**ONTOCOMMONS BRIDGE-CONCEPT**

**COMMERCIAL PRODUCT**

**[Commercial Product CLUSTER]**

**General Concept Info:**

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| **IRI:** | *Suggested entity new IRI.* |
| **OWL Type:** | *Class* |
| **Concept Elucidation:** | A Commercial Product is something which is -or has been- explicitly offered on the market for purchase or barter. Commercial Products can consist in the outcome of some kind of practical and/or intellectual activity, or in the access to some benefits.  In the first scenario, the activity needn’t necessarily have been performed, directly, or indirectly, by the organization or individual offering the Commercial Product on the market, and the activity itself needn’t involve a transformation of the item which is then offered for purchase. In the second case, the benefit has to be made directly, or indirectly, available by the organization or individual offering the Commercial Product on the market, and the access to the relevant benefit can be temporary (be the duration predetermined or not) or permanent.  Commercial Products can either belong to the purchaser for an indefinite period of time after the completion of a transaction, or the transference of their ownership might not figure as a condition for the completion of the transaction. They can indifferently be either tangible or intangible, artefacts or not artefacts. Likewise, they can indifferently be e.g., raw materials, processed materials, goods, intellectual properties, services.  Domain: Economics - Business – Marketing |
| **Labels:** | *Labels used to address the concept, ordered as:*  *skos:prefLabel:* Commercial *Product*  *skos:altLabel: Product; Product (Economic)*  *skos:hiddenLabel: Good; Service; Article; Purchasable; Transactable Entity; Merchandise; Commodity; Ware* |

**Knowledge Domain Resources:**

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| **Related Domain Resources:** | *-Wikipedia:* “in marketing, a product is an object, or system, or service made available for consumer use as of the consumer demand; it is anything that can be offered to a market to satisfy the desire or need of a customer”; “In retailing, products are often referred to as merchandise, and in manufacturing, products are bought as raw materials and then sold as finished goods. A service is also regarded as a type of product”.  *-WordNet 3.1:* “commodities offered for sale”; “an artifact that has been created by someone or some process”.  -*WikiData:* “result of work that can be offered to a market” (Q2424752).  -*ISO 9000:* “output of an organization that can be produced without any transaction taking place between the organization and the customer”; “production of a product is achieved without any transaction necessarily taking place between provider and customer, but can often involve this service element upon its delivery to the customer”; “the dominant element of a product is that it is generally tangible”; “Hardware is tangible and its amount is a countable characteristic (e.g. tyres). Processed materials are tangible and their amount is a continuous characteristic (e.g. fuel and soft drinks). Hardware and processed materials are often referred to as goods”; “software consists of information regardless of delivery medium (e.g. computer programme, mobile phone app, instruction manual, dictionary content, musical composition copyright, driver's license)”.  -ISO 14040: “any goods or service”; “the product can be categorized as follows: — services (e.g. transport); — software (e.g. computer program, dictionary); — hardware (e.g. engine mechanical part); — processed materials (e.g. lubricant)”; “services have tangible and intangible elements. Provision of a service can involve, for example, the following: — an activity performed on a customer-supplied tangible product (e.g. automobile to be repaired); — an activity performed on a customer-supplied intangible product (e.g. the income statement needed to prepare a tax return); — the delivery of an intangible product (e.g. the delivery of information in the context of knowledge transmission); — the creation of ambience for the customer (e.g. in hotels and restaurants). Software consists of information and is generally intangible and can be in the form of approaches, transactions or procedures. Hardware is generally tangible and its amount is a countable characteristic. Processed materials are generally tangible and their amount is a continuous characteristic”; “adapted from ISO 14021:1999 and ISO 9000:2005”. |
| **Comments:** | *This engineered OntoCommons bridge-concept aims to provide an extremely general umbrella notion focused on few defining traits for a family of concepts which are pivotal in business practice. The decision to follow this strategy was made in accordance with the requests coming from MLOs’ stakeholders given OntoCommons’ survey.*  *The defining trait grouping up the relevant individuals was identified in their being actually, and explicitly offered for purchase or barter on the market; the choice to include the two specifications (actuality and explicitness) above being due to the fact that, in principle, almost anything can be sold, and implicit availability for purchase or barter seemed inadequate given the aims of the project.*  *A different characterisation of the bridge-concept would have risked collapsing on different notions, related to the concepts of (generic) Output (of a process) or Equipment, as they are commonly characterised and understood. It was decided to focus specifically on one direction of the transaction to address and avoid ambiguities which might arise, in practice, in ontologies built specifically for industrial usage.*  *Given the incompatibility of golden standards (ISO 9000 and ISO 14040), on the notion of product, a choice had to be made: in line with what has been said above, it was decided to follow more closely ISO 14040, explicitly addressing all the divergences which might have otherwise resulted in ambiguities. Beside the reasons outlined above, it was also taken into account the fact that ISO 14040 was closer to the definitions which could be found in other well-known resources. That said, ISO 9000 is employed to define the OntoCommons bridge-concept Article (Commercial), and the standard is also directly taken into account in the definition of two other OntoCommons bridge concepts: Good (Commercial) and Service (Commercial), whereas all these concepts belong to the OntoCommons concept cluster hinged on Commercial Product; though it should be noted that the trait distinction tangible-intangible is accounted for, but does not play a core role in the cluster: matters related to background assumptions should not slip into the characterisation of concepts belonging to different domains, and tangibility does not inherently pertain to economics.*  *It should be added that, while an analysis of a selected sample of ontologies showed that a narrower concept might have avoided issues pertaining to alignment arising from trans-categoricity, the preemptive investigation also made patent an implicit preference (if not a need) of stakeholders for a broad concept of product (closer to ISO 14040), at least when MLOs were concerned.*  Commercial *Product’s connections with TLOs and MLOs might be mostly mediated by other bridge-concepts belonging to the cluster, but they should address ambiguous points and help users in understanding and navigating TLOs and the EcoSystem in general, improving conceptual clarity at the same time.*  *Other possibly problematic points were addressed by making traits’ values/value gaps explicit, value gaps being prevalent due to the organisation of the concept cluster and the broadness of the bridge-concept Commercial Product; a more in-depth explanation of some of the relevant traits/values can be found in the comments to the elucidations of other bridge-concepts belonging to the cluster: Commercial Product. It was also decided not to list the “paradigmatic (yet not strictly necessary) characteristics” in order to avoid introducing bias which might have affected domain experts, ontologists, and generic users alike.* |

