



Supplement of

Delineating the technosphere: definition, categorization, and characteristics

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Table S1. Motivating End-Use Technosphere classification (MEUTEC) category descriptions.

Level 1	Level 2	Description	Examples	Priority
Creation & maintenance of technosphere	Material extraction	Machinery, equipment and buildings for the extraction of materials from the biosphere, regosphere and lithosphere.	Chainsaws. Logging machines. Pickaxes. Mine infrastructure (not including for fossil fuels).	
	Material processing	Machinery and facilities to transform raw materials into generally usable forms, prior to manufacture.	Furnaces, smelters, chemical plants, pulp and paper plants, sawmills, steel foundries.	
	Creation & maintenance of artifacts	Machinery, tools, equipment and factories to aid in the creation and maintenance of artifacts	Screwdrivers. Looms. Lathes. Drills. Printing presses. Manufacturing plants. Industrial robots.	Priority over material extraction (e.g. saws). Priority over buildings and maintenance (e.g. hand tools).
	Construction & maintenance of buildings & infrastructure	Machinery, tools, equipment and factories to aid in the creation and maintenance of fixed structures.	Excavators. Bulldozers. Graders. Tampers. Cement mixers. Cranes. Fire trucks. Paving machines. Fire trucks.	Priority over material extraction (e.g. diggers)
Energy Provisioning	Energy extractors and converters	Energy carrier extraction, conversion and storage facilities.	Oil rigs. Coal mining machinery. Oil refineries. Power plants. Solar panels. Windmills. Nuclear power plants. Hydroelectric power plants.	Priority over material extraction
	Electricity transmission	Structures and devices to transmit electricity across the Earth surface.	Grid wires. Pylons and poles. Transfer stations. Transformers.	
Transportation	Surfaces	Artificial surfaces to facilitate walking and wheeled transport.	Roads. Railways. Parking lots. Sidewalks.	
	Storage & logistics	Specialized buildings, infrastructure and containers for loading/unloading and storage of cargo.	Warehouses. Forklifts. Shipping terminals. Shipping containers. Cardboard boxes. Non-food packaging.	
	Pipelines	Tubes for transporting fluids over long distances.	Oil and gas pipelines. Water pipelines.	
	Terrestrial Vehicles	Devices for transporting passengers and/or cargo on land.	Passenger cars and trucks. Buses. Transport trucks. Cargo vans. Motorcycles. Bicycles. Scooters. Saddlery.	
	Aquatic vessels	Ships and boats for transporting passengers and/or cargo in marine or freshwater.	Cargo ships. Ferries. Cruise ships. Tankers.	
	Aircraft	Flying devices for transporting passengers and/or cargo through the atmosphere, including to space.	Passenger airplanes. Helicopters.	

Level 1	Level 2	Description	Examples	Priority
Food provisioning	Food growth & collection	Machinery, buildings and infrastructure to assist in the growth and collection of food.	Tractors. Plows. Combine harvesters. Barns. Silos. Fertilizer synthesis facilities. Fishing vessels. Fishing gear.	
	Food processing & preservation	Machinery, buildings and packaging for transforming and preserving food.	Food packing plants. Refrigerators. Food packaging.	
	Food preparation	Equipment for final preparation of food immediately prior to consumption, usually carried out at home or in a restaurant.	Kitchen knives. Ovens. Pots and pans. Barbecues. Dishwashers. Dishes and tableware.	
Somatic maintenance	Hygiene and grooming	Devices for the regular cleaning, maintenance and decoration of human bodies.	Toothbrushes. Razors. Hair dryers and straighteners. Diapers. Toilet paper.	
	Health care	Devices, buildings and vehicles for addressing the biological functioning of humans and domestic animals.	Stethoscopes. Defibrillators. X-ray machines. Hospitals.	
Inhabited environment	Inhabited environment maintenance	Devices, machines for maintaining the order and cleanliness of textiles, surfaces and objects in the inhabited environment.	Brooms. Vacuum cleaners. Lawn mowers. Laundry machines.	
	Waste management	Facilities for transforming human excreta and technosphere wastes.	Sewage treatment. Incinerators. Recycling machinery.	
Information, organization and neural interaction	Information storage, processing and display	Artifacts that record and retain information in a persistent form, including those that transform information to generate novel outputs.	Paper ledgers, calculators, personal computers, smartphones.	Priority over exchange, deliberate neural restructuring and neural stimulus (e.g. smartphone).
	Information communications infrastructure	Persistent infrastructure that transports symbolic information across space, including integrated computational devices (e.g. routers, servers).	Telecommunications networks, including cables, routing stations and controls. Communications satellites.	Priority over exchange, deliberate neural restructuring and neural stimulus (e.g. internet infrastructure)
	Enforcement	Weapons, buildings and vehicles for the threat or enactment of physical violence against humans and/or technosphere destruction.	Guns. Tanks. Fighter jets. Warships. Attack helicopters. Troop transports.	
	Exchange	Tokens of exchange, facilities for storage and security.	Currency. Stamps. Locks. Vending machines.	
	Deliberate neural restructuring	Specialized for teaching, research, and religion.	Microscopes. Mass spectrometers. Religious symbols. Monuments.	

Level 1	Level 2	Description	Examples	Priority
	Neural stimulus	Used to produce desired experiences.	Film cameras. Musical instruments. Dice. Toys.	
	Active recreation	Items and facilities for recreation with elevated metabolic rates.	Skis. Soccer balls. Recreation facilities.	
Ambient context	Ambient structures	Buildings that provide habitable spaces for human residence and gathering, not functionally specialized.	Huts. Houses. Apartment buildings. Palaces. Office buildings.	
	Furnishings	Movable objects intended to make inhabited environments more comfortable for sitting or sleeping and/or more attractive.	Chairs. Tables. Bedsheets. Blankets. Pillows. Lamps.	
	Apparel	All clothing items, including for sports, uniforms, footwear, jewellery, and hats.	Shirts. Jackets. Pants. Gloves. Wigs. Necklaces.	
	Hydraulic control	Infrastructure for controlling the flow of water, surficial or subterranean, including accumulation in reservoirs.	Dams. Water supply pipes and sewer systems. Flood control. Water pumping. Canal walls and locks.	Priority over Food growth and collection (e.g. irrigation canals).

Table S2: MEUTEC applied to the Central Product Classification (CPC) version 2.1 (United Nations, 2015) . Services and component entities were removed.

code	CPC category	Level 1	Level 2
44422	Graders and levellers, self-propelled	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
44423	Scrapers, self-propelled	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
44424	Tamping machines and road rollers, self-propelled	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
44425	Front-end shovel loaders, self-propelled	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
49115	Crane lorries	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
49531	Railway or tramway maintenance or service vehicles, whether or not self-propelled	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
44426	Mechanical shovels, excavators and shovel loaders, self-propelled, with a 360-degree revolving superstructure, except front-end shovel loaders	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
48212	Rangefinders, theodolites and tachymeters (tacheometers) and levels	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
36950	Builders' ware of plastics n.e.c.	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
43923	Fire extinguishers; spray guns and similar appliances; steam or sand blasting machines and similar jet projecting machines; mechanical appliances for projecting, dispersing or spraying liquids or powders, except agricultural or horticultural appliances	Creation & maintenance of Technosphere	Construction & maintenance of buildings and infrastructure
44221	Machine-tools for working stone, ceramics, concrete, asbestos-cement or like mineral Materials or for cold working glass	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44222	Machine-tools for working wood, cork, bone, hard rubber, hard plastics or similar hard Materials; presses for the manufacture of particle board or fibre building board of wood or other ligneous Materials and other machinery for treating wood or cork	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44915	Machinery n.e.c. for working rubber or plastics or for the manufacture of products from these Materials	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
48233	Instruments for measuring length, for use in the hand (including measuring rods and tapes, micrometers and callipers) n.e.c.	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
32800	Composed type, prepared printing plates or cylinders, impressed lithographic stones or other impressed media for use in printing	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44211	Machine-tools for working any Materials by removal of Materials, by laser or other light or photon beam, ultra-sonic, electro-discharge, electro-chemical, electron beam, ionic beam or plasma arc processes, water-jet cutting machines	Creation & maintenance of Technosphere	Creation & maintenance of artifacts

