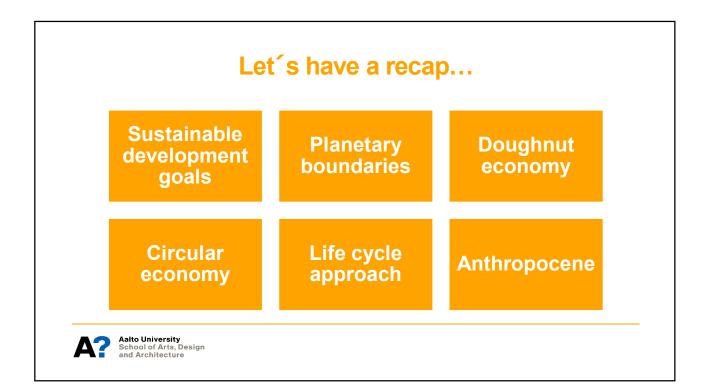


## ARK-C3020 What we talk about, when we talk about sustainability?

14.9.2022 Prof. Matti Kuittinen

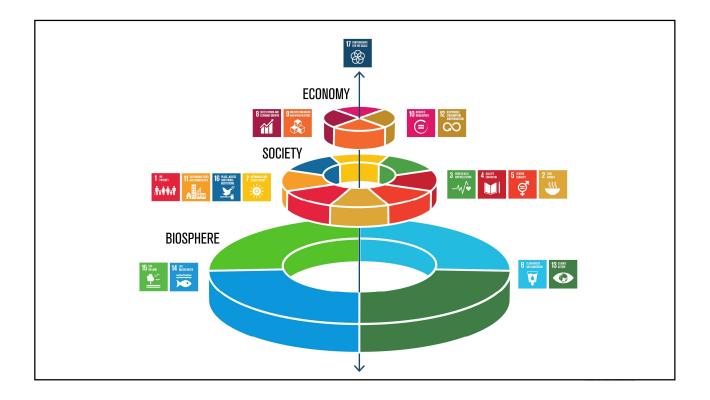


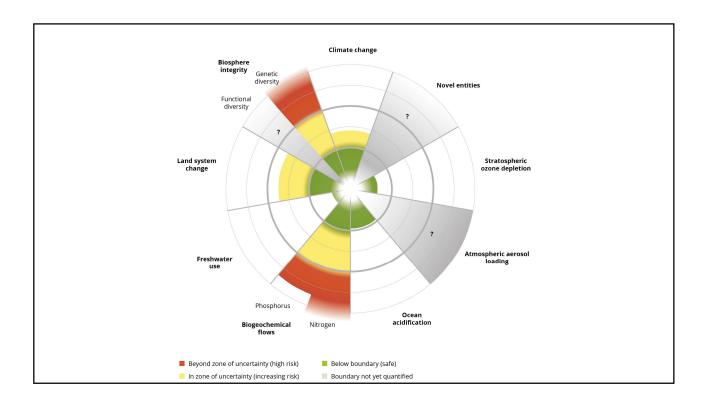


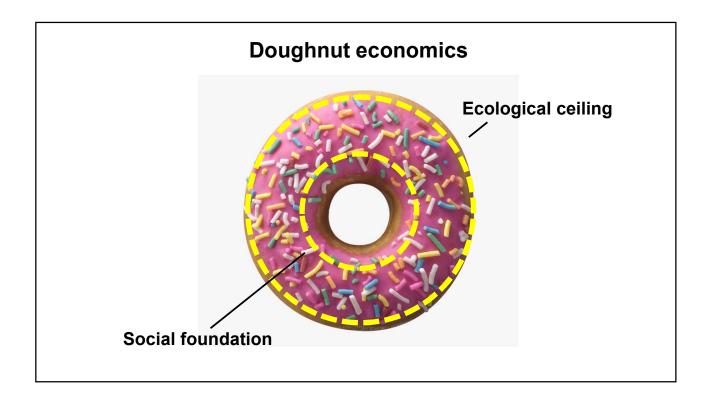


