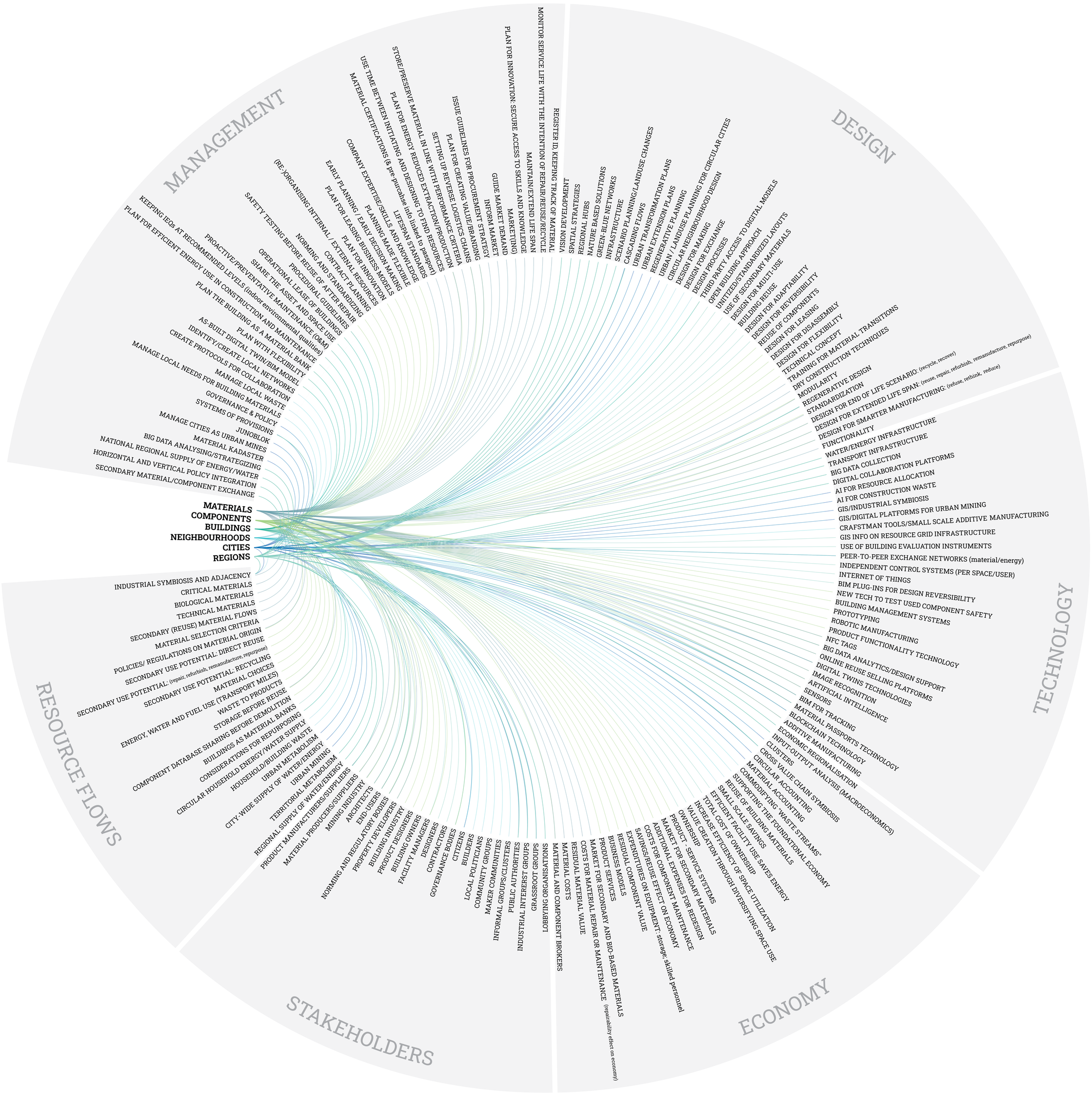
The ‘Scales to Aspects’ Analytical Diagram



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MAINTAIN/EXTEND LIFE SPAN
PLAN FOR INNOVATION: SECURE ACCESS TO SKILLS AND KNOWLEDGE
GUIDE MARKET DEMAND
INFORM MARKET
MARKET(ING)
ISSUE GUIDELINES FOR PROCUREMENT STRATEGY
PLAN FOR CREATING VALUE/BRANDING
SETTING UP REVERSE LOGISTICS CHAINS
STORE/PRESERVE MATERIAL IN LINE WITH PERFORMANCE CRITERIA
PLAN FOR ENERGY REDUCED EXTRACTION/PRODUCTION
USE TIME BETWEEN INITIATING AND DESIGNING TO FIND RESOURCES
MATERIAL CERTIFICATIONS (& pre-purcahse info linked to passport)
LIFESPAN STANDARDS
COMPANY EXPERTISE/SKILLS AND KNOWLEDGE
PLANNING / EARLY DECISION MAKING
EARLY PLANNING / EARLY BUSINESS MODELS
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PLAN FOR INNOVATION
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SAFETY TESTING BEFORE REUSE OF AFTER REPAIR
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PLAN FOR EFFICIENT ENERGY USE IN CONSTRUCTION AND MAINTENANCE
PLAN THE BUILDING AS A MATERIAL BANK
PLAN WITH FLEXIBILITY
AS-BUILT DIGITAL TWIN/BIM MODEL
IDENTIFY/CREATE LOCAL NETWORKS
CREATE PROTOCOLS FOR COLLABORATION
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MANAGE LOCAL NEEDS FOR BUILDING MATERIALS