code	CPC category	Level 1	Level 2
44212	Machining centres, unit construction machines (single station) and multi-station transfer machines, for working metal	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44213	Lathes for removing metal	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44214	Machine-tools for drilling, boring or milling metal	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44215	Machine-tools for threading or tapping by removing metal, except lathes and way-type unit head machines	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44217	Machine-tools for working metal by forging, hammering or die-stamping; machine-tools for working metal by bending, folding, straightening, flattening, shearing, punching or notching; other presses for working metal or metal carbides	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44218	Machine-tools n.e.c. for working metal, sintered metal carbides or cermets, without removing Materials	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44612	Weaving machines (looms)	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44613	Knitting machines, stitch-bonding machines, machines for making gimped yarn, tulle, lace, embroidery, trimmings, braid or net and machines for tufting	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44614	Auxiliary machinery for use with machines for textile extruding, preparing, spinning, weaving, knitting or the like	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44621	Sewing machines, except book sewing machines and household sewing machines	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44629	Other machinery for textile and apparel production n.e.c.	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44814	Household sewing machines	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44914	Bookbinding machinery; machinery for type-setting and the like; printing machinery and machines for uses ancillary to printing (except office type sheet-fed offset printing machinery)	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44918	Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44919	Special-purpose machinery n.e.c. (including machinery for isotopic separation, machines for assembling electric lamps in glass envelopes, machines for manufacturing glassware and rope making machines)	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
53269	Other constructions for manufacturing	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44216	Machine-tools for deburring, sharpening, grinding, honing, lapping, polishing or otherwise finishing metal, sintered metal carbides or cermets by means of grinding stones, abrasives or polishing products; machine-tools for planing, shaping, slotting, broaching, gear cutting, gear grinding or gear finishing, sawing, cutting-off and other machine-tools working by removing metal, sintered metal carbides or cermets n.e.c.	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44231	Tools for working in the hand, pneumatic, hydraulic or with self-contained non-electric motor	Creation & maintenance of Technosphere	Creation & maintenance of artifacts

code	CPC category	Level 1	Level 2
44232	Electromechanical tools for working in the hand, with self-contained electric motor	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44241	Electrical machinery and apparatus for soldering, brazing or welding; electric machines and apparatus for hot spraying of metals or sintered metal carbides	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44242	Non-electrical machinery and apparatus for soldering, brazing or welding; gas-operated surface tempering machines and appliances	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
48261	Microscopes (except optical microscopes) and diffraction apparatus	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44917	Stand-alone photocopiers, printers and facsimile machines	Creation & maintenance of Technosphere	Creation & maintenance of artifacts
44427	Mechanical shovels, excavators and shovel loaders, except front-end shovel loaders and machinery with a 360-degree revolving superstructure; moving, grading, levelling, scraping, excavating, tamping, compacting, extracting or boring machinery n.e.c., self-propelled, for earth, minerals or ores	Creation & maintenance of Technosphere	Material extraction
44440	Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering Materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand	Creation & maintenance of Technosphere	Material extraction
53261	Mining constructions	Creation & maintenance of Technosphere	Material extraction
43932	Machinery n.e.c. for the treatment of Materials by a process involving a change of temperature	Creation & maintenance of Technosphere	Material processing
43933	Calendering or other rolling machines, except for metals or glass	Creation & maintenance of Technosphere	Material processing
44310	Converters, ladles, ingot moulds and casting machines, of a kind used in metallurgy or in metal foundries; metal-rolling mills	Creation & maintenance of Technosphere	Material processing
44517	Machinery n.e.c. for processing tobacco	Creation & maintenance of Technosphere	Material processing
44611	Machines for extruding, drawing, texturing or cutting man-made textile Materials; machines for preparing textile fibres or producing textile yarns; textile reeling or winding machines and machines for preparing textile yarns for use on machines for weaving, knitting and the like	Creation & maintenance of Technosphere	Material processing
44912	Dryers for wood, paper pulp, paper or paperboard and for other Materials except agriculture products	Creation & maintenance of Technosphere	Material processing
44913	Machinery for making pulp of fibrous cellulosic Materials or for making or finishing paper or paperboard; machinery (except bookbinding machinery) for making up paper pulp, paper or paperboard	Creation & maintenance of Technosphere	Material processing
44916	Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (except ingot moulds), metal carbides, glass, mineral Materials, rubber or plastics	Creation & maintenance of Technosphere	Material processing

code	CPC category	Level 1	Level 2
43911	Producer gas or water gas generators; acetylene gas generators and similar water process gas generators; distilling or rectifying plant; heat exchange units; machinery for liquefying air or gas	Creation & maintenance of Technosphere	Material processing
53242	Long-distance communication and power lines (cables)	Energy	Electricity transmission
46121	Electrical transformers	Energy	Electricity transmission
44412	Coal or rock cutters and tunnelling machinery; other boring and sinking machinery	Energy	Energy extraction and converters
38998	Matches	Energy	Energy extraction and converters
42310	Nuclear reactors	Energy	Energy extraction and converters
42320	Steam or other vapour generating boilers (other than central heating hot water boilers capable also of producing low pressure steam); super-heated water boilers	Energy	Energy extraction and converters
42330	Auxiliary plant for use with boilers; condensers for steam or other vapour power units	Energy	Energy extraction and converters
46410	Primary cells and primary batteries	Energy	Energy extraction and converters
46420	Electric accumulators	Energy	Energy extraction and converters
53262	Power plants	Energy	Energy extraction and converters
41282	Casing, tubing and drill pipe, of a kind used in the drilling for oil or gas, seamless, of steel	Energy	Energy extraction and converters
41286	Casing and tubing, of a kind used in the drilling for oil or gas, welded, of steel	Energy	Energy extraction and converters
49320	Floating or submersible drilling or production platforms	Energy	Energy extraction and converters
27170	Parachutes	Transportation	Aircraft
49610	Balloons and dirigibles; gliders, hang gliders and other non-powered aircraft	Transportation	Aircraft
49621	Helicopters	Transportation	Aircraft
49622	Aeroplanes and other powered aircraft of an unladen weight not exceeding 2000 kg	Transportation	Aircraft
49623	Aeroplanes and other powered aircraft of an unladen weight exceeding 2000 kg	Transportation	Aircraft
49630	Spacecraft and spacecraft launch vehicles	Transportation	Aircraft
42998	Ships' propellers and blades therefor	Transportation	Aquatic Vessels
49311	Cruise ships, excursion boats and similar vessels, principally designed for the transport of persons; ferry boats of all kinds	Transportation	Aquatic Vessels
49312	Tankers (ships)	Transportation	Aquatic Vessels
49313	Refrigerator vessels (ships), except tankers	Transportation	Aquatic Vessels

