## **DENMARK - NCP INPUT**

The Common Framework was the template used to provide input to the Strategic Research Agenda (SRA) for the JPI Cultural Heritage and Global Change. These are inputs to the Common Framework from the individual participating country named above. To find out more about the process involved in the creation of the SRA, please go to www.jpi-culturalheritage.eu.

Main driver (as identified in the DoW)	Additional drivers	Identifier	Addition? Include new identifier	Research area	Research gaps	Research needs	Keywords	Activities/ instruments (for example, collaborative research; SME/industry involvement; knowledge exchange; end-user participation)	Benefits of the research area to cultural heritage	Societal	Economic	Environmental	Ranked priority (National Consultation Panel priorities)	Ranked priority in terms of European collaboration
Use		U.1		cultural heritage	generated from the fields of history, art history, archaeology, geography.	Applying semantic and automated techniques to these data, processing large quantities of digitized data to give new insights and involve new users in cultural heritage		In addition to those in the header, IT sector involvement.						
Use		U.3		Revitalisation of built and landscape heritage	Sustainable transformation and management strategies for built heritage and landscape use/management	Development and assessment of policy and strategies.		collaborative research; user involvement	assessment of cultural heritage in economic life of society	of life of society, increasing public support for cultural heritage	Increased lifetime of historic buildings/landsc apes; increased number of visitors, revitalisation of degraded areas	Reduced CO2 emission due to increased lifetime of buildings		9
Use		U.4		New uses for cultural heritage	managment models of landscapes (for example management techniques) and built heritage on their tangible and intangible cultural heritage values	Development and exploration with new management models and techniques of built heritage, sites and landscapes; in balance with the activities/wishes of the local people.		Exchange of knowledge and good practices	Maintenance of cultural heritage values of built and landscape heritage					11
			U.7	Material and immaterial cultural heritage and natural ressources		Comparative regional studies								8
			U.8	Policy, laws and regulations	interaction between policy, laws and regulations:1)	Mapping of policies, laws and regulations within and beyond the EU. Knowledge of their interactions.								3
Access		A.1		Dissemination of cultural heritage knowledge	the legibility of sites and	Development of (interactive) methods and education tools for a broad public.		Interdisciplinary approach, visualisation	Raising public awareness, innovative disclosure and educative tools	Increasing public support, positive attitudes and curiosity for cultural heritage	Increased number of visitors; benefits to creative industries	Neutral		

Main driver (as identified in the DoW)	Additional drivers	Identifier	Addition? Include new identifier	Research area  Visualisation of heritage	Research gaps  Increase in amount and	Research needs  Develop understanding of	Activities/ instruments (for example, collaborative research; SME/industry involvement; knowledge exchange; end-user participation)  Evaluation tools; study in the computer use of	Benefits of the research area to cultural heritage	Societal  Increased access	Economic  Benefits to	Environmental  Neutral	Ranked priority (National Consultation Panel priorities)	Ranked priority in terms of European collaboration
Access		A.S		visualisation of Heritage	complexity of data used on smaller interfaces	how to visualise complex, unstructured and semantically rich data.	cultural heritage; measuring instruments like eye and hand moving detectors; interaction design	of how people interact in a digital environment.		creative industries (e.g. Interactin9o design, 3D techniques, augmented reality, gaming).	Neutral		
Access		A.4		Interaction with digital cultural heritage	The ways users interact with digital cultural heritage	Acquiring knowledge of the changing behaviour with digital cultural heritage compared to physical digital heritage.	Log analyses (text mining); statistical methods	Better knowledge of the interaction between people and cultural heritage; building better interfaces.	Increased access to cultural heritage; potential to influence behaviour.	Benefits to creative industries (e.g. Interactin9o design, 3D techniques, augmented reality, gaming).	Neutral		10
Access		A.7		User interaction	Value proposition of social tagging	Automated evaluation techniques; reconsideration of authority		Curators at a distance; more freedom for the users	better use of wisdom of the	Added value of cultural heritage; less intervention by curators.	Neutral		
Access		A.10a		Security technologies and systems in museums, libraries, archives and historic buildings	Integrated systems for effective detection, prevention and reaction to risk situations such as fire, theft, vandal attacks	Development of systems for effective protection.	Collaborative and interdisciplinary research; industry involvement	Reduced risk related to fire, theft and vandal attack	Treasures of society better protected	Increased competitiveness of European industry; increased number of visitors; reduced cost of insurance of cultural heritage objects	Neutral		
Access		A.10b			Techniques to support the identification of fakes or stolen artefacts, as well as the related data bases, with special reference to the insurance issues	Development of adequate techniques and databases.	Collaborative research; knowledge exchange	Art market better controlled	protected against fraud	Reduced cost of insurance of cultural heritage objects	Neutral		

