



United Nations Conference on Trade and Development

DIGITAL ECONOMY REPORT 2019

Value Creation and Capture:
Implications for Developing Countries

Annex to Chapter II

Summary of literature review on taxonomies
used for classifying digital platforms

This annex provides details of some examples of taxonomies of digital platforms that can be found in the literature. The list does not pretend to be exhaustive and is presented only for illustrative purposes.

This document, which has not been edited, is intended as a “living document” and is to be updated in the future.

This version is as of 4 September 2019.

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Source	Author	Title	Scope and focus of analysis / definition of digital platforms	Methods and taxonomies used, including definitions and/or examples
Academia	N Srnicek (2017)	Platform Capitalism	“Digital platforms are digital infrastructures that enable two or more groups to interact. They therefore position themselves as intermediaries that bring together different users: customers, advertisers, service providers, producers, suppliers, and even physical objects” (page 43)	<p>Classification by business models (page 49):</p> <p><i>Advertising platforms</i> (Facebook or Google) – they extract information on users, analyze it and use it to sell ad space.</p> <p><i>Cloud platforms</i> (Amazon Web Services, Salesforce) – they make, own and rent out basic hardware and software infrastructure for clients on an “as needed” basis and collect data on clients. They enable the outsourcing of a company’s IT department, often push knowledge workers out and enable the automation of their work.</p> <p><i>Industrial platforms</i> (General Electric, Siemens) – they build hardware and software to transform traditional manufacturing into Internet-connected platforms by optimizing the production process through reduced costs and downtime and by enabling mass customization.</p> <p><i>Product platforms</i> (Rolls Royce, Spotify) – they generate revenue by using other platforms to transform a traditional good into a service, then collect rent or subscription fees on them (also known as goods as a service).</p> <p><i>Lean platforms</i> (Airbnb, Uber, TaskRabbit) – they reduce ownership of assets to minimum and profit from the reduced costs to extract rent from transactions that take place over the platform (also known as asset-less companies, virtual platform or the sharing economy; a hyper-outsourced model).</p>

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				<p>Some platforms may straddle more than one category, for example Amazon.</p> <p>Also reference to the “growth before profit” model – especially for advertising platforms and lean platforms.</p>
Private sector	JP Morgan (2016)	Paychecks, Paydays and the Online Platform Economy	<p>Online platform economy: economic activities involving online intermediaries market with four characteristics: they connect workers or sellers to customers, they allow people to work when they want, they pay on a “piece-rate” basis, they intermediate or facilitate payment for the transaction. (page 20)</p>	<p>The study looks at payments from 30 distinct platforms to a sample of US-based primary account holders at JP Morgan Chase.</p> <p>It offers a classification by type of commodity transacted, with the aim to distinguish between different communities of users and their degree of reliance on platform earnings (page 20):</p> <p><i>Labour platforms</i> (Uber, TaskRabbit) – participants perform discrete tasks – also known as the gig economy.</p> <p><i>Capital platforms</i> (eBay, Airbnb)– participants sell goods or rent assets peer-to-peer.</p>
Private research institution	Evans and Gawer (2016)	The rise of the platform enterprise: a global survey	<p>Platforms have unique characteristics: the presence of network effects; they capture, transmit and monetize data over the Internet. May not be purely digital.</p>	<p>Study that surveyed 176 platforms from all regions of the world with a market valuation of at least \$1 billion, from a variety of industries.</p> <p>It offers a classification by design choices for business models.</p> <p><i>Transaction platforms</i> (Netflix, Tencent) – a technology, product or service that acts as a conduit (or intermediary) facilitating exchange of transactions between users, buyers, or suppliers (also known as multi-sided markets).</p>

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				<p><i>Innovation platforms</i> (Microsoft, Salesforce) –serve as a foundation on top of which other firms develop complementary technologies, products or services.</p> <p><i>Integrated platforms</i> (Apple, Google, Facebook)– combine transaction and innovation platform features.</p> <p><i>Investment platforms</i> (Naspers, Softbank)– companies that hold several platforms in their portfolios and act as a holding company, active platform investor or both.</p>
International organization	UNCTAD (2018)	Fostering development gains from e-commerce and digital platforms	Focus on digital platforms for e-commerce in developing countries.	<p>It offers a classification by purpose and nature of the mediated transactions:</p> <p><i>Profit-oriented platforms</i> – include exchange platforms (HomeExchange), donation platforms (Freecycle), free services platforms (Couchsurfing), other “true” sharing platforms (Goteo, Wikipedia).</p> <p><i>Non-profit-oriented platforms</i> – include electronic payments platforms, crowdfunding platforms, social media, e-commerce platforms.</p> <p><i>E-commerce platforms</i> are further classified as:</p> <ul style="list-style-type: none"> -incumbent companies e-commerce platforms (Caterpillar, Ikea) - third party e-commerce platforms for goods (Amazon, Alibaba) - third party e-commerce platforms for services, including for transportation (Uber, Didi Chuxing), tourism (Airbnb, Booking.com), financial services lending (Afluenta, LendingClub), entertainment (iTunes, Netflix), media (Bloomberg, Google News), advertising

