Open Innovation Intermediaries

PROF.SSA BARBARA AQUILANI

A.A. 2018-2019
Open Innovation Intermediaries (OII), can be considered third parties (Mantel and Rosegger, 1987), “whose main objectives are to facilitate and sustain interaction, participation, collaboration and creation of profitable relationships between the different actors involved in the innovation process (Howells, 2006; Stewart and Hyysalo, 2008; Sieg et al., 2010; Hakanson et al., 2011; Ollila and Elmquist, 2011; Ye and Kankahalli, 2013), changing the traditional value creating systems, and, in such a way, bridge the gaps between the different knowledge resources (internal and external to organisations), managing to overcome miss-matching” (Aquilani and Abbate, 2015).
Open Innovation Intermediaries – a definition 2

- OII aim at facilitating, coordinating and supporting interactions and relationships between multiple actors (defined as ‘innovation seekers’ and ‘innovation solvers’) in the challenging innovation context.
- These OII help companies transgress their own organizational boundaries and skilfully connect supply and demand sites of the market, creating successful links between firms searching for external knowledge with highly-qualified solution providers located globally, thus mitigating the associated innovation costs (Howells, 2006; Sieg et al., 2010 in Aquilani and Abbate, 2014, p. 376).
Open Innovation Intermediaries – a definition 3

- OII can be variously described as a (Aquilani and Abbate, 2014, p. 377):
  - broker (assisting transactions between actors of innovation processes and contributing effectively to technology and knowledge transfer);
  - consultant (ensuring forms of assistance through providing useful information, support and expert professional advice in different activities, like recognition, negotiation and acquisition of IP or knowledge capabilities);
  - mediator (a concrete third party between diverse organizations and facilitators in knowledge networks which generates benefits from collaboration);
  - resource provider (predominantly the agent who facilitate access to funding pools, knowledge resource and other material support for innovation outcomes) (Bessant and Rush, 1995; Hargadon and Sutton, 1997; Howells, 2006; Winch and Courtney, 2007; Gassmann et al., 2011; Hakanson et al., 2011; Tran et al., 2011).
OII characteristics

- OI platforms show several characteristics (Aquilani & Abbate, 2013):
  - **Collaborative**: platform able to connect various seekers and solvers and also to stimulate the participation of different solvers, among them: professionals, experts and also communities;
  - **Interactive**: able to simultaneously connect various seekers and solvers also without the OII direct participation;
  - **Connective/Network**: this characteristic has to be connected to “scanning” (Howells, 2006, p. 721) activities in that OII should search and stimulate even new solvers to participate through an intensive networking activity able, per se, to also attract inside the platform other seekers;
  - **Articulated**: the platform should be created paying attention to create various sections each deemed to an activity to make easier to seekers and solvers to find the right information and to be aware of the different functionality and/or services the platform can allow (Verona et al., 2005);
  - **Navigability**: the platform should contain an internal search engine and filters to make easier and more rapid to find the searched information. Seekers and solvers should also be able at each time to know exactly the point in which they are and how they reached this point;
  - **Multimedial**: OII platforms should allow to use all Web 2.0 tools in order to make easier for seekers and solvers to build and nurture their mutual relationships;
  - **Member Group**: this characteristic identify the ability of some OII to create *ad hoc* groups and/or communities to support seekers in their OI process.
OII roles

- OII roles has been studied embracing various perspectives (Aquilani et al., 2016):
  - scanning information and identifying needs (Diener and Piller, 2010; Gassmann et al., 2011);
  - knowledge transfer, experience sharing, and diffusion (Diener and Piller, 2010; Gassmann et al., 2011);
  - brokering for problem solving (Agogue et al., 2013);
  - intermediation for technology transfer (Lichtenthaler and Ernst, 2008; Agogue et al., 2013);
  - systems and networking (Gassmann et al., 2011; Agogue et al., 2013).
OII functions