code	CPC category	Level 1	Level 2
49314	Other vessels for the transport of goods and other vessels for the transport of both persons and goods	Transportation	Aquatic Vessels
49316	Tugs and pusher craft	Transportation	Aquatic Vessels
49319	Other vessels (including light-vessels, fire-floats, dredgers, floating cranes, floating docks, warships and lifeboats other than rowing boats), except floating or submersible drilling or production platforms	Transportation	Aquatic Vessels
49410	Sailboats (except inflatable), with or without auxiliary motor	Transportation	Aquatic Vessels
49490	Other vessels for pleasure or sports; rowing boats and canoes	Transportation	Aquatic Vessels
53241	Long-distance pipelines	Transportation	Pipelines
53251	Local pipelines	Transportation	Pipelines
31923	Manufactures of straw, of esparto or of other plaiting Materials; basketware and wickerwork	Transportation	Storage & logistics
48211	Direction finding compasses; other navigational instruments and appliances	Transportation	Storage & logistics
29220	Luggage, handbags and the like, of leather, composition leather, plastic sheeting, textile Materials, vulcanized fibre or paperboard; travel sets for personal toilet, sewing or shoe or clothes cleaning	Transportation	Storage & logistics
53232	Harbours, waterways and related facilities	Transportation	Storage & logistics
31700	Packing cases, boxes, crates, drums and similar packings, of wood; cable-drums of wood; pallets, box pallets and other load boards, of wood; casks, barrels, vats, tubs and other coopers' products and parts thereof, of wood (including staves)	Transportation	Storage & logistics
36410	Sacks and bags, of plastics	Transportation	Storage & logistics
36490	Other articles for the conveyance or packing of goods, of plastics; stoppers, lids, caps and other closures, of plastics	Transportation	Storage & logistics
37191	Bottles, jars, phials and other containers, of glass, of a kind used for the conveyance or packing of goods, except ampoules; stoppers, lids and other closures, of glass	Transportation	Storage & logistics
27150	Sacks and bags, of a kind used for the packing of goods	Transportation	Storage & logistics
27310	Twine, cordage, rope and cables	Transportation	Storage & logistics
32153	Cartons, boxes, cases, record sleeves and other packing containers (except bags) of paper, paperboard, cellulose wadding or webs of cellulose fibres; box files, letter trays, and similar articles, of paper or paperboard of a kind used in offices, shops or the like	Transportation	Storage & logistics
42210	Reservoirs, tanks, vats and similar containers (other than for compressed or liquefied gas), of iron, steel or aluminium, of a capacity exceeding 300 litres, not fitted with mechanical or thermal equipment	Transportation	Storage & logistics
42220	Containers for compressed or liquefied gas, of iron, steel or aluminium	Transportation	Storage & logistics

code	CPC category	Level 1	Level 2
42931	Tanks, casks, drums, cans, boxes and similar containers (other than for compressed or liquefied gas) of iron, steel or aluminium, of a capacity not exceeding 300 litres, not fitted with mechanical or thermal equipment	Transportation	Storage & logistics
42932	Stoppers, caps and lids (including crown corks), capsules for bottles, threaded bungs, bung covers, seals and other packing accessories, of base metal	Transportation	Storage & logistics
43510	Pulley tackle and hoists other than skip hoists; winches and capstans; jacks	Transportation	Storage & logistics
43520	Derricks; cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane	Transportation	Storage & logistics
43530	Fork-lift trucks; other works trucks whether or not fitted with lifting or handling equipment; tractors of the type used on railway station platforms	Transportation	Storage & logistics
43540	Lifts, skip hoists, escalators and moving walkways	Transportation	Storage & logistics
43550	Pneumatic and other continuous action elevators and conveyors, for goods or Materials	Transportation	Storage & logistics
43560	Other lifting, handling, loading or unloading machinery	Transportation	Storage & logistics
49221	Containers specially designed and equipped for carriage by one or more modes of transport	Transportation	Storage & logistics
53211	Highways (except elevated highways), streets and roads	Transportation	Surfaces
53212	Railways	Transportation	Surfaces
53213	Airfield runways	Transportation	Surfaces
53221	Bridges and elevated highways	Transportation	Surfaces
53222	Tunnels	Transportation	Surfaces
42110	Bridges, bridge sections, towers and lattice masts, of iron or steel	Transportation	Surfaces
38992	Baby carriages and parts thereof	Transportation	Vehicles
29210	Saddlery and harness, for any animal, of any Materials	Transportation	Vehicles
49111	Road tractors for semi-trailers	Transportation	Vehicles
49112	Public-transport type passenger motor vehicles	Transportation	Vehicles
49113	Motor cars and other motor vehicles principally designed for the transport of persons (except public-transport type vehicles, vehicles specially designed for travelling on snow, and golf cars and similar vehicles)	Transportation	Vehicles
49114	Motor vehicles n.e.c. for the transport of goods	Transportation	Vehicles
49116	Motor vehicles, for the transport of persons, specially designed for travelling on snow; golf cars and similar vehicles	Transportation	Vehicles
49119	Special-purpose motor vehicles n.e.c.	Transportation	Vehicles

code	CPC category	Level 1	Level 2
49229	Other trailers and semi-trailers (including trailers and semi-trailers for the transport of goods), except self-loading or self-unloading trailers or semi-trailers for agricultural purposes	Transportation	Vehicles
49511	Rail locomotives powered from an external source of electricity	Transportation	Vehicles
49512	Diesel-electric locomotives	Transportation	Vehicles
49519	Other rail locomotives; locomotive tenders	Transportation	Vehicles
49520	Self-propelled railway or tramway coaches, vans and trucks (except maintenance or service vehicles)	Transportation	Vehicles
49532	Railway or tramway passenger coaches, not self-propelled; luggage vans, post office coaches and other special-purpose railway or tramway coaches, not self-propelled (except maintenance or service vehicles)	Transportation	Vehicles
49533	Railway or tramway goods vans and wagons, not self-propelled	Transportation	Vehicles
49911	Motorcycles and cycles fitted with an auxiliary motor, with reciprocating internal combustion piston engine of a cylinder capacity not exceeding 50 cc	Transportation	Vehicles
49912	Motorcycles and cycles fitted with an auxiliary motor, with reciprocating internal combustion piston engine of a cylinder capacity exceeding 50 cc	Transportation	Vehicles
49913	Motorcycles and cycles fitted with an auxiliary motor, other than those with reciprocating internal combustion piston engines; side-cars	Transportation	Vehicles
49921	Bicycles and other cycles, not motorized	Transportation	Vehicles
49922	Invalid carriages	Transportation	Vehicles
49930	Vehicles n.e.c., not mechanically propelled	Transportation	Vehicles
44111	Ploughs	Food provisioning	Food growth & collection
44112	Harrows, scarifiers, cultivators, weeders and hoes	Food provisioning	Food growth & collection
44113	Seeders, planters and transplanters	Food provisioning	Food growth & collection
44114	Manure spreaders and fertilizer distributors	Food provisioning	Food growth & collection
44119	Other soil machinery, n.e.c.	Food provisioning	Food growth & collection
44122	Combine harvester / threshers	Food provisioning	Food growth & collection
44123	Other mowers, including cutter bars for tractor mounting	Food provisioning	Food growth & collection
44124	Other haymaking machinery	Food provisioning	Food growth & collection
44125	Straw or fodder balers, including pickup balers	Food provisioning	Food growth & collection
44126	Root or tuber harvesting machines	Food provisioning	Food growth & collection
44127	Machines for cleaning, sorting or grading eggs, fruits or other agricultural produce	Food provisioning	Food growth & collection
44129	Other harvesting and threshing machinery, n.e.c.; parts for harvesting, threshing and grading machinery	Food provisioning	Food growth & collection

