

Table S1. Interviewees and their position in the case organisations

Organisation	Interviewee's role in the case organisation	Date
<b>INTEGRA</b>		
Developer	Managing director	Oct, 2013
	Commercial director	Oct, 2013
Construction company	Commercial director	Oct, 2013
FM service provider	Contract director	Oct, 2013
Client / user	Department manager, responsible of contract negotiations and steering of FM services	Dec, 2013
Subcontractors	Principal architect & CEO of the company, commissioned initially by the client, later by INTEGRA Construction	Dec, 2013
<b>STANDARD</b>		
Developer	Managing Director	Dec, 2013
	Project manager	Jun, 2013
	Project engineer	Jun, 2013
Construction company	Business unit director	Jan, 2013
	Project manager	Jun, 2013
FM service provider	Contract director, responsible of contract negotiations and steering of FM services	Dec, 2013
Client / user	Facility manager / HR manager	Dec, 2013
Subcontractors	Principal architect & CEO of the company, commissioned initially by the client, later by STANDARD Construction Project manager, HVAC system installer	Jan, 2014 May, 2014

Table S2. Results of within-case analysis for the *Integra* case setting

	Novelty	Efficiency	Complementarities	Lock-In	Risk
<b>DEVELOPER</b>					
Content	Project development: Proactive promotion of the purchasing mode Project development: Technical and operational innovations that increase the performance of the building	Project development: Private financing → "discipline" Design & Construction, operations: fixed price & schedule contract → focus on operational efficiency and risk management Operations: Efficient use of life-cycle funds to ensure the balance between maintenance costs and technical replacements to ensure the required technical performance level of the building	Project development: Developing a comprehensive offering based on combination of construction, service provision and life-cycle management and risks related to them Design & Construction, operations: Efficient use of life-cycle funds to ensure the balance between maintenance and investment costs to ensure the required technical performance level of the building Operations: Coordination of the service and life-cycle funds	Project development: A 30-year concession contract against performance criteria Design & Construction, operations: Efficient use of life-cycle funds to ensure the balance between maintenance costs and technical replacements to ensure the required technical performance level of the building	Operations: Re-financing / divestment Operations: Life-cycle risk management: Efficient use of life-cycle funds to ensure the balance between maintenance costs and technical replacements to ensure the required technical performance level of the building Absorption of performance and technical risks, providing life-cycle performance to the client against functionality criteria.

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	Novelty	Efficiency	Complementarities	Lock-In	Risk
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<b>DEVELOPER</b>					
Structure	The integrated structure of financing, construction and service provision Strong interaction with other consortium members in developing the concept	Optimising life-cycle costs by iteratively balancing construction and maintenance aspects in design, construction and operations	Optimising life-cycle costs by iteratively balancing construction and maintenance aspects in design, construction and operations.	Combining of construction and maintenance service provision with risk taking in a way that lock in is required to ensure the earnings in long term.	Division of risks among consortium members. Life-cycle investments as a result of an iterative “debate”. Development of analysis tools and capabilities to demonstrate and price the technical, operational and life-cycle risk level of the concession, e.g. through using BIM
Governance		Small team of experienced specialists in-house Alliancing with the construction and maintenance services providers	Own management of life-cycle performance and risks (combination of construction & maintenance)	SPV established to implement & manage contract and collect fees and distribute them to other members of the consortium	Own management of life-cycle performance and risks (combination of construction & maintenance)
Related value appropriation mechanism	Creating business opportunities (winning the contract) Creating value for the client (user) (e.g. improved logistics, environmental performance)	Creating value for the client (user) Maintaining the margin of the life-cycle management operations	Maintaining the margin of the life-cycle management operations Creating value for the client (user) (e.g. increased risk absorption, focus on core business)	Ability to appropriate value throughout the service provision phase Utilisation of innovations in operations to maintain the margin of the life-cycle management operations	Creating value for the client (user) – ability to implement Asset appropriation through re-financing and eventual divestment due to lowered risk level Maintaining the margin of the life-cycle management operations
<b>CONTRACTOR</b>					
Content	Project development: Technical and operational innovations that increase the performance of the building Design & construction: Technical and operational innovations that increase the operational efficiency of construction works	Project development, Design & construction: Fixed price & schedule contract → focus on operational efficiency and risk management Project development: developing a technical solution with optimal investment costs Design & construction: Technical and operational innovations that increase the operational efficiency of construction works	Design & construction: Provision of design and construction that enables design & build operations in parallel to optimise buildability		Project development: Division of risks between the consortium participants and the client Design & construction: Construction of the buildings against guaranteed price and schedule –absorption of risks related to construction schedule and costs Providing guarantees for the completion of construction works Operational and risk management of construction works