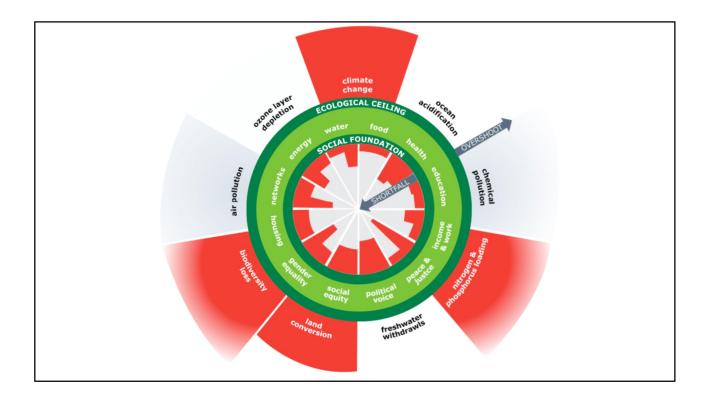
Silvicultura Oeconomica 1713



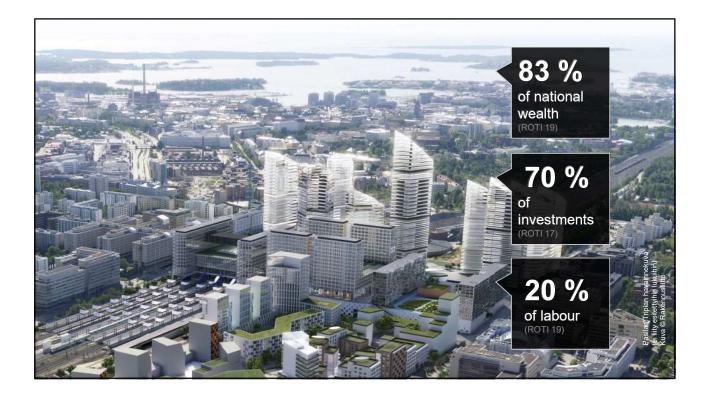










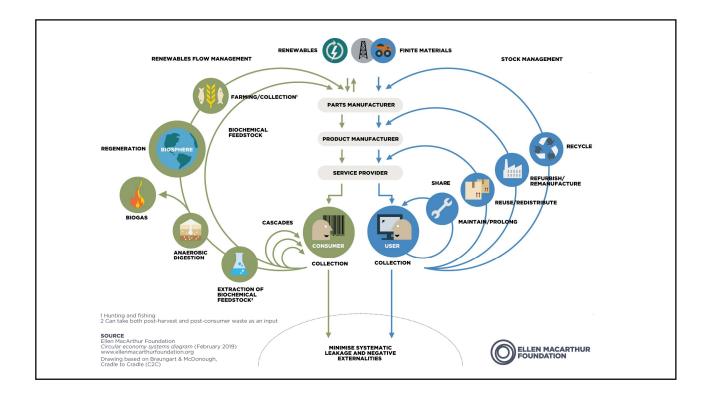


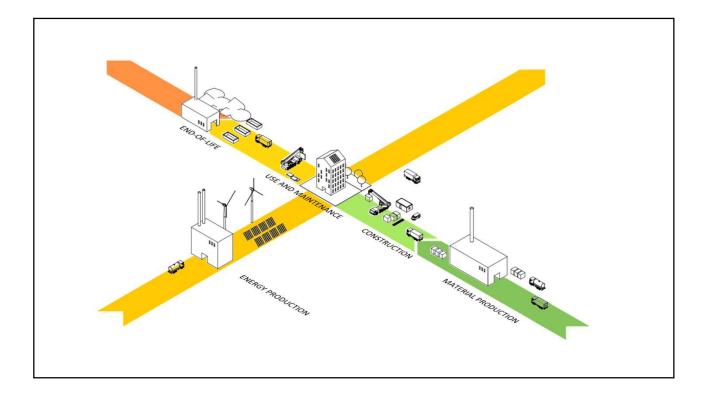
The value of products and materials is maintained for as long as possible