code	CPC category	Level 1	Level 2
44131	Milking machines	Food provisioning	Food growth & collection
44141	Pedestrian controlled tractors	Food provisioning	Food growth & collection
44142	Track-laying tractors	Food provisioning	Food growth & collection
44149	Other agricultural tractors	Food provisioning	Food growth & collection
44150	Mechanical appliances for projecting, dispersing or spraying liquids or powders for agriculture or horticulture	Food provisioning	Food growth & collection
44160	Self-loading or self-unloading trailers and semi-trailers for agricultural purposes	Food provisioning	Food growth & collection
44192	Machinery for preparing animal feeding stuffs	Food provisioning	Food growth & collection
44193	Poultry incubators and brooders	Food provisioning	Food growth & collection
44194	Poultry-keeping machinery	Food provisioning	Food growth & collection
44198	Other agricultural machinery n.e.c.	Food provisioning	Food growth & collection
38450	Fishing rods and other line fishing tackle; fish landing nets, butterfly nets and similar nets; decoy "birds" and similar hunting or shooting requisites	Food provisioning	Food growth & collection
49315	Fishing vessels; factory ships and other vessels for processing or preserving fishery products	Food provisioning	Food growth & collection
31912	Tableware and kitchenware, of wood	Food provisioning	Food preparation
36940	Tableware, kitchenware, other household articles and toilet articles, of plastics	Food provisioning	Food preparation
42912	Table, kitchen or other household articles and parts thereof, of iron, steel, copper or aluminium; cooking or heating apparatus of a kind used for domestic purposes, non-electric, of copper; pot scourers and scouring or polishing pads, gloves and the like, of iron or steel, copper or aluminium; iron or steel wool; hand-operated mechanical appliances, weighing 10 kg or less, used in the preparation, conditioning or serving of food or drink	Food provisioning	Food preparation
42913	Knives (except for machines) and scissors, and blades therefor	Food provisioning	Food preparation
42916	Spoons, forks, ladles, skimmers, cake-servers, fish-knives, butter-knives, sugar tongs and similar kitchen or table ware	Food provisioning	Food preparation
43935	Dishwashing machines, except household type	Food provisioning	Food preparation
44515	Bakery ovens, non-electric; machinery for making hot drinks or for cooking or heating food, except domestic type machines	Food provisioning	Food preparation
44821	Cooking appliances and plate warmers, non-electric, domestic, of iron or steel	Food provisioning	Food preparation
44128	Machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables	Food provisioning	Food processing & preservation
44132	Dairy machinery	Food provisioning	Food processing & preservation
44811	Refrigerators and freezers, household type, electric or non-electric	Food provisioning	Food processing & preservation

code	CPC category	Level 1	Level 2
44191	Presses, crushers and similar machinery used in the manufacture of wine, cider, fruit juices or similar beverages	Food provisioning	Food processing & preservation
44513	Machinery used in the milling industry or for the working of cereals or dried leguminous vegetables other than farm-type machinery	Food provisioning	Food processing & preservation
44516	Machinery n.e.c. for the industrial preparation or manufacture of food or drink (including fats or oils)	Food provisioning	Food processing & preservation
44518	Dryers for agricultural products	Food provisioning	Food processing & preservation
43921	Machinery for cleaning or drying bottles or other containers; machinery for filling, closing, sealing, capsuling or labelling bottles, cans, boxes, bags or other containers; machinery for aerating beverages; other packing or wrapping machinery	Food provisioning	Food processing & preservation
28221	Men's or boys' suits, coats, jackets, trousers, shorts and the like, knitted or crocheted	Inhabited environment	Apparel
28222	Men's or boys' shirts, underpants, pyjamas, dressing gowns and similar articles, knitted or crocheted	Inhabited environment	Apparel
28223	Women's or girls' suits, coats, jackets, dresses, skirts, trousers, shorts and the like, knitted or crocheted	Inhabited environment	Apparel
28224	Women's or girls' blouses, shirts, petticoats, panties, nightdresses, dressing gowns and similar articles, knitted or crocheted	Inhabited environment	Apparel
28225	T-shirts, singlets and other vests, knitted or crocheted	Inhabited environment	Apparel
28226	Jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted	Inhabited environment	Apparel
28227	Babies' garments and clothing accessories, knitted or crocheted	Inhabited environment	Apparel
28228	Track suits, ski suits, swimwear and other garments, knitted or crocheted n.e.c.	Inhabited environment	Apparel
28229	Gloves, shawls, scarves, veils, ties, cravats and other made-up clothing accessories, knitted or crocheted; knitted or crocheted parts of garments or of clothing accessories	Inhabited environment	Apparel
28231	Men's or boys' suits, coats, jackets, trousers, shorts and the like, of textile fabric, not knitted or crocheted	Inhabited environment	Apparel
28232	Men's or boys' shirts, singlets, underpants, pyjamas, dressing gowns and similar articles, of textile fabric, not knitted or crocheted	Inhabited environment	Apparel
28233	Women's or girls' suits, coats, jackets, dresses, skirts, trousers, shorts and the like, of textile fabric, not knitted or crocheted	Inhabited environment	Apparel
28234	Women's or girls' blouses, shirts, singlets, petticoats, panties, nightdresses, dressing gowns and similar articles, of textile fabric, not knitted or crocheted	Inhabited environment	Apparel
28235	Babies' garments and clothing accessories, of textile fabric, not knitted or crocheted	Inhabited environment	Apparel
28236	Track suits, ski suits, swimwear and other garments, of textile fabric, not knitted or crocheted n.e.c.	Inhabited environment	Apparel

code	CPC category	Level 1	Level 2
28237	Brassieres, girdles, corsets, braces, suspenders, garters and similar articles and parts thereof, whether or not knitted or crocheted	Inhabited environment	Apparel
28238	Handkerchiefs, shawls, scarves, veils, ties, cravats, gloves and other made-up clothing accessories, of textile fabric, not knitted or crocheted; parts of garments or of clothing accessories, of textile fabric, not knitted or crocheted n.e.c.	Inhabited environment	Apparel
28241	Apparel of leather or of composition leather	Inhabited environment	Apparel
28242	Clothing accessories of leather or of composition leather, except sports gloves	Inhabited environment	Apparel
28243	Apparel and clothing accessories of plastics (incl. gloves)	Inhabited environment	Apparel
28250	Garments made up of felt or nonwovens; garments made up of textile fabrics impregnated or coated with plastics, rubber or other Materials	Inhabited environment	Apparel
28261	Hat-forms, hat bodies and hoods of felt; plateaux and manchons of felt; hat-shapes, plaited or made by assembling strips of any Materials	Inhabited environment	Apparel
28262	Hats and other headgear, of felt, or plaited or made by assembling strips of any Materials, or knitted or crocheted or made up from lace or other textile fabric in the piece; hair-nets	Inhabited environment	Apparel
28269	Other headgear except headgear of rubber or of plastics, safety headgear and asbestos headgear; head-bands, linings, covers, hat foundations, hat frames, peaks and chinstraps, for headgear	Inhabited environment	Apparel
28320	Articles of apparel, clothing accessories and other articles of furskin (except headgear)	Inhabited environment	Apparel
28330	Artificial fur and articles thereof (except headgear)	Inhabited environment	Apparel
29310	Waterproof footwear, with outer soles and uppers of rubber or plastics, other than footwear incorporating a protective metal toe-cap	Inhabited environment	Apparel
29320	Footwear with outer soles and uppers of rubber or plastics, other than waterproof footwear or sports footwear	Inhabited environment	Apparel
29330	Footwear with uppers of leather, other than sports footwear, footwear incorporating a protective metal toe-cap and miscellaneous special footwear	Inhabited environment	Apparel
29340	Footwear with uppers of textile Materials, other than sports footwear	Inhabited environment	Apparel
29410	Ski-boots, snowboard boots and cross-country ski footwear	Inhabited environment	Apparel
29420	Tennis shoes, basketball shoes, gym shoes, training shoes and the like	Inhabited environment	Apparel
29490	Other sports footwear, except skating boots	Inhabited environment	Apparel
29510	Footwear incorporating a protective metal toe-cap, except those covered in subclass 29320	Inhabited environment	Apparel
29520	Wooden footwear, miscellaneous special footwear and other footwear n.e.c.	Inhabited environment	Apparel

