APPENDIX B – TABLE OF MECHANISMS

	Antecedents to OI		Executing OI		Consequences of OI	
	Referrals to mechanisms	**Referrals to outcomes**	**Referrals to mechanisms**	**Referrals to outcomes**	**Referrals to mechanisms**	**Referrals to outcomes**
Individual	**1.1** positive expectations	**1.1** increased intention to participate	**1.7** informal boundary spanning	**1.7** trust, understanding, and interaction	**1.12** working in OI teams I	**1.12** good contacts and future OI opportunities
	1.2 perceived behavioral control	**1.2** increased expectations of result	**1.8** combining external search and assimilation and utilization	**1.8** more effective absorptive capacity and learning	**1.13** working in OI teams II	**1.13** absorptive capacity and managing reciprocal commitment
	1.3 entrepreneurial orientation	**1.3** fertile setting for OI	**1.9** attending physical meetings	**1.9** increases likelihood to receive capital investments	**1.14** gained trust and developed competences	**1.14** career opportunities and new opportunities for OI
	1.4 strategic or long-term orientation	**1.4** individual openness	**1.10** participating in makerspaces	**1.10** increased innovation and diffusion rates		
	1.5 patience and education	**1.5** matter for facilitating OI in SME's	**1.11** master collaborative project management skills and being able to develop a technology roadmap	**1.11** being able to better deal with uncertainty of the market		
	1.6 social competence and ability to broker solutions	**1.6** increase in effectiveness of OI				
Project	**2.1** importance of project for underlying firms	**2.1** increases willingness to outbound share knowledge	**2.11** collaborative prototyping	**2.11** increases engagement of various stakeholders	**2.18** strategic importance of project team's task	**2.18** project team's engagement in inbound OI
	2.2 close relation of project's task to firm's main business	**2.2** increases level of inbound openness	**2.12** using possibilities of virtual world	**2.12** overcoming problems in the 'real world'	**2.19** connecting to project network organizations	**2.19** adaptability and effectiveness
	2.3 uncertainty of technology or market dynamics	**2.3** increases level of inbound openness	**2.13** taking care of dynamics and risk	**2.13** positive influence on project success	**2.20** reliance on extramural R&D	**2.20** ∩-relation with innovation performance
	2.4 firm strategy based on internal competences	**2.4** OI is not the best approach for an R&D project	**2.14** too much dynamics	**2.14** decreased openness by NIH and NSH syndromes	**2.21** presence of patents	**2.21** new entrant's average number of OI relationships
	2.5 formal contractual governance style	**2.5** beneficial for market-focused OI projects	**2.15** decisionmaker's positive attitude	**2.15** positive influence on project performance	**2.22** collaboration contracts	**2.22** no effective governance mechanism against imitation
	2.6 informal self-enforcing governance style	**2.6** beneficial for science-focused OI projects	**2.16** distributed attention for managing internal and external knowledge	**2.16** negative influence on project performance	**2.23** open collaborative project approach	**2.23** higher cost, worse timing but better product performance
	2.7 split project management from R&D management	**2.7** allows experts to add value to R&D	**2.17** NIH syndrome	**2.17** lower project success		
	2.8 team size	**2.8** inverted U-shape with inbound openness				
	2.9 short learning distance for project teams	**2.9** less inbound openness, more outbound openness				
	2.10 team demographic variance and partner breadth	**2.10** interorganizational project team success				
Firm	**3.1** integrated standardization strategy	**3.1** knowledge transfer and creativity	**3.11** technology roadmapping	**3.11** OI performance (especially technology push)	**3.19** licensing technologies	**3.19** strong increase in valuation
	3.2 policy of collaborating with universities	**3.2** identifying novel technological opportunities	**3.12** building technology foresight by scouting (depth)	**3.12** incrementally improving products	**3.20** impact of abandoning innovation activities	**3.20** positive effect on overall innovation performance
	3.3 specialized structures	**3.3** positive outcomes of innovation efforts	**3.13** working in parallel teams with the same project leader	**3.13** performance in costs, creativity and speed	**3.21** experience with out-licensing	**3.21** increases firm revenues and value of its product base
	3.4 dedicated/independent R&D unit	**3.4** successful inbound OI	**3.14** using specialist knowledge providers	**3.14** strengthens the impact of inbound OI	**3.22** having extensive in-licensing experience	**3.22** increases firm revenues and value of its product base
	3.5 openness	**3.5** ∩-relation with ideas being implemented	**3.15** acquire knowledge by take-overs	**3.15** strengthens the impact of OI	**3.23** social status and number of prior commercial alliances	**3.23** increases firm revenues and value of its product base
	3.6 opening resources (knowledge and experts)	**3.6** weakening competitors while increasing demand	**3.16** geographic dispersion of resources after an acquisition	**3.16** ∩-relation with success of knowledge acquisition	**3.24** firms lacking absorptive capacity	**3.24** distributed knowledge capturing, transformation and exploitation
	3.7 leadership encouraging knowledge crossing organizational boundaries	**3.7** firms being more likely to use OI	**3.17** working with RTOs rather than with universities	**3.17** more new-to-the-firm but less new-to-the-market innovations	**3.25** developing products with other firms	**3.25** competitiveness of product portfolio and novelty
					3.26 performing OI	**3.26** developing absorptive and desorptive capacities