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			A.17	Mediated cultural heritage	People as cultural heritage users and producers. Understanding how people appropriate cultural hertiage, how they are motivated for the appropriation and how they coproduce in a cross over learning context.	Develop understanding of learning processes and motivation factors in a cross media cultural heritage context.								5
Interpretation		l.1		Cultural interpretations of heritage	Understanding factors that shape our understanding of cultural heritage	Determining how local communities and tourists shape the questions asked about cultural heritage.		Collaborative and transdisciplinary approach; enduser involvement; participatory research						
Interpretation		1.2		Wisdom of the crowd, social tagging	Value proposition of social tagging	Better understanding of the knowledge of the crowd: automated decision of trustworthiness.	Provenance, dating, authentication, meaning; stories, context; legibility	Augmented interfaces	Added value of cultural heritage	involvement of	More objects will be described with less effort	Neutral		
Interpretation		1.6		Reference collections	Development and characterisation of reference heritage and art material libraries, systems for their cataloguing and	Development of databases.	Provenance	Collaborative research, knowledge transfer	Improved interpretation: dating, provenance determination, authentication	Improved understanding of heritage	Development of databases for commercial use	Neutral		
Interpretation		1.11		Historic integrity and modern use of built heritage and cultural landscapes		and intention of the								
Interpretation		I.13		Interdisciplinary approaches to cultural heritage	Developing an interdisciplinary approach to understanding cultural heritage	Development of research frameworks or methodologies that draw on a range of evidence on		Collaborative research, knowledge transfer, perception research	Better informed research.	Research that takes into account all aspects of	increase of innovation; better value for money	environmental impact of research is not repeated		

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Protection		P.2		Energy efficiency of historic buildings	Strategies for improving the energy efficiency of indoor environments.	Development of economic, energy-efficient and user- friendly systems for indoor environments.	Transport, extreme events, maintenance, conservation, energy efficiency		Improved image of cultural heritage; involvement of cultural heritage field in to national plans towards EC directives; Increased sustainability of cultural heritage.	from resale of CO2 allowances; raising awareness of the standards	energy	Reduction of energy consumption; lower carbon footprint		
Interpretation		I.11		Historic integrity and modern use of built heritage and cultural landscapes	Balance between historic integrity and modern use of buildings, cultural landscape, including tourism and lifestyles	Improving our understanding of the origin and intention of the architects/planners and determining the effectiveness of modern application of traditional uses to cultural heritage.								
Interpretation		I.13		Interdisciplinary approaches to cultural heritage	Developing an interdisciplinary approach to understanding cultural heritage	Development of research frameworks or methodologies that draw on a range of evidence on		Interdisciplinary approaches, collaborative research, knowledge transfer, perception research	, Better informed research.		increase of innovation; better value for money	environmental impact of research is not repeated		
Interpretation			I.14	Policy and identity	are narratives of cultural heritage constructed on	Development of theories and concepts addressing the interaction between practices of management		Interdisciplinary approaches, collaborative research, knowledge transfer, perception research	,					1
Protection		P.2		Energy efficiency of historic buildings	Strategies for improving the energy efficiency of indoor environments.	Development of economic, energy-efficient and user- friendly systems for indoor environments.	Transport, extreme events, maintenance, conservation, energy efficiency		involvement of cultural heritage field in to national plans towards EC directives; Increased sustainability of cultural heritage.	from resale of CO2 allowances; raising awareness of the standards	energy requirementscos t of historic buildings and stimulation of	Reduction of energy consumption; lower carbon footprint		
Protection		P.6		Industrial heritage		Development of strategies towards protection of industrial heritage.		The state of the s	value of this heritage	undervalued heritage;	Revitalized degraded city areas; job creation in degraded areas	Reduced CO2 emission due to increased lifetime of buildings and structures		