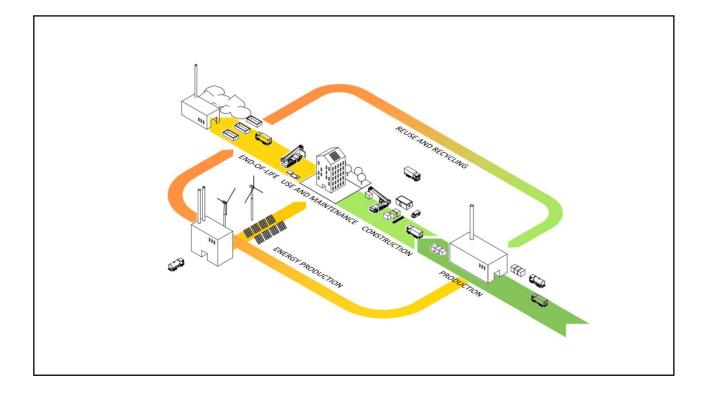
## **Circular economy**

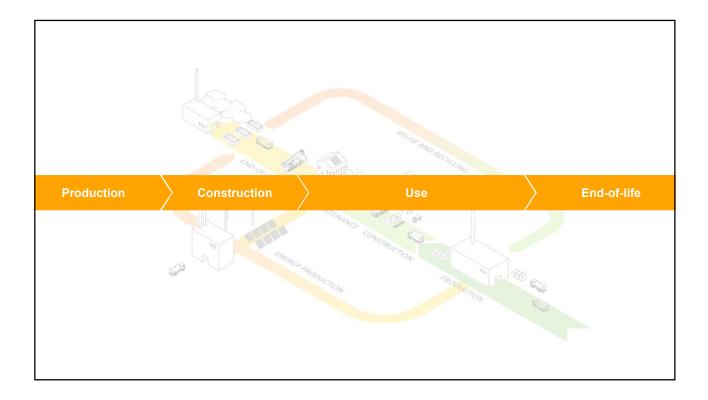
Waste and resource use are minimised, and when a product reaches the end of its life, it is used again to create further value

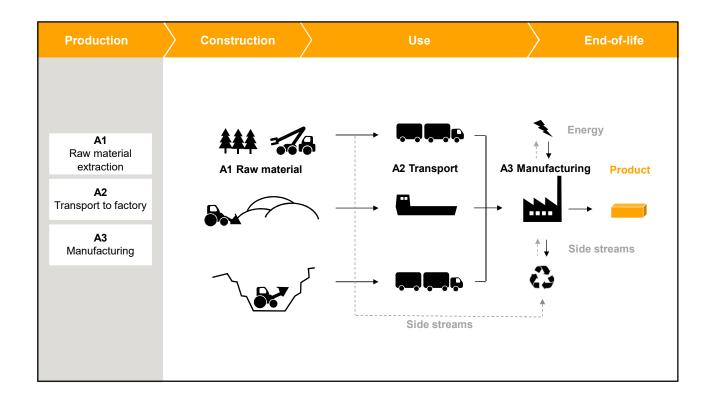
(European Commission)