**Concept’s Cluster:**

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| **Cluster:** | *Commercial Product* |
| **Cluster Relations:** | *The Engineered OntoCommons bridge-concept Commercial Product is the core of the Cluster: Commercial Product.*  *Article (Commercial) and Service (Commercial) are engineered in a way such that they jointly exhaust Commercial Product’s logical space; as a result of that, Article (Commercial) and Service (Commercial) are rdf:subClassOf Commercial Product, and Commercial Product is rdf:equivalentTo the union of Article (Commercial) and Service (Commercial). Likewise, Good (Commercial) and Intellectual Article (Commercial) are engineered in a way such that they jointly exhaust Article (Commercial)’s logical space; as a result of that, Good (Commercial) and Intellectual Article (Commercial) are rdf:subClassOf Article (Commercial), and Article (Commercial) is rdf:equivalentTo the union of Intellectual Article (Commercial) and Good (Commercial).*  *The bridge-concepts belonging to the cluster are organized hierarchically focusing on core traits and traits-values, to the end of engineering strong semantic links capable of supporting mediated alignments. The traits are chosen in a way which maximizes coherence with existing standards and ease of alignment with ontologies, given commonly employed ontological theoretical choices/background assumptions.*  *Specifically, the first partition of Commercial Product’s logical space -by means of the bridge-concepts Article (Commercial) and Service (Commercial)- attempts to capture the common-sense-friendly distinction between services and other things that can be purchased, often identified by means of labels such as ‘goods’ and ‘merchandise’. The trait chosen to distinguish the two pertains to economics, in line with the concepts’ domain: ownership transference upon purchase. An Article’s ownership is transferred to the purchaser upon completion of a transaction, while Services needn’t involve ownership transferences not pertaining to legal rights. As a result of that, Articles can e.g., be fully returned to the seller, and can be separated from the latter, while that does not hold for Services. Yet these further traits/trait-values are to be considered derivative and indicative: not such as to characterise the distinction. It is often common to further distinguish between Services and Products which are not Services by means of another trait: tangibility. Services are said to be intangible, while Products which are not Services are said to be tangible. While, as a rule of thumb, this might appear prima facie correct, the characterisation is problematic when it comes to certain Articles, and the trait is not overall neutral given different possible ontological background assumptions. As such, tangibility has not been deemed a trait capable of providing a rigorous and neutral partition.*  *The second partition of the logical space (of Article) -by means of the bridge-concepts Good (Commercial) and Intellectual Article (Commercial)- attempts to capture the common-sense-friendly distinction between intellectual and material assets (“properties”, in the economic sense). The trait chosen to distinguish the two partitions is quite complex, in order to avoid counter-examples while preserving neutrality: association with a specific material entity which doesn’t merely act as a legal placeholder or as a contingent concretisation to the end of completing a transaction. Goods are associated, and often appear entirely reducible, to material entities which do not merely act as legal placeholders or as contingent concretisations to the end of completing transactions, while Intellectual Articles aren’t. as a result of that, the OntoCommons bridge-concept, Intellectual Article (Commercial) arguably covers all the so-called intellectual properties (which are explicitly offered on the market for purchase and whose ownership is transferred to the purchaser upon completion of a transaction).*  *The resulting engineered cluster of bridge-concepts, hinged on the OntoCommons bridge-concept Commercial Product -covering and organising the logical space of core concepts in business practice- is arguably de facto aligned with golden standards (as explicitly argued for in the comments to the knowledge domain resources for each of the particular bridge-concepts), while at the same time being respectful of possible discrepancies in the background assumptions which do not strictly pertain to the economic domain the concept cluster belongs to. The partitions should be conductive to conceptual clarity while at the same time facilitating alignments which would have otherwise been hardly possible, at least in some cases, as argued for in (some of) the mapping elucidations for the bridge-concepts belonging to the concept cluster, and Commercial Product & Article (Commercial) in particular: in fact, the bridge-concept Commercial Product, much like many broad concepts belonging to the business/legal areas, is trans-categorical given partitions of the logical space commonly employed by most Top Level Ontologies, and some of the ontologies belonging to the OntoCommons EcoSystem for what concerns us here (BFO and DOLCE). The conceptual cluster has thus the further benefit of ensuring more precise and informative mappings, automatically connecting single ontologies to a well-defined conceptual architecture.* |