code	CPC category	Level 1	Level 2
29600	Parts of footwear; removable insoles, heel cushions and similar articles; gaiters, leggings and similar articles, and parts thereof	Inhabited environment	Apparel
36260	Articles of apparel and clothing accessories (including gloves) of vulcanized rubber other than hard rubber	Inhabited environment	Apparel
38240	Jewellery and other articles of precious metal or of metal clad with precious metal; articles of natural or cultured pearls or precious or semi-precious stones (natural, synthetic or reconstructed)	Inhabited environment	Apparel
38972	Human hair, dressed, thinned, bleached or otherwise worked; wool or other animal hair or other textile Materials, prepared for use in making wigs or the like; wigs, false beards, eyebrows and eyelashes, switches and the like, of human or animal hair or of textile Materials; articles of human hair n.e.c.	Inhabited environment	Apparel
38997	Imitation jewellery	Inhabited environment	Apparel
48312	Spectacles, goggles and the like, corrective, protective or other	Inhabited environment	Apparel
48313	Frames and mountings for spectacles, goggles or the like	Inhabited environment	Apparel
36971	Safety headgear	Inhabited environment	Apparel
36972	Other headgear of rubber or plastics	Inhabited environment	Apparel
28210	Panty hose, tights, stockings, socks and other hosiery, knitted or crocheted	Inhabited environment	Apparel
43912	Air-conditioning machines	Inhabited environment	Furnishing
44815	Fans and ventilating or recycling hoods of the domestic type	Inhabited environment	Furnishing
44822	Stoves, grates, braziers and similar non-electric domestic appliances (other than cooking appliances and plate warmers) of iron or steel	Inhabited environment	Furnishing
46539	Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)	Inhabited environment	Furnishing
31914	Wooden frames for paintings, photographs, mirrors or similar objects, and other articles of wood	Inhabited environment	Furnishing
44813	Electric blankets	Inhabited environment	Furnishing
32195	Textile wall coverings	Inhabited environment	Furnishing
37222	Statuettes and other ornamental ceramic articles	Inhabited environment	Furnishing
38111	Seats, primarily with metal frames	Inhabited environment	Furnishing
38112	Seats, primarily with wooden frames	Inhabited environment	Furnishing
38119	Other seats	Inhabited environment	Furnishing
38121	Other metal furniture, of a kind used in offices	Inhabited environment	Furnishing
38122	Other wooden furniture, of a kind used in offices	Inhabited environment	Furnishing
38130	Other wooden furniture, of a kind used in the kitchen	Inhabited environment	Furnishing
38140	Other furniture n.e.c.	Inhabited environment	Furnishing

code	CPC category	Level 1	Level 2
38150	Mattress supports; mattresses, fitted with springs or stuffed or internally fitted with any Materials or of cellular rubber or plastics, whether or not covered	Inhabited environment	Furnishing
38961	Paintings, drawings and pastels; original engravings, prints and lithographs; original sculptures and statuary, in any Materials	Inhabited environment	Furnishing
42996	Statuettes and other ornaments of base metal; photograph, picture or similar frames of base metal; mirrors of base metal	Inhabited environment	Furnishing
46532	Lighting sets of a kind used for Christmas trees	Inhabited environment	Furnishing
27110	Blankets and travelling rugs (except electric blankets)	Inhabited environment	Furnishing
27120	Bed linen, table linen, toilet linen and kitchen linen	Inhabited environment	Furnishing
27130	Curtains (including drapes) and interior blinds; curtain or bed valances	Inhabited environment	Furnishing
27140	Other furnishing articles n.e.c.; sets of woven fabric and yarn for making up into rugs, tapestries, embroidered table cloths or serviettes, or similar textile articles, put up in packings for retail sale	Inhabited environment	Furnishing
27180	Quilts, eiderdowns, cushions, pouffes, pillows, sleeping bags and the like, fitted with springs or stuffed or internally fitted with any Materials or of cellular rubber or plastics	Inhabited environment	Furnishing
43931	Fans, except domestic type; centrifuges, except cream separators and clothes dryers	Inhabited environment	Furnishing
42994	Paper trays, paper rests, pen trays, office-stamp stands and similar office or desk equipment, of base metal, other than office furniture	Inhabited environment	Furnishing
53234	Irrigation and flood control waterworks	Inhabited environment	Hydraulic control
53233	Dams	Inhabited environment	Hydraulic control
53231	Aqueducts and other water supply conduits, except pipelines	Inhabited environment	Hydraulic control
38993	Brooms, brushes, hand-operated mechanical floor sweepers (not motorized), mops and feather dusters; prepared knots and tufts for broom or brush making; paint pads and rollers; squeegees (other than roller squeegees)	Inhabited environment	Inhabited Environment maintenance
44121	Mowers for lawns, parks or sportsgrounds	Inhabited environment	Inhabited Environment maintenance
44622	Laundry-type washing machines, each of a dry linen capacity exceeding 10 kg; dry-cleaning machines; drying machines for textile fabrics or articles, each of a dry linen capacity exceeding 10 kg	Inhabited environment	Inhabited Environment maintenance
44911	Centrifugal clothes driers	Inhabited environment	Inhabited Environment maintenance
38701	Prefabricated buildings, of wood	Inhabited environment	Ambient structures
38702	Prefabricated buildings, of metal	Inhabited environment	Ambient structures
38703	Prefabricated buildings, of plastics	Inhabited environment	Ambient structures
38704	Prefabricated buildings, of concrete	Inhabited environment	Ambient structures

code	CPC category	Level 1	Level 2
49222	Trailers and semi-trailers of the caravan type, for housing or camping	Inhabited environment	Ambient structures
53111	One- and two-dwelling residential buildings	Inhabited environment	Ambient structures
53112	Multi-dwelling residential buildings	Inhabited environment	Ambient structures
53122	Commercial buildings	Inhabited environment	Ambient structures
53253	Sewage and water treatment plants	Inhabited environment	Waste management
38410	Snow-skis and other snow-ski equipment; ice-skates and roller-skates	Information, organization and neural	Active recreation
38420	Water-skis, surf-boards, sailboards and other water-sport equipment	Information, organization and neural	Active recreation
38430	Gymnasium or athletics articles and equipment	Information, organization and neural	Active recreation
38440	Other articles and equipment for sports or outdoor games	Information, organization and neural	Active recreation
53270	Outdoor sport and recreation facilities	Information, organization and neural	Active recreation
32210	Educational textbooks, in print	Information, organization and neural	Deliberate Neural Restructuring
32291	Professional, technical and scholarly books, in print	Information, organization and neural	Deliberate Neural Restructuring
32620	Trade advertising Materials, commercial catalogues and the like	Information, organization and neural	Deliberate Neural Restructuring
38996	Instruments, apparatus and models, designed for demonstrational purposes, unsuitable for other uses	Information, organization and neural	Deliberate Neural Restructuring
38963	Collections and collectors' pieces of zoological, botanical, mineralogical, anatomical, historical, ethnographic or numismatic interest; antiques	Information, organization and neural	Deliberate Neural Restructuring
47213	Television cameras	Information, organization and neural	Neural Stimulus
47214	Video camera recorders	Information, organization and neural	Neural Stimulus
47215	Digital cameras	Information, organization and neural	Neural Stimulus
47221	Line telephone sets with cordless handsets	Information, organization and neural	Neural Stimulus
47311	Radio broadcast receivers (except of a kind used in motor vehicles), whether or not combined with sound recording or reproducing apparatus or a clock	Information, organization and neural	Neural Stimulus
47312	Radio broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles	Information, organization and neural	Neural Stimulus
47313	Television receivers, whether or not combined with radio-broadcast receivers or sound or video recording or reproducing apparatus	Information, organization and neural	Neural Stimulus