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	Novelty	Efficiency	Complementarities	Lock-In	Risk
(Continued)					
<b>CONTRACTOR</b>					
Structure	Strong interaction with other consortium members in developing the concept	“Closed interfaces” after contractual close, to enable focusing to the targets of cost and schedule, limited interaction & changes	Co-operation with FM service provider and the Developer to optimise life-cycle and FM service performance		Emphasis on risk management and operational efficiency after contractual close
Governance		Own project management of specialist team Internal incentives for operational excellence Large network of sub-suppliers	Own design management		Own project management of specialist team Internal incentives for operational excellence Large network of sub-suppliers
Related value appropriation mechanism	Creating business opportunities (winning the contract) Creating value for the client (user) (e.g. improved logistics, environmental performance) Maintaining margin of the design & construction (e.g. through optimising buildability of solutions)	Maintaining margin of the design & construction works	Maintaining margin of the design & construction works No immediate value appropriation from optimising life-cycle costs and FM service performance → perceived negative impact on investment costs and the efficiency of design & construction works		Creating value for the client (user) – ability to implement Maintaining margin of the design & construction works → efficiency
<b>FM SERVICE PROVIDER</b>					
Content	Project development: Technical and operational innovations that increase the performance of the building Operations: Technical and operational innovations that increase the operational efficiency of maintenance works Close relationships with the end users to learn usage patterns and needs	Operations: Technical and operational innovations that increase the operational efficiency of maintenance works Operations: Investments in technology that increases efficiency Operations: Close relationships with the end users to learn usage patterns and needs	Design & construction: Participation to the design of the facilities that increase the operational efficiency of maintenance works Operations: Coordination of the service and life-cycle funds	Project development: A 30 –year concession contract against performance criteria Operations: Close relationships with the end users to learn usage patterns and needs	Project development, operations: Providing guarantees for the performance level of services → focus on efficiency Operations: Providing maintenance services to the client against functionality criteria. Absorption of performance and technical risks.
Structure	Strong interaction with other consortium members in developing the concept	Co-ordination with the contractor to increase the operational efficiency of maintenance works Utilisation of personnel across functions	Co-ordination with the contractor to increase the operational efficiency of maintenance works	Developing client relationships already during investment & design phases	Co-ordination with the contractor to increase the operational efficiency of maintenance works Developing client relationships already during investment & design phases?

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	Novelty	Efficiency	Complementarities	Lock-In	Risk
(Continued)					
FM SERVICE PROVIDER					
Governance	Own organisation to enable learning from the client	Own organisation to enable optimal cross use of personnel	Cross-utilisation of personnel in different tasks, economies of scope & scale	Own organisation to enable learning from the client	Own organisation to enable learning from the client
Related value appropriation mechanism	<ul style="list-style-type: none"> <li>– <i>Creating business opportunities (winning the contract)</i></li> <li>– <i>Creating value for the client (user) (e.g. improved logistics, environmental performance)</i></li> <li>– <i>Maintaining margin of the FM services (e.g. through incremental innovations in operations)</i></li> </ul>	<ul style="list-style-type: none"> <li>– <i>Maintaining margin of the FM services</i></li> </ul>	<ul style="list-style-type: none"> <li>– <i>Maintaining margin of the FM services through technical solutions that e.g. improve the service efficiency and life cycle of technical systems</i></li> </ul>	<ul style="list-style-type: none"> <li>– <i>Maintaining margin of the FM services through increased learning of the client's needs</i> →</li> <li>– <i>incremental innovations in operations</i></li> <li>– <i>Export of innovations to other locations &amp; clients (econ. Of scope)</i></li> </ul>	<ul style="list-style-type: none"> <li>– <i>Creating value for the client (user)</i></li> <li>– <i>ability to implement, focus on core business</i></li> <li>– <i>Maintaining margin of the design &amp; construction works</i> → efficiency</li> </ul>