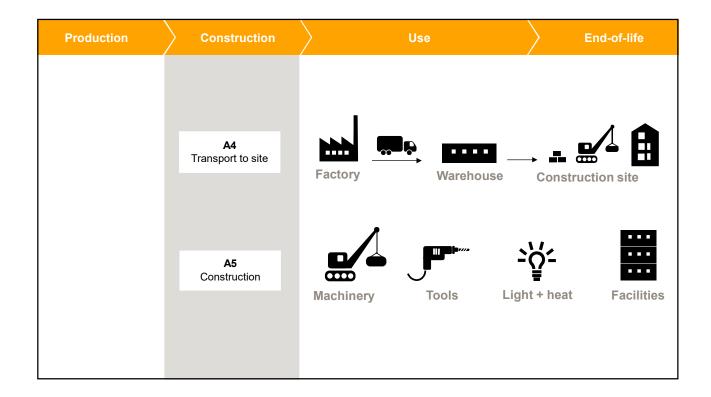


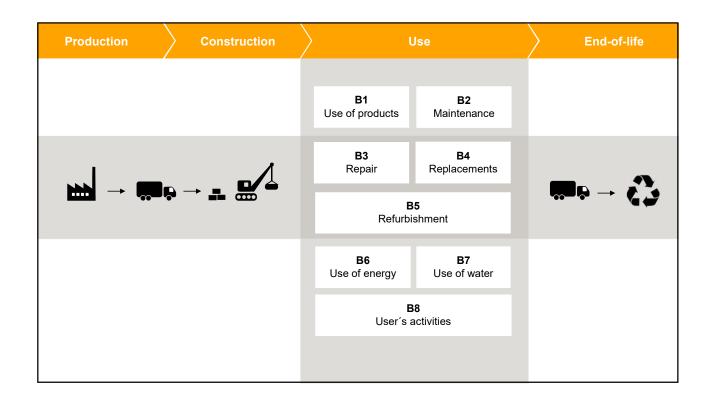


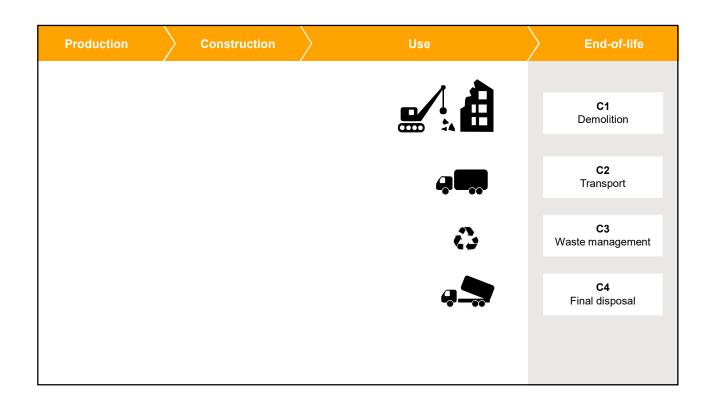


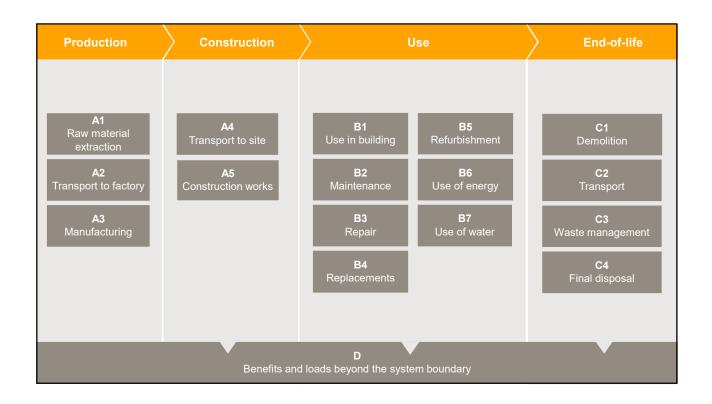




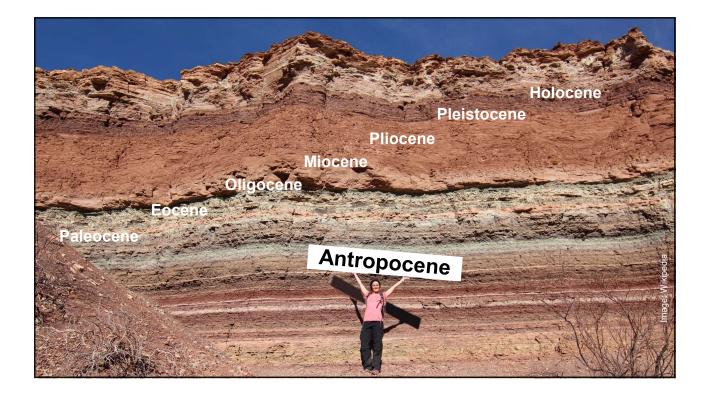


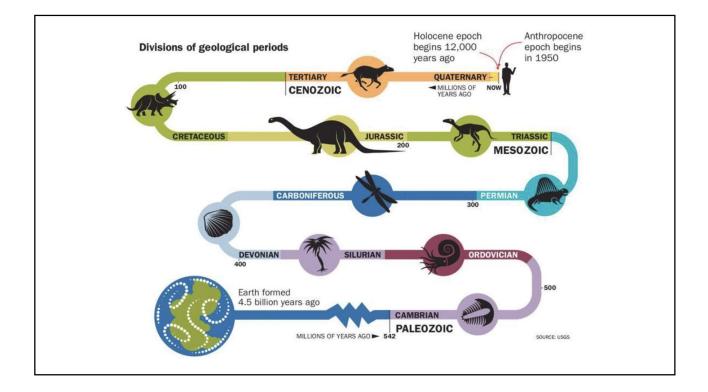




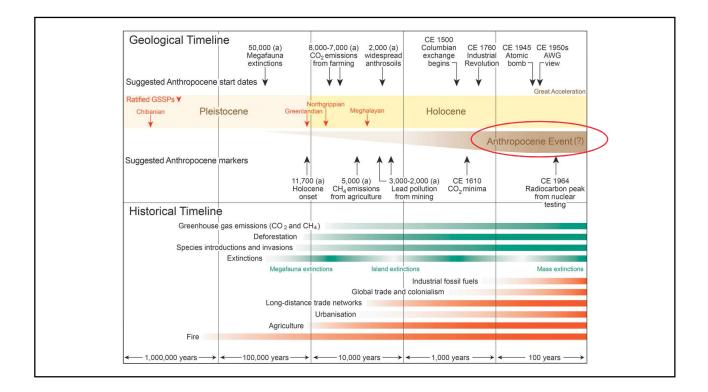


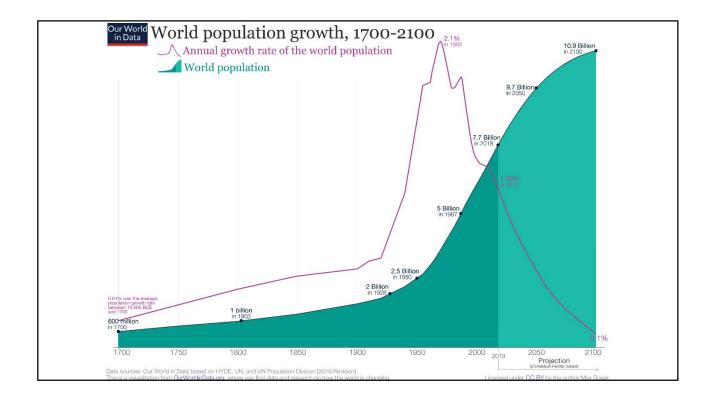
ISO 1 Environmental management – Life cycle		
ISO 1 Environmental management – Life cycle as		
Sustainability of buildings	Environmental Product Declarations for building products   ISO 21930 Sustainability in building construction – Environmental declarations of building products   EN 15084 Environmental product declarations – Core rules for product category of building products	
ISO 21929 Sustainability in building construction – Sustainability indicators		
ISO 21931 Sustainability in building construction – Framework for methods of assessment for environmental performance of construction works		
EN 15643-1 Assessment of buildings - General framework		
EN 15978 Assessment of environmental performance of	Product Category Rules	
buildings - Calculation method	<b>EN 16485</b> Environmental product declarations - Product category rules for wood and wood-based products for use in construction	
Carbon footprint		
ISO 14067 Carbon footprint of products	<b>EN 16757</b> Sustainability of construction works. Environmental product declarations. Product Category Rules for concrete and concrete elements	
EN 16449 Calculation of sequestration of atmospheric carbon dioxide		