code	CPC category	Level 1	Level 2
48322	Photographic (including cinematographic) cameras	Information, organization and neural	Neural Stimulus
48323	Cinematographic projectors	Information, organization and neural	Neural Stimulus
48329	Other photographic equipment	Information, organization and neural	Neural Stimulus
38581	Video game consoles	Information, organization and neural	Neural Stimulus
47330	Microphones and stands therefor; loudspeakers; headphones, earphones and combined microphone/speaker sets; audio-frequency electric amplifiers; electric sound amplifier sets	Information, organization and neural	Neural Stimulus
48341	Photographic plates and film and instant print film, sensitized, unexposed	Information, organization and neural	Neural Stimulus
84311	On-line books	Information, organization and neural	Neural Stimulus
84312	On-line newspapers and periodicals	Information, organization and neural	Neural Stimulus
84313	On-line directories and mailing lists	Information, organization and neural	Neural Stimulus
84321	Musical audio downloads	Information, organization and neural	Neural Stimulus
84322	Streamed audio content	Information, organization and neural	Neural Stimulus
84331	Films and other video downloads	Information, organization and neural	Neural Stimulus
84332	Streamed video content	Information, organization and neural	Neural Stimulus
84391	On-line games	Information, organization and neural	Neural Stimulus
84392	On-line software	Information, organization and neural	Neural Stimulus
84393	On-line adult content	Information, organization and neural	Neural Stimulus
84399	Other on-line content n.e.c.	Information, organization and neural	Neural Stimulus
32292	Children's books, in print	Information, organization and neural	Neural Stimulus
32299	Other books n.e.c., in print	Information, organization and neural	Neural Stimulus
32520	Music, printed or in manuscript	Information, organization and neural	Neural Stimulus
32530	Printed or illustrated postcards; printed cards bearing personal greetings or messages, with or without envelopes or trimmings	Information, organization and neural	Neural Stimulus
32540	Printed pictures, designs and photographs	Information, organization and neural	Neural Stimulus

code	CPC category	Level 1	Level 2
32630	Transfers (decalcomanias) and printed calendars	Information, organization and neural	Neural Stimulus
32690	Other printed matter	Information, organization and neural	Neural Stimulus
38582	Software cartridges for video game consoles	Information, organization and neural	Neural Stimulus
38941	Photographic plates, film, paper, paperboard and textiles, exposed but not developed	Information, organization and neural	Neural Stimulus
38942	Photographic plates and film, exposed and developed, other than cinematographic film	Information, organization and neural	Neural Stimulus
38950	Motion picture film, exposed and developed, whether or not incorporating sound track or consisting only of sound track	Information, organization and neural	Neural Stimulus
38310	Pianos and other keyboard stringed musical instruments	Information, organization and neural	Neural Stimulus
38320	Other string musical instruments	Information, organization and neural	Neural Stimulus
38330	Wind musical instruments (including pipe organs, accordians and brass-wind instruments)	Information, organization and neural	Neural Stimulus
38340	Musical instruments, the sound of which is produced, or must be amplified, electrically	Information, organization and neural	Neural Stimulus
38350	Other musical instruments (including percussion instruments, musical boxes and fairground organs); decoy calls; whistles, call horns and other mouth-blown sound signalling instruments	Information, organization and neural	Neural Stimulus
38360	Parts and accessories of musical instruments; metronomes, tuning forks and pitch pipes	Information, organization and neural	Neural Stimulus
38510	Dolls' carriages; wheeled toys designed to be ridden by children	Information, organization and neural	Neural Stimulus
38520	Dolls representing human beings; toys representing animals or non-human creatures	Information, organization and neural	Neural Stimulus
38540	Toy electric trains and tracks, signals and other accessories therefor; reduced-size ("scale") model assembly kits and other construction sets and constructional toys	Information, organization and neural	Neural Stimulus
38550	Puzzles	Information, organization and neural	Neural Stimulus
38560	Other toys (including toy musical instruments)	Information, organization and neural	Neural Stimulus
38570	Playing cards	Information, organization and neural	Neural Stimulus
38590	Other articles for funfair, table or parlour games (including articles for billiards, pintables, special tables for casino games and automatic bowling alley equipment), except video games of a kind used with a television receiver	Information, organization and neural	Neural Stimulus
38600	Roundabouts, swings, shooting galleries and other fairground amusements	Information, organization and neural	Neural Stimulus
38991	Festive, carnival or other entertainment articles, including conjuring tricks and novelty jokes	Information, organization and neural	Neural Stimulus

code	CPC category	Level 1	Level 2
47822	Computer game software, packaged	Information, organization and neural	Neural Stimulus
44710	Tanks and other armoured fighting vehicles, motorized, and parts thereof	Information, organization and neural	Enforcement
44720	Military weapons, other than revolvers, pistols and swords and the like	Information, organization and neural	Enforcement
44730	Revolvers, pistols, other firearms and similar devices; other arms	Information, organization and neural	Enforcement
44750	Swords, cutlasses, bayonets, lances and similar arms and parts thereof and scabbards and sheaths therefor	Information, organization and neural	Enforcement
42992	Padlocks and locks, of base metal; clasps and frames with clasps, incorporating locks, of base metal; keys and parts thereof, of base metal; base metal fittings for furniture, doors, saddlery and the like	Information, organization and neural	Exchange
45141	Accounting machines, cash registers, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device (except point-of-sale terminals, ATMs and similar machines)	Information, organization and neural	Exchange
32610	Unused postage, revenue or similar stamps; stamp-impressed paper; cheque forms; banknotes, stock, share or bond certificates and similar documents of title	Information, organization and neural	Exchange
38250	Coin	Information, organization and neural	Exchange
38962	Postage or revenue stamps, stamp-postmarks, first-day covers, postal stationery (stamped paper) and the like	Information, organization and neural	Exchange
43922	Weighing machinery (excluding balances of a sensitivity of 5 cg or better)	Information, organization and neural	Exchange
47910	Cards with a magnetic stripe	Information, organization and neural	Exchange
47920	"Smart cards"	Information, organization and neural	Exchange
45142	Point-of-sale terminals, ATMs and similar machines	Information, organization and neural	Exchange
48231	Balances with a sensitivity of 5 cg or better	Information, organization and neural	Exchange
42993	Armoured or reinforced safes, strong-boxes and doors and safe deposit lockers for strong-rooms, cash or deed boxes and the like, of base metal	Information, organization and neural	Exchange
43934	Automatic goods vending machines	Information, organization and neural	Exchange
48263	Gas, liquid or electricity supply or production meters	Information, organization and neural	Exchange
53252	Local cables and related works	Information, organization and neural	Information communications infrastructure