- OIIIs perform a wide range of core functions, which can be considered jointly with the above mentioned roles (Aquilani, Abbate and Dominici, 2016 available at: http://www.ijdar.org/volume-previous-volume-16):
  - connecting, involving, and mobilizing different actors in innovation processes (Hakanson et al., 2011; Agogue et al., 2013);
  - facilitating the identification of suitable technology commercialization opportunities (Lichtenthaler and Ernst, 2008), diffusing technology transfer (Diener and Piller, 2010) and supporting “accreditation, validation and regulation, protection of the results” (Howells, 2006, p. 721);
  - processing knowledge by connecting companies with problems to solvers from different domains and industries (Howells, 2006; Stewart and Hyysalo, 2008; Lopez and Vanhaverbeke, 2009; Hakanson et al., 2011; Ye and Kankanhalli, 2013);
  - solving (or mitigating) conflicts between stakeholders (Agogue et al., 2013);
  - foresight, diagnostic, and information processing (Howells, 2006), working closely with clients to define problems and find solutions (Ye and Kankanhalli, 2013), as well as brokering information flows (Diener and Piller, 2010).
# OII services - 1

<table>
<thead>
<tr>
<th>Classification services</th>
<th>Services</th>
<th>Nine-Sigma</th>
<th>Innocentive</th>
<th>yet2.com</th>
<th>Big Idea Group</th>
<th>Ideas Project (Nokia)</th>
<th>Openideo</th>
<th>Inpama</th>
<th>mercatodellinnovazione.it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Brainstorming Challenges¹</td>
<td>Premium Challenges²</td>
<td>Grand Challenges³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only for the commercialization of patents (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES (1,2)</td>
<td>YES Supported by experts (1,3)</td>
<td>YES Shaped ad hoc (1,3)</td>
<td>YES Yet2 Strategic Dealflow Service (1,2,3)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES (3)</td>
<td>YES (3)</td>
<td>YES (3)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YES (1,4,5,6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication services</td>
<td></td>
<td>Platform, e-mail, personal</td>
<td>Platform, e-mail</td>
<td>Platform, e-mail, telephone</td>
<td>Platform, e-mail, personal</td>
<td>Platform, personal</td>
<td>Platform, e-mail, personal</td>
<td>Platform, e-mail</td>
<td>Platform, e-mail, personal</td>
</tr>
</tbody>
</table>

¹ “do-it-yourself challenges” through open and collaborative Web 2.0 instruments

² Challenges for product innovation (ideas, design, prototypes), connected to Big Data, or for molecule development in pharmaceutical, chemical, and other fields, with specific research partners.

³ Challenges concerning the big themes in disparate fields (e.g., environment, renewable energy, etc.).
<table>
<thead>
<tr>
<th>Classification services</th>
<th>Services</th>
<th>NineSigma</th>
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<th>Openideo</th>
<th>Inpama</th>
<th>mercatodellinnovazione.it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance services, text preparation, and revision of post</td>
<td>YES NineSigma RFP™ (4,6)</td>
<td>YES</td>
<td>Brainstorming Challenges</td>
<td>Premium Challenges</td>
<td>Grand Challenges</td>
<td>YES</td>
<td>YES TechPaks (3,4)</td>
<td>YES</td>
<td>Together with challenge sponsor</td>
</tr>
<tr>
<td>Preventive analysis ideas/demand/problem</td>
<td>YES NineSigma QuickScan™</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Evaluation of existing and emerging technology to guide firms in innovation choices</td>
<td>YES NineSigma’s Technology Landscaping™</td>
<td>YES</td>
<td>YES (1)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Information guide/support to a shared innovation process</td>
<td>YES NineSigma Linked Innovation™</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Services defining the price range</td>
<td></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Communication and distribution services to community members or specific partners</td>
<td>YES NineSigma RFP™</td>
<td>YES</td>
<td>NineSigma RFP™</td>
<td>YES weekly Newsletter, used by social media</td>
<td>YES weekly Newsletter, used by social media</td>
<td>YES Completely personalized programs</td>
<td>YES</td>
<td>YES (1)</td>
<td>YES</td>
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</table>


