Annex 3-A

Project 3

Risk consideration for safe, effective and sustainable structures

Time frame the Core task 1 activities

	2014		2015				2016				2017			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1. Develop method for assesment of bridge dynamic characteristics.	X	X	X	X	X	X	X	X	X	X				
1.1.Studie about vehicle weight and speed impact on the bridge structure dynamic characteristics.			X	X	X	X	X	X	X	X				
1.2.Develop a method to asess heavy and very heavy vehicle dynamic effects on the bridge structure.							X	X	X	X				
1.3.Determine and justify limit values of the bridge dynamic characteristics based on the developed methods for assesment of bridge dynamic characteristics.											X	X	X	X
2. Analyse traffic load influence on bridge structure using theoretical probability distribution models.	X	X	X	X	X	X	X	X	X	X				
2.1. Develop a method for external action correlation forecasting.	X	X	X	X	X	X	X							
2.2.Study about properties range of materials used in bridge construction.	X	X	X	X	X	X	X							
2.3.Develop theoretical probabilistic distribution models for in construction used materials property variation.				X	X	X	X	X	X					
2.4.Analysis about ageing process influence on the construction material properties and its variation for existing structures.			X	X	X	X	X	X	X	X				
2.5.Develop a probabilistic model for building accuracy and description of other “human factor” induced structural properties variation and their impact on load–carrying capacity.							X	X	X	X				

2.6.Comparison of resulting action and material resistance probabilistic modes using limit state method defined in Eurocode, it will allow to determine existing bridge safety and robustness (with appropriate safety factors).									X	X	X	X	X	X
3. Publications, Scopus		1				3								2
4. Conferences		1				3				2				2
5.PhD and Master theses	X	X	X			X	X		X	X	X		X	X

Annex 3-B

Project 3

Risk consideration for safe, effective and sustainable structures

Time frame the Core task 2 activities

	2014		2015				2016				2017			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1. Develop of method for localization of damage site and evaluation of damage size in various structural elements by using appropriate signal processing techniques experimentally measured dynamic parameter changes.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.1. identification of damage in beam-type structural elements	X	X	X	X	X									
1.2. identification of damage in plate-type structural elements				X	X	X	X	X	X					
1.3. identification damage in sandwich-type structural elements							X	X	X	X	X	X		
1.4. methodology for exploitation damage identification in various structural elements											X	X	X	X
2. Development of new technologies for monitoring and diagnostics of aviation engines and various elements of rotary machines.			X	X	X	X	X	X	X	X	X	X		
2.1. investigation of aviation structural element health monitoring and diagnostics			X	X	X									
2.2. experimental investigation of dynamics parameters of aviation structural elements				X	X	X	X	X						
2.3. exploitation damage identification in aviation structural elements						X	X	X	X	X				
2.4. recommendation for health monitoring and diagnostics of aviation										X	X	X		

structural elements														
3. Development of method for pre-stress loss estimation in pre-stressed steel reinforced concrete structural elements.							X	X	X	X	X	X	X	X
3.1. investigation of methods, based on analysis of loss of pre-stress in pre-stressed steel-reinforced concrete structural elements							X	X	X	X				
3.2. numerical modelling and simulations of pre-stressed steel-reinforced concrete structural elements									X	X	X	X	X	
3.3. experimental estimation of dynamic parameters of pre-stressed steel-reinforced concrete											X	X	X	
3.4. method for evaluation of pre-stress loss in prestressed steel-reinforced concrete structural elements												X	X	X
4. Publications, Scopus						2	1	1				1	1	
5. Conferences									1				1	
6. Supervision of doctoral thesis and master's thesis	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Annex 3-C

Project 3

Risk consideration for safe, effective and sustainable structures

Time frame the Core task 3 activities

	2014		2015				2016				2017			
	1	**2**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1. Development of design procedure for load-bearing elements from cross-laminated timber	x	x	x	x	x	x	x	x	x	x				
1.1. Data generalization for development of design procedure for load-bearing elements from cross-laminated timber	x	x	x											
1.2. Development of design procedure for load-bearing elements from cross-laminated timber			x	x	x	x	x	x						
1.3. Experimental testing of design procedure for load-bearing elements from cross-laminated timber				x	x	x	x	x	x	x				
2. Topology optimization for structure from cross-laminated timber and evaluation of it rational, from the point of view of it materials expenditure,							x	x	x	x	x	x	x	x

parameters														
2.1. Model of behaviour for structure from cross-laminated timber							x	x	x	x				
2.2. Development of optimization algoritme for structure from cross-laminated timber							x	x	x	x	x	x	x	x
2.3. Evaluation of it rational parameters for structure from cross-laminated timber							x	x	x	x	x	x	x	x
3. Development of load-bearing structure which consists from the main tensioned members and secondary cross-laminated timber members subjected to flecture							x	x	x	x	x	x	x	x
3.1. Development of Numerical model of the structure							x	x	x	x	x	x	x	x
3.2. Development of physical model of the structure											x	x	x	x
4. Conferences, papers		1	2											
5. Supervision of doctoral and masters thesis	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6. Publications, Scopus														