code	CPC category	Level 1	Level 2
48244	Instruments and apparatus (except cathode-ray oscilloscopes and oscillographs) for telecommunications	Information, organization and neural	Information communications infrastructure
32420	Business, professional or academic newspapers and periodicals, other than daily, in print	Information, organization and neural	Information storage, processing & display
47222	Telephones for cellular networks or for other wireless networks	Information, organization and neural	Information storage, processing & display
47692	Text-based disks, tapes or other physical media	Information, organization and neural	Information storage, processing & display
48410	Watches	Information, organization and neural	Information storage, processing & display
48420	Clocks	Information, organization and neural	Information storage, processing & display
48430	Time of day recording apparatus, apparatus for measuring, recording or otherwise indicating intervals of time, and time switches, with clock or watch movement or with synchronous motor	Information, organization and neural	Information storage, processing & display
45130	Electronic calculators and pocket-size data recording, reproducing and displaying machines with calculating functions	Information, organization and neural	Information storage, processing & display
45220	Portable automatic data processing machines weighing not more than 10 kg, such as laptops, notebooks and sub-notebooks	Information, organization and neural	Information storage, processing & display
45230	Automatic data processing machines, comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined	Information, organization and neural	Information storage, processing & display
45240	Automatic data processing machines presented in the form of systems	Information, organization and neural	Information storage, processing & display
45250	Other automatic data processing machines whether or not containing in the same housing one or two of the following types of units: storage units, input units, output units	Information, organization and neural	Information storage, processing & display
47223	Other telephone sets and apparatus for transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)	Information, organization and neural	Information storage, processing & display
47811	Operating systems, packaged	Information, organization and neural	Information storage, processing & display
47812	Network software, packaged	Information, organization and neural	Information storage, processing & display
47813	Database management software, packaged	Information, organization and neural	Information storage, processing & display
47814	Development tools and programming languages software, packaged	Information, organization and neural	Information storage, processing & display
47821	General business productivity and home use applications, packaged	Information, organization and neural	Information storage, processing & display
47829	Other application software, packaged	Information, organization and neural	Information storage, processing & display
84341	System software downloads	Information, organization and neural	Information storage, processing & display

code	CPC category	Level 1	Level 2
84342	Application software downloads	Information, organization and neural	Information storage, processing & display
84394	Web search portal content	Information, organization and neural	Information storage, processing & display
45150	Office type sheet-fed offset printing machinery	Information, organization and neural	Information storage, processing & display
32220	General reference books, in print	Information, organization and neural	Information storage, processing & display
32230	Directories, in print	Information, organization and neural	Information storage, processing & display
32300	Newspapers and periodicals, daily, in print	Information, organization and neural	Information storage, processing & display
32410	General interest newspapers and periodicals, other than daily, in print	Information, organization and neural	Information storage, processing & display
32490	Other newspapers and periodicals, other than daily, in print	Information, organization and neural	Information storage, processing & display
32511	Maps and hydrographic or similar charts (including wall maps, topographical plans and maps for globes), printed, other than in book-form	Information, organization and neural	Information storage, processing & display
32512	Globes	Information, organization and neural	Information storage, processing & display
32700	Registers, account books, notebooks, letter pads, diaries and similar articles, blotting-pads, binders, file covers, forms and other articles of stationery, of paper or paperboard	Information, organization and neural	Information storage, processing & display
38911	Pens, duplicating stylos, pencils, pen-holders, pencil-holders and similar holders, and parts thereof; crayons, pencil leads, pastels, drawing charcoals and chalks	Information, organization and neural	Information storage, processing & display
38912	Date, sealing or numbering stamps, and the like, designed for operating in the hand; hand-operated composing sticks and hand printing sets incorporating such sticks; typewriter or similar ribbons, prepared for giving impressions; ink-pads	Information, organization and neural	Information storage, processing & display
32191	Carbon paper, self-copy paper and other copying or transfer papers, not in bulk sizes; duplicator stencils and offset plates, of paper	Information, organization and neural	Information storage, processing & display
48232	Drafting tables and machines, and other drawing, marking-out or mathematical calculating instruments	Information, organization and neural	Information storage, processing & display
48160	Mechano-therapy appliances; massage apparatus; psychological aptitude-testing apparatus; ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or other therapeutic respiration apparatus; other breathing appliances and gas masks (excluding protective masks having neither mechanical parts nor replaceable filters)	Somatic maintenance	Health care
48171	Orthopaedic appliances; splints and other fracture appliances; artificial parts of the body	Somatic maintenance	Health care
48172	Hearing aids and other appliances which are worn or carried, or implanted in the body, to compensate for a defect or disability	Somatic maintenance	Health care
35270	Other pharmaceutical products	Somatic maintenance	Health care

code	CPC category	Level 1	Level 2
48180	Medical, surgical, dental or veterinary furniture; barbers' chairs and similar chairs, having rotating as well as both reclining and elevating movements	Somatic maintenance	Health care
37195	Laboratory, hygienic or pharmaceutical glassware; ampoules of glass	Somatic maintenance	Health care
48140	Medical, surgical or laboratory sterilizers	Somatic maintenance	Health care
48241	Instruments and apparatus for measuring or detecting ionizing radiations	Somatic maintenance	Health care
48110	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations	Somatic maintenance	Health care
48121	Electro-diagnostic apparatus, used in medical, surgical, dental or veterinary sciences	Somatic maintenance	Health care
48122	Ultra-violet or infra-red ray apparatus, used in medical, surgical, dental or veterinary sciences	Somatic maintenance	Health care
48130	Other instruments and appliances (except syringes, needles and the like), used in dental sciences	Somatic maintenance	Health care
48150	Other instruments and appliances used in medical, surgical or veterinary sciences (including syringes, needles, catheters, cannulae, ophthalmic instruments and appliances n.e.c. and electro-medical apparatus n.e.c.)	Somatic maintenance	Health care
32193	Toilet paper, handkerchiefs, towels, serviettes, napkins for babies, tampons, and similar household, sanitary or hospital articles, and articles of apparel, of paper pulp, paper, cellulose wadding or webs of cellulose fibres	Somatic maintenance	Hygiene & grooming
32196	Sanitary towels (pads) and tampons, napkins and napkin liners for babies and similar articles, of any Materials	Somatic maintenance	Hygiene & grooming
36930	Baths, wash-basins, lavatory pans and covers, flushing cisterns and similar sanitary ware, of plastics	Somatic maintenance	Hygiene & grooming
42911	Sinks, wash-basins, baths and other sanitary ware and parts thereof, of iron, steel, copper or aluminium	Somatic maintenance	Hygiene & grooming
42914	Razors and razor blades (including razor blade blanks in strips)	Somatic maintenance	Hygiene & grooming

Table S3. Technosphere mass estimates by MEUTEC category, corresponding with Figure 3. See appendix for details. All numbers (other than the uncertainty range factor) are in Mt (10^{12} g).