Aquilani, Abbate and Dominici, 2016
## OII services - 3

<table>
<thead>
<tr>
<th>Classification services</th>
<th>Services providing support for contact and initiation of innovation process (sequel)</th>
<th>NineSigma</th>
<th>Innocentive</th>
<th>yet2.com</th>
<th>Big Idea Group</th>
<th>Ideas Project (Nokia)</th>
<th>Openideo</th>
<th>Inpama</th>
<th>mercatodellinnovazione.it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Support services by experts on request/project</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES Expert advisory service (1)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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</tr>
<tr>
<td></td>
<td>YES With a standard process (3,7,8)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Creation of ad hoc group services for the resolution of problems</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES NineSigma Linked Innovation™ (1, 9)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Monitoring throughout the entire innovation process</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td></td>
<td>YES NineSigma RFP™</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Definition and evaluation of solutions found</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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</table>


Aquilani, Abbate and Dominici, 2016
## OII Services - 4

<table>
<thead>
<tr>
<th>Services</th>
<th>Nine-Sigma</th>
<th>Innocentive</th>
<th>yet2.com</th>
<th>Big Idea Group</th>
<th>Ideas Project (Nokia)</th>
<th>Openideo</th>
<th>Inpama</th>
<th>mercatodell innovazione.it</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product design support through prototype</strong></td>
<td>YES</td>
<td>NS² Accelerated In-Market Solutions together with Nottingham Spirk</td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES Process shared with the community</td>
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<tr>
<td><strong>Innovation launch support and venture-out services</strong></td>
<td>YES</td>
<td>Open Innovation Roadmap (5,6)</td>
<td>YES (6,8)</td>
<td>YES (1,6,8)</td>
<td>YES (1,6,8)</td>
<td>YES (1,3,6)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td><strong>Existing technology improvement services and/or integrable to firm (e.g., adherence to norms or vertical integration)</strong></td>
<td>YES</td>
<td>Technology Search™</td>
<td>YES (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td><strong>Support in the identification of aspects and/or projects for major investment</strong></td>
<td>YES</td>
<td>NineSigma’s Technology Landscaping™</td>
<td></td>
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<td>YES</td>
</tr>
<tr>
<td><strong>Organizational and financial consultancy services</strong></td>
<td></td>
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<td></td>
<td>YES</td>
<td></td>
<td></td>
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<td>YES</td>
</tr>
<tr>
<td><strong>Consultancy on suppliers and supply chain management</strong></td>
<td></td>
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<td></td>
<td>YES</td>
<td></td>
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<td></td>
<td>YES</td>
</tr>
<tr>
<td><strong>Partner seeking services for venture capital operations</strong></td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
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<td>YES</td>
</tr>
<tr>
<td><strong>Marketing services (e.g., communications)</strong></td>
<td></td>
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<td></td>
<td>YES</td>
<td></td>
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<td>YES</td>
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<tr>
<td><strong>Internationalization support</strong></td>
<td></td>
<td></td>
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<td>YES</td>
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<td>YES</td>
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Aquilani, Abbate and Dominici, 2016
## OII services - 5

<table>
<thead>
<tr>
<th>Classification services</th>
<th>Services</th>
<th>Nine-Sigma</th>
<th>Innocentive</th>
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<th>Big Idea Group</th>
<th>Ideas Project (Nokia)</th>
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<th>Inpama</th>
<th>mercatodellinnovazione.it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Training and coaching services</td>
<td>YES</td>
<td></td>
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<tr>
<td></td>
<td>Psychometric tests for team leaders and project managers</td>
<td>YES The Collaborative Innovation Profile together with Caliper</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Possibility of participating in big innovation projects in fields of great interest worldwide (e.g., in environment)</td>
<td>YES NineSigma, Grand Challenge™</td>
<td>YES Stimulated by seekers</td>
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</table>