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MANAGE CITIES AS URBAN MINES
MATERIAL KADASTER
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DESIGN FOR SMARTER MANUFACTURING: (refuse, rethink, reduce)
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TECHNOLOGY
WATER/ENERGY INFRASTRUCTURE
TRANSPORT INFRASTRUCTURE
BIG DATA COLLECTION
DIGITAL COLLABORATION PLATFORMS
AI FOR RESOURCE ALLOCATION
AI FOR CONSTRUCTION WASTE
GIS/INDUSTRIAL SYMBIOSIS
GIS/DIGITAL PLATFORMS FOR URBAN MINING
CRAFTSMAN TOOLS/SMALL SCALE ADDITIVE MANUFACTURING
GIS INFO ON RESOURCE GRID INFRASTRUCTURE
USE OF BUILDING EVALUATION INSTRUMENTS
PEER-TO-PEER EXCHANGE NETWORKS (material/energy)
INDEPENDENT CONTROL SYSTEMS (PER SPACE/USER)
INTERNET OF THINGS
BIM PLUG-INS FOR DESIGN REVERSIBILITY
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PROTOTYPING
ROBOTIC MANUFACTURING
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NFC TAGS
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ONLINE REUSE SELLING PLATFORMS
DIGITAL TWINS TECHNOLOGIES
IMAGE RECOGNITION
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SENSORS
BIM FOR TRACKING
MATERIAL PASSPORTS TECHNOLOGY
BLOCKCHAIN TECHNOLOGY
ECONOMY
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GROSS VALUE CHAIN SYMBIOSIS