Firm	**3.8** recognition of intra-organizational forces	**3.8** firms being more likely to use OI	**3.18** strategic venturing model, retaining a significant stake in the future business	**3.18** easier to get access to (knowledge of) external experienced entrepreneurs	**3.27** buying and selling knowledge	**3.27** increases firm sales of new products and R&D costs
	3.9 impediments in internal innovation activities	**3.9** firms being more likely to use OI			**3.28** openness in product development	**3.28** increases innovative sales and provides learning effects
	3.10 presence of OI champion, technology gatekeeper, and shepherds	**3.10** positive effects on OI success			**3.29** openness (both inbound and outbound)	**3.29** higher transaction costs, especially for small firms
					3.30 creative destruction and appropriation of complementary assets	**3.30** creative appropriation
					3.31 relative absorptive capacity	**3.31** benefit more from NPD than the other firm
Network	**4.1** shift from project-based firms to project network organizations	**4.1** connect individuals and organizations	**4.12** joint programs in itself	**4.12** better access to funding	**4.23** contact with and long-term bonding of suppliers, clients and users	**4.23** easier and more flexible access to technologies
	4.2 innovation intermediary with moderate stratification	**4.2** benefits OI performance	**4.13** presence of boundary spanners (technological areas)	**4.13** contribute by enhancing knowledge distribution	**4.24** existence of innovation networks	**4.24** speed, flexibility, and adjustment to changing market conditions
	4.3 knowledge transfer office	**4.3** triggering OI, increasing attractiveness for scientists	**4.14** presence of social brokers (linking disconnected actors)	**4.14** contribute by enhancing knowledge distribution	**4.25** combined space for externally-oriented organizational practices	**4.25** enhances trust to grow between innovative experts
	4.4 mediated revealing and multiple innovation goals	**4.4** minimizing adverse competitive consequences	**4.15** presence of technology scouts	**4.15** identify discontinuous technological change	**4.26** using Wikipedia hyperlinks to extend previous ex post evaluations	**4.26** predicting future technology convergence
	4.5 complementary and substitute appropriability regimes	**4.5** basis for knowledge sharing in networks, helping to build long term relations	**4.16** identifying type of network	**4.16** less uncertainty and smaller range in expectations		
	4.6 multi-partner consortia and networks	**4.6** act as boundary organization, triggering OI	**4.17** identification of development phases	**4.17** of network development dynamics		
	4.7 stronger ties and a more closed network model	**4.7** successful OI in networks focusing on exploitation	**4.18** availability of network-level funding	**4.18** presence of required roles leading to better results on mobility, R&D and commercialization		
	4.8 weaker ties and a more open network model	**4.8** successful OI in networks focusing on exploration	**4.19** network orchestration and installing network boards	**4.19** facilitate proper and timely decision-making		
	4.9 installing an open funding platform	**4.9** increases funding capacity	**4.20** complex interactions between network partners	**4.20** higher transaction costs		
	4.10 teambuilding and building on existing capabilities	**4.10** more stable teams and collaboration	**4.21** presence of corporate venture capital	**4.21** help overcome these costs		
	4.11 preference of university research over company R&D	**4.11** better OI performance	**4.22** hub firm orchestrating its relationships with different ecosystem actors	**4.22** removing technological bottlenecks externally deploying novel technologies		
Society	**5.1** market uncertainty	**5.1** increases willingness OI	**5.10** non-monetary versus monetary public support	**5.10** non-monetary public support has larger impact on innovation performance	**5.13** government support	**5.13** reduction of network failures
	5.2 economic downturn	**5.2** increases necessity to invest in (open) innovation	**5.11** public policies aimed at increasing openness among local economic actors and institutions	**5.11** transition of a region into an ORIS significantly influencing inhabiting firm's innovation performance	**5.14** government bearing part of the risk for early-stage technologies	**5.14** access to public funding will reduce price for private investors
	5.3 strength of competition and openness of networks	**5.3** positively influences innovation performance	**5.12** regions having developed industrial clusters	**5.12** meaningful loci of innovation	**5.15** direct public financial support	**5.15** crowding out effects for R&D investment
	5.4 social and environmental pressures	**5.4** one of primary drivers for adopting OI			**5.16** open access to government knowledge and data	**5.16** creation of new (social) service offerings
	5.5 regional knowledge endowment	**5.5** positively influences OI results			**5.17** good functioning networks in a region	**5.17** firms in the region get easier access to knowledge
	5.6 well-functioning regional technology networks	**5.6** stimulators for OI practices and innovation success			**5.18** positive externalities (knowledge diffusion and endowment) in a region	**5.18** NPD performance of firms present in the region
	5.7 public policies or legislation promoting OI	**5.7** improve number of external collaboration partners			**5.19** promotion of OI practices through networks	**5.19** positive externalities (knowledge diffusion and endowment)
	5.8 strengthening competition, increase knowledge diffusion	**5.8** positively influences OI results				
	5.9 developing innovation policies at the national level	**5.9** facilitating a positive innovation climate				