Aquilani, Abbate and Dominici, 2016
### OII services, roles and functions - 1

<table>
<thead>
<tr>
<th>Roles</th>
<th>Functions</th>
<th>Services provided by OII</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Networking (Gassmann et al., 2011; Agogue et al., 2013)</td>
<td>To connect, involve and mobilize large number of actors (Hakanson et al., 2011; Agogue et al., 2013).</td>
<td>- Connection services between seekers and solvers direct (Innocentive, Yet2.com, Openideo, Inpama for patents, Mercatodellinnovazione.it) and through the platform (all eight platforms); - Support services by experts on request/project (Nine-Sigma, Innocentive except for Brainstorming Challenges, Yet2.com, Openideo, Inpama, Mercatodellinnovazione.it); - Services seeking specialized partners in answer to prerequisites suggested by the firm (NineSigma, Innocentive except for Brainstorming Challenges, Yet2.com, Inpama); - Creation of ad hoc group services for the resolution/response to problems (NineSigma, Innocentive except for Brainstorming Challenges, Yet2.com, Big Idea Group, Inpama, Mercatodellinnovazione.it); - Purchase and sale of patents for OII which are marketplaces (Yet2.com, Inpama, Mercatodellinnovazione.it).</td>
</tr>
<tr>
<td>1. Intermediation for technology transfer (Lichtenthaler and Ernst, 2008; Agogue et al., 2013)</td>
<td>To facilitate the identification of technology commercialization opportunities (Lichtenthaler and Ernst, 2008) and the diffusion of technology transfer (Diener and Piller, 2010). “Accreditation, validation and regulation, protection of the results, commercialisation and evaluation of outcomes” (Howells, 2006, p. 721).</td>
<td>- Definition and evaluation of solutions found (Innocentive except for Brainstorming Challenges, Yet2.com, Big Idea Group, Openideo); - Services defining the prize range (Innocentive); - Searching for commercialization opportunities through networking (all platforms, for details look to the previous raw).</td>
</tr>
<tr>
<td>1. Knowledge transfer/experience sharing (Diener and Piller, 2010; Gassmann et al., 2011)</td>
<td>Knowledge processing and combination/recombination by connecting companies with problems to a broad range of solvers from different domains and industries (Howells, 2006; Stewart and Hyysalo, 2008; Lopez and Vanhaverbeke, 2009; Sieg et al., 2010; Hakanson et al., 2011; Bakici et al., 2012; Ye and Kankanhalli, 2013).</td>
<td>- Information guide/support to a shared innovation process (NineSigma, Innocentive except for Brainstorming Challenges, Yet2.com, Big Idea Group, Inpama, Mercatodellinnovazione.it); - Monitoring throughout the entire innovation process (all platforms except Innocentive for Brainstorming Challenges, Ideas project, Impama); - Communication and distribution services towards community members and/or specific partners (all platforms except Ideas Project, Mercato dellinnovazione.it).</td>
</tr>
</tbody>
</table>
## OII services, roles and functions - 2

<table>
<thead>
<tr>
<th>Roles</th>
<th>Functions</th>
<th>Services provided by OII</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Problem Solving (Agogue et al., 2013)</td>
<td>To solve (or mitigate) conflicts among stakeholders (Agogue et al., 2013).</td>
<td>- Techno-technological support services for innovation: (a) Product design support through to prototype (<em>NineSigma, Innocentive for premium Challenges, Big Idea Group, Openideo</em>); (b) Innovation launch support and licence-out services (<em>NineSigma, Innocentive, Yet2.com, Big Idea Group, Inpama</em>); - Other consultancy services: organizational and financial, on suppliers and supply chain management, partner seeking services for venture capital operations, marketing services for <em>Big Idea Group, Inpama</em>; partner seeking services for venture capital operations for <em>Yet2.com</em>; internationalization support for <em>Mercato dell’innovazione.it</em>; training and coaching services and psychometric tests for team leaders and project managers only for <em>NineSigma</em>.</td>
</tr>
<tr>
<td>1. Scanning information and articulating needs (Diener and Piller, 2010; Gassmann et al. 2011)</td>
<td>Foresight and diagnostics, scanning and information processing (Howells, 2006). Working closely with clients (seekers) to define the problems and to find possible solvers (Ye and Kankanhatli, 2013). Brokering information flows, filling information gaps (Diener and Piller, 2010).</td>
<td>- Acceptance services, text preparation and revision of post (all platforms except <em>Ideas project, Inpama</em>); - Preventive analysis ideas/demand/problem (all platforms except <em>Innocentive-Brainstorming challenges, Ideas project and Inpama</em>); - Evaluation of existing and emerging technology to guide the firm in the innovation choice (<em>NineSigma, Yet2.com, Mercato dellinnovazione.it</em>); - Technic-technological consultancy services to the seeker (<em>NineSigma, Yet2.com only for Existing technology improvement services and/or integrable to firm, Mercato dellinnovazione.it</em>).</td>
</tr>
<tr>
<td>OII own functioning activities</td>
<td></td>
<td>- Communication services (online for all platforms, personal only for <em>NineSigma, Innocentive-Grand Challenges, Yet2.com, Big Idea Group, Ideas Project, Mercato dellinnovazione.it</em>) - Other innovation opportunities provided by the OII (<em>NineSigma, Innocentive - Grand Challenges, Openideo</em>).</td>
</tr>
</tbody>
</table>
A classification of Open Innovation Intermediaries