CIRCULAR ACCOUNTING
MATERIAL ACCOUNTING
COMMODIFYING "WASTE STREAMS"
SUPPORTING THE FOUNDATIONAL ECONOMY
REUSE OF BUILDING MATERIALS
SMALL SCALE SAVINGS
EFFICIENT FACILITY USE SAVES ENERGY
TOTAL COST OF OWNERSHIP
INCREASE EFFICIENCY OF SPACE UTILIZATION
VALUE CREATION THROUGH DIVERSIFYING SPACE USE
OWNERSHIP
PRODUCT - SERVICE SYSTEMS
MARKET FOR SECONDARY MATERIALS
ADDITIONAL EXPENSES FOR REDESIGN
COSTS FOR COMPONENT MAINTENANCE
SAVINGS/REUSE EFFECT ON ECONOMY
EXPENDITURES ON EQUIPMENT: storage, skilled personnel
RESIDUAL COMPONENT VALUE
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PRODUCT SERVICES
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MARKET FOR SECONDARY AND
MARKET FOR MATERIAL REPAIR OR MAINTENANCE (repairability effect on economy)
COSTS FOR MATERIAL VALUE
RESIDUAL MATERIAL VALUE
MATERIAL COSTS
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SECONDARY USE POTENTIAL: (repair, refurbish, remanufacture, repurpose)
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CRITICAL MATERIALS
INDUSTRIAL SYMBIOSIS AND ADJACENCY
RESOURCE FLOWS
REGIONS
NEIGHBOURHOODS
CITIES
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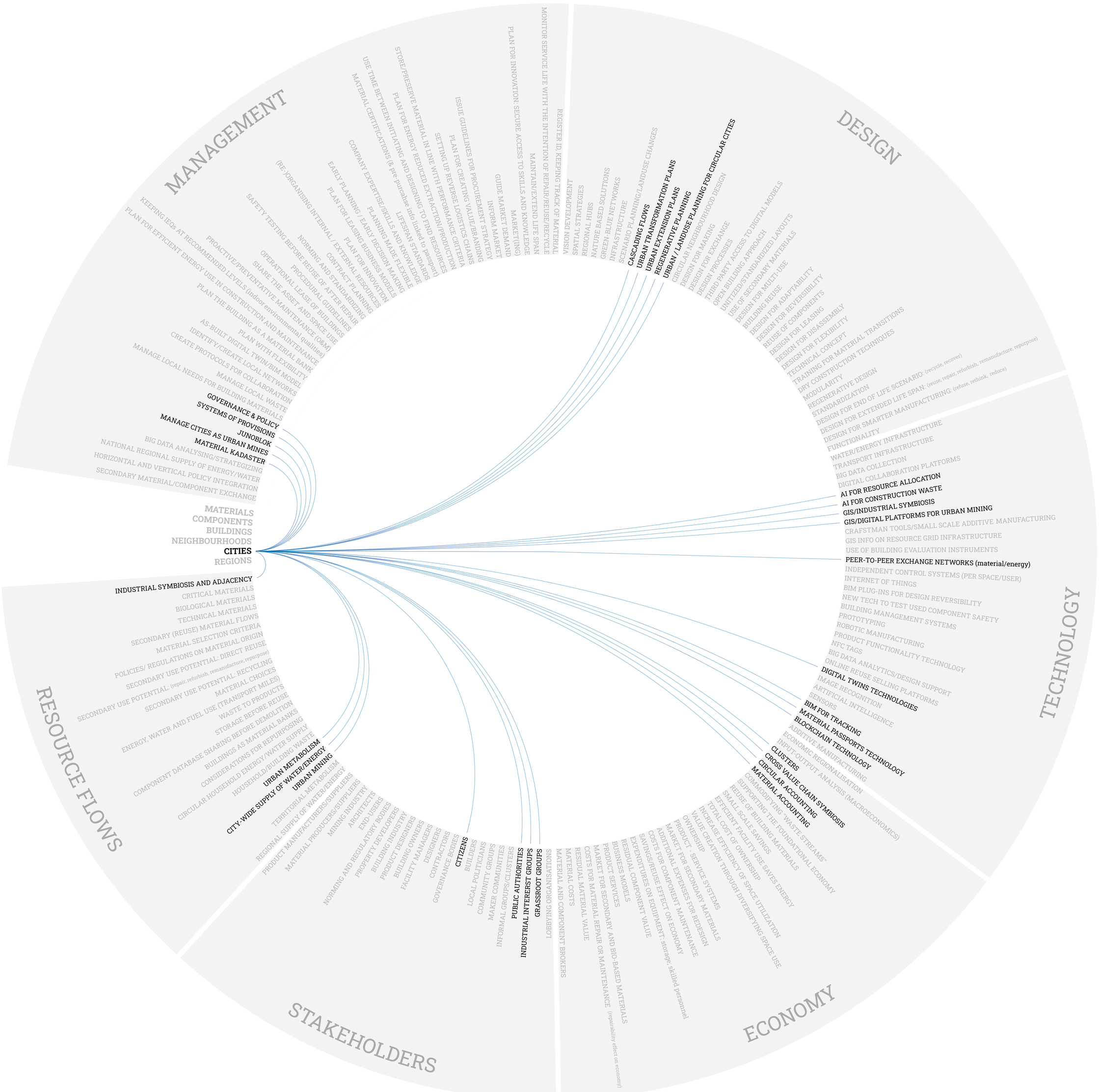
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