Table S3. Results of within-case analysis for the *Standard* case setting

	Novelty	Efficiency	Complementarities	Lock-In	Risk
DEVELOPER					
Content	<p>Project development: Development of the building concept: e.g. technical properties</p> <p>Setting requirements for environmental certification: LEED platinum</p>	<p>Project development: Disciplined investment planning process</p> <p>Design &amp; construction: Balancing investment costs to meet the market rental rate</p>	<p>Project development: Developing an offering based on good quality construction &amp; brand</p> <p>Project development: Developing the commercial concept of the building to ensure the saleability of the building</p> <p>Specifying and arranging FM services to the site</p>	<p>Project development: In marketing, striving for lock-in, i.e. long-term rental agreements with tenants, to decrease the tenant/market risk of the asset.</p>	<p>Project development, Design &amp; construction: Striving for lock-in, i.e. long-term rental agreements with tenants, to decrease the tenant/market risk of the asset.</p>
Structure		Developing the commercial concept against market criteria simultaneously with the technical concept development.	Developing the commercial concept against market criteria simultaneously with the technical concept development.	Sequencing tenant acquisition with the investment decisions to tailor design solutions to meet tenants' needs.	Sequencing tenant acquisition with the investment decisions. Divesting the buildings fully leased.
Governance	Own concept development by external architect.	<p>Small team of experienced specialists in-house</p> <p>Outsourcing time and price risks to the contractor with incentives.</p>	Structured approach to negotiating with tenants and the contractor to balance the needs of clients with investment costs		Transferring construction cost & schedule risks to the contractor through fixed Design&Build contract

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	Novelty	Efficiency	Complementarities	Lock-In	Risk
(Continued)					
DEVELOPER					
Related value appropriation mechanism	– <i>Creating value for the client (tenants and investors)</i>	– <i>Maintaining the margin of the investment (not exceeding boundary conditions of investment costs and market rental rates)</i>	– <i>Maintaining the margin of the investment (not exceeding boundary conditions of investment costs and market rental rates)</i> – <i>Creating value for the client (tenants and investors)</i>		– <i>Asset appreciation through reduced market risk</i> – <i>To comply with the risk preferences of investors, i.e. creating value for the client (investors)</i>
CONTRACTOR					
Content	Project development: Technical and operational innovations that increase the operational efficiency of construction works and add value to the client (e.g. Design & construction: Technical and operational innovations that increase the operational efficiency of construction works, e.g. HVAC channelling solutions	Project development: developing a technical solution with optimal investment costs Fixed price & schedule contract → focus on operational efficiency and risk management Design & construction: Technical and operational innovations that increase the operational efficiency of construction works	Design & construction: Provision of design and construction that enables design & build operations in parallel to optimise buildability		Project development: Construction of the buildings against guaranteed price and schedule. Design & construction: Operational and risk management of construction works
Structure	Interaction with the developer developing the concept Continuing architectural design management after completion of concept development	“Closed inter-phases” after contractual close, to enable achieving targets of cost and schedule, limited interaction & changes			Emphasis on operational risk management and operational efficiency after contractual close.
Governance		Own project management of specialist team Internal incentives for operational excellence Large network of sub-suppliers	Own design management		Own project management of specialist team Internal incentives for operational excellence Large network of sub-suppliers
Related value appropriation mechanism	– <i>Creating value for the client (developer)</i> – <i>Maintaining margin of the design &amp; construction (e.g. through optimising buildability of solutions)</i>	– <i>Maintaining margin of the design &amp; construction works</i>	– <i>Maintaining margin of the design &amp; construction works</i> – <i>Creating value for the client (developer) through solutions that lower investment costs</i>		– <i>Creating value for the client (developer) through lowering developer’s risk position</i> – <i>Maintaining margin of the design &amp; construction works → efficiency</i>

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	Novelty	Efficiency	Complementarities	Lock-In	Risk
(Continued)					
FM SERVICE PROVIDER					
Content		Operations: High focus on efficiency → Tried and tested management and operational modes	Operations: Planning and implementing the service activities to cross-utilise personnel resources → to achieve maximum resource efficiency	Operations: Striving for relational lock-in through good customer satisfaction	Operations: Operational risk minimisation due lack of lock-in and limited margins
		Close relationships with the end users to learn usage patterns and needs			Tried and tested management and operational modes
Structure		Utilisation of personnel across functions			Tried and tested management and operational modes
Governance	Own organisation to enable learning from the client and rapid adjustments	Own organisation to enable optimal cross use of personnel	Cross-utilisation of personnel in different tasks → economies of scope	Own organisation to enable learning from the client	
Related value appropriation mechanism		– <i>Maintaining the margin of the service</i>	– <i>Maintaining the margin of the service</i> – <i>Creating value for the client through improved service quality</i>	– <i>Creating business opportunities through the continuation of services and winning new contracts from the clients</i>	