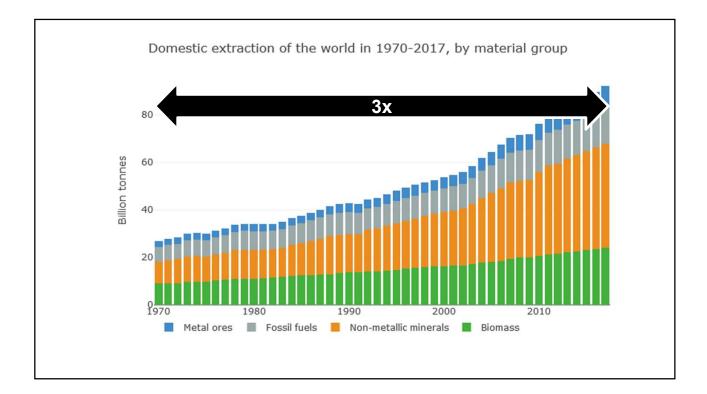




	-			251.9		Mass extinction	zonoma orogeny (vv)
			Permian (P)		sr		Supercontinent Pangaea intact
			Pennsylvanian (PN)	- 298.9 - 323.2	Age of Amphibians	Coal-forming swamps Sharks abundant First reptiles	Ouachita Orogeny (S) Alleghany (Appalachian) Orogeny (E)
		Paleozoic (PZ)	Mississippian (M)		Ar		Ancestral Rocky Mountains (W) Antler Orogeny (W)
			Devonian (D)	- 358.9 - 419.2	Fishes	Mass extinction First amphibians First forests (evergreens)	Acadian Orogeny (E-NE)
		Pa	Silurian (S)	TISIE	ш	First land plants	
			Ordovician (O)	443.8	ie rates	Mass extinction Primitive fish Trilobite maximum	Taconic Orogeny (E-NE)
			Cambrian (C)	- 485.4	Marine nvertebrates	Rise of corals Early shelled organisms	Extensive oceans cover most of proto-North America (Laurentia)
				541.0		Complex multicelled organisms	Supercontinent rifted apart
	Proterozoic						Formation of early supercontinent Grenville Orogeny (E)
rote					Simple multicelled organisms		First iron deposits
	<u>ц</u>	Precambrian (PC, W, X, Y, Z)		2500	500		Abundant carbonate rocks
	Archean			4000		Early bacteria and algae (stromatolites)	Oldest known Earth rocks
	Hadean					Origin of life	Formation of Earth's crust
				- 4600		Formation of the Earth	

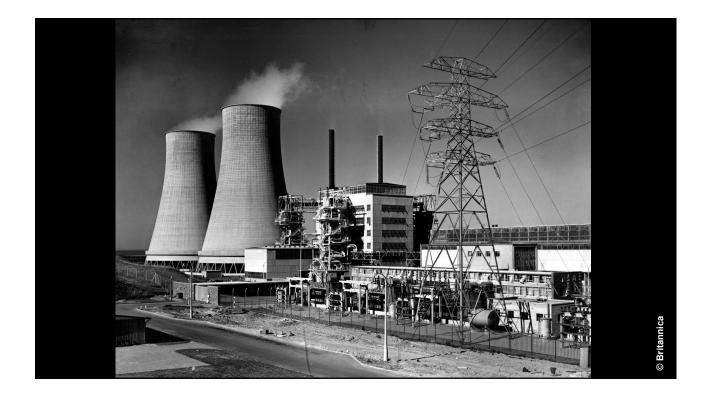


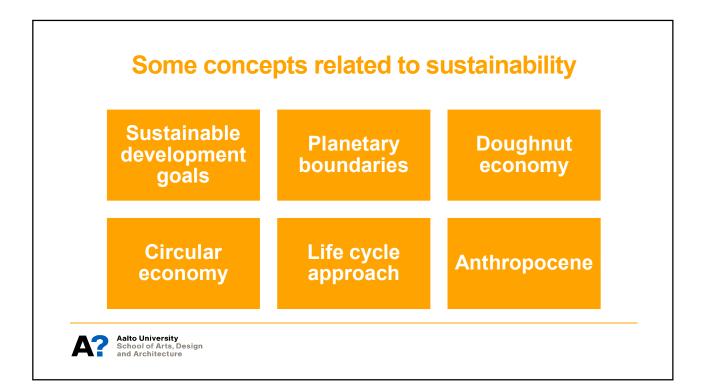












**Reflect in groups:** Which aspects of sustainability do you consider most important? Why?