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Protection		P.7		Built heritage	Stabilisation of historic structures endangered by adverse changes in hydrogeological conditions in the ground	Development of technologies for stabilising.			Preparedness to impact of global climate change	buildings and	industry	Reduced CO2 emission due to increased lifetime of buildings and structures		
Protection		P.8		Landscape heritage	landscape and heritage	Development of strategies towards conservation of cultural heritage; new forms of governance.				_	Revitalized degraded areas; job creation	Preserve physical condition of landscapes		
		P.15a		Climate change mitigation and adaptation	Development of decision- making tools for a climate- proof heritage, including extremely-long-term monitoring solutions	Development of models and concepts.	Climate		Optimisation of the use of resources, development of new products	Improved access to heritage	Development of new services and products	Neutral		
		P.15b			Understanding of rebound effects ('unintended consequences') of climate change mitigation and adaptation strategies		Climate							
Recognition		R.1a		Cultural Heritage ethics and identity		Raising awareness of/proficiency in digital possibilities (ranging from understanding processes to actual coding).	Tourism, Exploitation function, energy efficiency	Sharing expertise and best practice in Centres of Competence	How does the use of cultural heritage contribute to identity	Increased knowledge of the role of cultural heritage in society; increased wellbeing	New opportunities for the use of cultural heritage in commercial settings (e.g. creative industries)	Neutral		12
Recognition		R.1b			How does the use of cultural heritage (material and immaterial) contribute to identity at a personal, national, European, and/or global level?	the wellbeing of a community, including			How does the use of cultural heritage contribute to identity	society; increased	the use of cultural heritage	Neutral		4
Recognition		R.3		Value of Cultural Heritage	Changing values/meanings of physical heritage in a digital world	Development of an approach/methodology/ne w theoretical and economical concepts.		Interdisciplinary research, evaluation tools, theoretical prepositions	Renewing value of physical heritage	Better understanding of the role of cultural heritage		Neutral		2

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Recognition		R.5		Rights and responsibilities around cultural heritage	Individual rights, collective responsibilities and the balances between public and private domain	Insights in the attitude to cultural heritage by different stakeholders.		Collaborative research; participatory and transdisciplinary research; perception research	managing cultural heritage field  Raising awareness of the value of cultural heritage and the responsibilities of individuals and society	Enlarge the public support and consciousness for cultural heritage	Increasing employment and visitors	Neutral		
Recognition		R.6a		Understanding values	Systematic research into value systems, including economic values and increased quality of life	Development of models, new theoretical concepts and understanding of of non- financial benefits of cultural heritage.	Values	Collaborative research; knowledge exchange; participatory and transdisciplinary research; end user involvement	Increased recognition of heritage	Understanding societal benefits	Increase/decrease in visitors; better understanding of and hence investment in cultural heritage.	Neutral		
Recognition		R.6b	R.8	Heritage scales, synergies and dissonances	· ·	Development of models.  Comparative studies of the intersection of specific	Values	Knowledge exchange; participatory research	Increased recognition of heritage science	Understanding societal benefits	Increase/decreas e in visitors	Neutral		7
					(e.g. regional, national, European, global) intersect, overlap and/or clash, and how this tranlates into practice relating to heritage sites, problematics and	heritage sites and issues								
Change		C.4		Climate change	Understanding of the effects of climate change on cultural landscapes, built, archaeological, coastal, submerged heritage	Development of models and concepts.	Climate	Collaborative research	Optimisation of future management in a changed climate	Improved access to heritage	Better use of resources	Neutral		6