Technosphere categories		Data sources						Estimates					
		MISO2		Wie24	Hab	Mat	Other	Non-fixed	Non-build-ings	Build-ings	Total	Uncer-tainty	
		non-fixed	total									Range factor	
Creation & maintenance of technosphere	Material extraction	420	420					420	420	6350	6770	5	
	Material processing	839	839					839	839	12700	13539	5	
	Creation & maintenance of artifacts	818	818			3867		2342	2342	38100	40442	3	
	Construction & maintenance buildings and infrastructure	1537	1537			1960		1749	1749	6350	8099	3	
Energy Provisioning	Energy extraction and converters	705	7979				8440	705	8210	3810	9145	4	
	Electricity transmission	0	2425				1676	0	2050	1270	3320	2	
Transportation	Surfaces	0	438930	314000		376908		0	376613	0	376613	2	
	Storage & logistics	1077	25325			948		1077	25325	31750	57075	3	
	Pipelines	0	2425			3000		0	2712	0	2712	3	
	Terrestrial Vehicles	3104	3104			4398		3104	4398	0	4398	2	
	Aquatic vessels	592	592			626		609	609	0	609	2	
	Aircraft	2	2			2		2	2	0	2	3	
	Food provisioning	Food growth & collection	0	0			625		625	625	10160	10785	5
Food provisioning	Food processing & preservation	398	398					398	398	6350	6748	5	
	Food preparation	264	264			236		250	250	9900	10150	3	
	Somatic maintenance	Hygiene and grooming	0	0			16		16	16	3300	3316	10
Somatic maintenance	Health care	157	157			73		157	115	3300	3415	5	
	Inhabited environment	Inhabited environment maintenance	399	399			473		436	436	0	436	3
Inhabited environment	Waste management	0	0					0	0	2540	2540	3	
	Information, organization & neural interaction	Information storage, processing and display	1302	1302			47		1302	1302	2540	3842	5
Information communications infrastructure		0	4850					0	4850	2540	7390	5	
Exchange		0	0			16		16	16	3300	3316	10	
Enforcement		0	7274			21		64	64	5840	5904	5	
Deliberate neural restructuring		150	150					150	150	6600	6750	5	
Information, organization & neural interaction	Neural stimulus	625	625					625	625	1650	2275	5	
	Active recreation	26	4876					26	4876	1650	6526	5	
	Ambient context	Ambient structures	0	289813		512000	246072	15000	0		364295	364295	2
		Furnishings	1317	1317			436		1347	1347	0	1347	3
		Apparel	73	73			389		389	389	0	389	5
Hydraulic control		0	63044					0	63044	0	63044	5	

Table S4. Concordance matrix for MISO2 to MEUTEC, excluding buildings. All numbers are fractions, other than sums which are in Mt.

MISO2			
End-use groups	End-use sectors	Description and examples	
			SUMS
Infrastructure	Roads	Road surfaces of highways (except elevated highways), streets, roads	312843
	Civil engineering except roads	Railways, airfield runways, bridges and elevated highways, tunnels, subways, water supply pipes, harbors, dams, flood control waterworks, power plant construction, outdoor sport and recreation facilities, local and long distance pipelines, local and long distance communication and power lines and so forth...	242475
Stationary Machinery	Machinery and equipment	Turbines, washing machinery; air conditioning; cranes; shovels, excavators and other construction machine; refrigerators, freezers; tools for pressing, stamping or punching; vacuum pumps, compressors, fans, blowers; rock drilling or earth boring tools; razors; sawing or cutting machines, bridge cranes; bulldozers and angledozers; milling machines; heat exchange units, printing machinery; diesel engines	4195
	Computers and precision instruments	Personal computers; monitors; optical devices, appliances and instruments; wrist watches; TV and radio; loudspeakers; headphones; other sound reproducing apparatus; television cameras; automatic data processing machines & units; photocopying apparatus; video cameras and recorders; instruments and apparatus for physical or chemical analysis; electronic calculators; lasers; accounting machines; burglar or fire alarms and similar apparatus;	419
	Electrical equipment	Electric motors, generators and transformers (AC/DC); lighting or visual signaling equipment; ovens; cookers; static/electronic converters; domestic vacuum cleaners; electric heaters; electric fences; domestic food grinders and mixers; fruit or vegetable juice extractor; Handheld drills; electrothermic coffee or tea maker; electric saws; electric shavers;	755
Transport Machinery	Motor vehicles trailers and semi-trailers	Automobiles including parts and accessories thereof; trucks including parts and accessories thereof; buses; tractors; snowmobiles; mobile cranes; fire fighting vehicles;	2786
	Other transport equipment	Cargo containers; cargo vessels; aircraft; tankers; motorcycles; bicycles and other cycles; trailers; rail locomotive; tanks; cruise ships; baby carriage and parts thereof; railway coaches and cars; helicopters; balloons; motorboats; wheelchairs; rowing boats; Fishing vessels and factory ships	1987
Short lived products	Furniture and other manufactured goods nec	Articles of bedding/furnishing; paintings and drawings; original sculptures and statuary; mattresses; instruments and appliances used in medical or veterinary sciences; furniture for domestic use or office; music instruments of all kinds; toys; sport equipment; umbrellas;	1568
	Printed matter and recorded media	Plans, maps & drawings; books, brochures, leaflets and similar printed matter; newspapers, journals and periodicals; advertising material; Pictures, designs and photographs; dictionaries and encyclopedias, and serial instalments thereof; music, printed or in manuscript	1501
	Food packaging	Packaging materials like cans, pouches and bags, bottles, jars, cardboard boxes, shrink wrap, cartons, pallets, stretch wrap	471
	Products nec	Textiles, medicaments, cigarettes, beauty and makeup products, sunscreen or suntan products; photo plates and films, printing ink, soap, glues	122

MISO2													
End-use groups	End-use sectors	Technosphere				Energy		Transportation					
		Extraction	Processing	Artifacts	Construction	Energy carriers and converters	Electricity transmission	Surfaces	Storage & logistics	Pipelines	Terrestrial vehicles	Aircraft	Aquatic vessels
		420	839	818	1537	7979	2425	438930	25325	2425	3104	2	592
Infrastructure	Roads							1					
	Civil engineering except roads					0.03	0.01	0.52	0.1	0.01			
Stationary Machinery	Machinery and equipment	0.1	0.2	0.15	0.3	0.15							
	Computers and precision instruments												
	Electrical equipment			0.25		0.1							
Transport Machinery	Motor vehicles trailers and semi-trailers				0.1						0.9		
	Other transport equipment								0.4		0.3	0.001	0.298
Short lived products	Furniture and other manufactured goods nec												
	Printed matter and recorded media												
	Food packaging								0.6				
	Products nec												

MISO2											
End-use groups	End-use sectors	Inhab- ited environ- ment	Food		Somatic	Information organization neural					
		Inhab Env	Proces- sing	Prepara- tion	Health care	InfoStora ge & Proces- sing	Info Comms	Force	Deliber- ate neural restruct- uring	Neural stimulus	Active recrea- tion
		399	398	264	157	1302	4850	7274	150	625	4876
Infrastructure	Roads										
	Civil engineering except roads						0.02	0.03			0.02
Stationary Machinery	Machinery and equipment	0.05	0.05								
	Computers and precision instruments					0.6				0.4	
	Electrical equipment	0.25		0.35							
Transport Machinery	Motor vehicles trailers and semi- trailers										
	Other transport equipment										0.001
Short lived products	Furniture and other manufactured goods nec				0.1					0.1	
	Printed matter and recorded media					0.7			0.1	0.2	
	Food packaging		0.4								
	Products nec										0.2

MISO2				
End-use groups	End-use sectors	Ambient		
		Furnishings	Apparel	Hydraulic
		1317	73	63044
Infrastructure	Roads			
	Civil engineering except roads			0.26
Stationary Machinery	Machinery and equipment			
	Computers and precision instruments			
	Electrical equipment	0.05		
Transport Machinery	Motor vehicles trailers and semi-trailers			
	Other transport equipment			
Short lived products	Furniture and other manufactured goods nec	0.8		
	Printed matter and recorded media			
	Food packaging			
	Products nec	0.2	0.6	