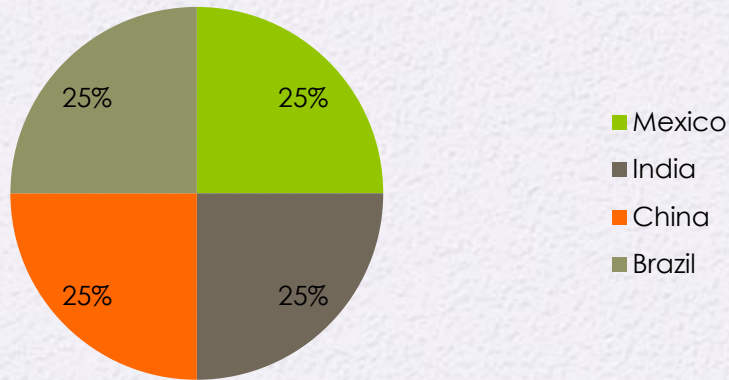
the degree of customer interactions

answers contradicted the assumption that companies would prefer the customized projects because the more customized of an application, the higher value added it would be.

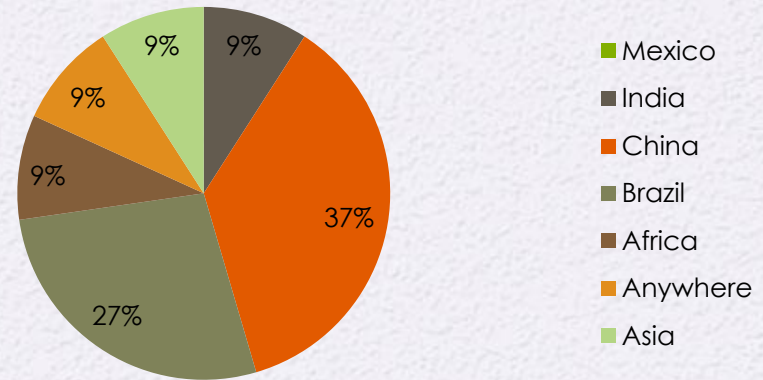
“more customization usually meant more cost for application development; therefore, considering the economics of scale, standard applications are generally more profitable” -- Magnus Kuschel, the managing director of case 1

Challenges and opportunities of developing G-IoT projects in emerging markets

Already in



Plan to go



Opportunities:

- scale
- willingness and determination
- eager to try new ideas
- innovation knowledge
- “know how”

Challenges:

- language and culture barriers
- lack of local network
- not familiar with local rules and regulations
- To overcome the liability of outsidership , the support from local partners

- KIBS roles are crucial for the competitiveness of companies and regions because of their **deep integration with the innovation process**.
- **Canal, Adhesive and Telescope (“CAT”)** are used to describe the main intermediary roles of KIBS during this social economic shift towards a greener social-techno future.
- The **adhesive function** is rather tacit and invisible, but very important (eg:Telematics Valley):trust, willingness to seek for new opportunities by collaboration, capabilities of coordinating actions from multi-stakeholders

- The **green niche**— a smart transportation green niche (at least a potential green niche) is located in Gothenburg region
 - the degree of readiness: the knowledge of innovation is in the state of constant upgrading and changing from inside the region or outside the region
 - the reputation, network and capabilities of innovation, rather than only the knowledge inside the region makes the region as the innovative hub in a certain area
 - one certain area's competence in the best case may pave the way to transform to another
 - The ability and opportunity of growing new competence based on existing ones is one important step towards sustainability and regional adaptation, and the nexus of KIBS hold the transformative power.

TACK!



Thank you!