«Access»
The way in which OII's interact with their networks

In terms of «sources»

In terms of «proposals»

«Delivery»
The method OII's use to support seekers in their innovation process

Providing «turn-key solutions»

Providing «contacts»

Source: Colombo et al. (2015)
OII types following “Access” and “Delivery” features

Source: Colombo et al. (2015)
# OII services for OI with customers: two cases

<table>
<thead>
<tr>
<th>Classification of services</th>
<th>Communication Services</th>
<th>Services supporting contact and processes to attain innovation</th>
<th>Support to technical-technological aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>NineSigma</td>
<td>Activated communication tools</td>
<td>Acceptance, text preparation and post revision</td>
<td>Communication and exchange with the community and/or specific partners</td>
</tr>
<tr>
<td>NineSigma Platform, e-mail, staff</td>
<td>Yes NineSigma RFPTM (Huston &amp; Sabbak, 2006; Lopez &amp; Vanhaverbeke 2009)</td>
<td>Yes NineSigma Linked Innovation™</td>
<td>Yes NineSigma RFPTM</td>
</tr>
<tr>
<td>Innocentive</td>
<td>Platform, e-mail</td>
<td>Yes By the seeker or through community</td>
<td>Yes Weekly newsletter</td>
</tr>
</tbody>
</table>

Source: Aquilani and Abbate, 2015
A model of OI with customers and OII

Barriers to overcome: Inertia, cultural barrier: NIH-NSH syndromes, degree of openness

Firm
- Industry relevant factors: clockspeed and technology uncertainty
- Ignition mode: depends also on clockspeed ("jump-in" vs. pilot projects)
- Inter-organizational relationships management: experience-centric networks or arena
- Organizational structure: business unit or task force in charge of following the OI process, complementary internal networks with new roles (champions’ or Idea-connectors and gatekeepers if the OII allows direct contact with customers) or ‘outside’ ambidextrous organization, interface with OII
- Organizational features: business model, culture, openness, new dynamic capabilities (e.g. multiplicative, accessive, etc.) selective revealing, evaluation, creativity management, motivation and rewarding of partners, flexibility, agility and adaptability, IP management, etc.
- HRM practices: managers, employees

Way to realize the interface
New roles
- Gatekeepers
- Idea-scouts
OR
Network creation and management
OR
OI interface

Industry relevant factors: R&D intensity (type of ties), appropriability (type of actors and ties building mode)

OII web-based platforms
- Agent or broker in each step of the innovation process
- Services (also user attraction, community creation, etc.) and firm support

OII Platform (i.e. virtual environment) creation and management
- Networking skills and competences
- IT know-how
- Individual and community management (i.e. motivation, and rewards)

Environment (economic, physical, socio-cultural and political (i.e. consumerism), IT cycle of life and economics)

Industry relevant factors: R&D intensity (type of ties), appropriability (type of actors and ties building mode)

Individuals
- Different roles
- Skilled and competent users
- Willingness to participate
- Interest, curiosity, involvement, satisfaction and positive challenge

Communities
- Different roles
- Leadership issues
- Social dynamics
- Willingness to participate
- Interest, curiosity, involvement, satisfaction and positive challenge

Relationship features
Trust in people and technology, risk, balance between control and growth

Experience-centric networks

Figure 1. Firm indirect open innovation process through customer framework

Aquilani and Abbate, 2014
References - 1


References - 2