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				(Facebook, Google), search (Google, Yahoo), information/reviews (TripAdvisor, iCow), learning platforms (Coursera, edX), health platforms (Doctor.com, MDLIVE), digital labour platforms (Uber, Upwork), applications markets (App Store, Google Play), cloud services (Salesforce, Tencent).
Regional organization	House of Lords, Select Committee on European Union (2016)	Online Platforms and the Digital Single Market	“Online platform’ refers to an undertaking operating in two (or multi)-sided markets, which uses the Internet to enable interactions between two or more distinct but interdependent groups of users so as to generate value for at least one of the groups” (page16)	General search engines (Google, Bing) Specialized search tools (TripAdvisor, Yelp) Location-based business directories or maps (Google or Bing maps) News aggregators (Google News) Online market places (Amazon, eBay) Audio-visual and music platforms (Netflix, Spotify) Video sharing platforms (Youtube) Payment systems (Paypal, Apple Pay) Social networks (Facebook, LinkedIn, Twitter) App stores (Google Play, Apple App Store) Collaborative economy platforms (Airbnb, Uber, TaskRabbit)
Regional organization	European Commission (2016)	Synopsis Report on the Public Consultation on the Regulatory Environment for Platforms, Online Intermediaries and the Collaborative Economy	The majority of respondents contest the definition proposed in the consultation, reflecting the concern that regulation could be based on “platform status”, not on analysis of issues and activities. The definition appears too broad or narrow. Concerns about it are shared across stakeholder categories, some stressing that it should focus on activities and business models. There are doubts whether a "one-size-fits-all" definition is feasible as it is unlikely to be future-proof and	Proposed differentiation within 'platforms' includes: platforms acting B2B vs B2C vs C2C; platforms that act as a “passive conduit” versus those more “active” or with "editorial roles”.

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			might overlap with the definition of an online intermediary and information society service provider.	
Research Institute	Täuscher (2016)	Business Models in the Digital Economy: An Empirical Classification of Digital Marketplaces	“Digital market places are firms that provide a technological platform to match a demand and supply side and facilitate transactions between these sides.” (page 6). Digital market places are the most successful online business model	<p>Offers a classification into six clusters of digital market places based on a systematic framework of 21 business model attributes and their specifications with the objective to study impact of choice of business model on firm performance. Based on a data collection from secondary sources for a random sample of 100 marketplace start-ups.</p> <p>Cluster 1: Efficient product transactions – are marketplaces of physical products with strong focus on creating value through transaction efficiency; often aim at standardizing and commoditizing products to facilitate search and negotiation.</p> <p>Cluster 2: Product community – are marketplaces that primarily build a community of like-minded people around products, most of which are digital goods which sell in global markets.</p> <p>Cluster 3: Product aficionados – firms build a community of people with a shared passion for a certain product physical type; value is created from the image of the platform.</p> <p>Cluster 4: Offline services on-demand - such marketplaces offer some form of scheduling and provide ratings of sellers, thereby generating efficiency gains for the buyers.</p>

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				<p>Cluster 5: Online services – such marketplaces offer services that are delivered via the Internet, such as online labour; marketplace participation provides sellers with a clear advantage in reaching their target audience.</p> <p>Cluster 6: Peer-to-peer offline services – includes firms that facilitate the exchange of offline services between individuals.</p> <p>Criteria used for the identification of clusters were:</p> <ul style="list-style-type: none"> - type of key value that the platform offers to buyers and sellers in comparison to existing solutions: price/cost efficiency (saving time or money), platform image, active community, design/usability; -type of product mediated by the transaction: good or service -industry scope of the marketplace: vertical (industry-specific), horizontal (span various sectors) -type of user segments (B2B, B2C, C2C) -geographic scope: local (present in a single country) or global, regional -type of key activity: data services, community building, content creation & curation -kind of price discovery mechanism: one market side (buyers or sellers) sets the price in advance, price set by the marketplace provider, negotiation of price or auction format -type of trust mechanism/review system: one-side user reviews, mutual user reviews, review by marketplace - type of mechanisms in place to protect against fraud, destruction and damage: verify the identification of users, security deposit, provide insurance to their sellers -key resources of the marketplace: customer data, patents, service capacity

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				<ul style="list-style-type: none"> - key revenue stream: commission model, advertising model, subscription model, retail model -main revenue partner: seller, buyers, third party (e.g. advertisers) - pricing mechanism: fixed pricing, differential pricing, market pricing -key costs: user acquisition & retention, platform infrastructure & development, service capacity
Academia	Holland and Gutiérrez-Leefmans (2018)	A taxonomy of SME E-commerce Platforms Derived from a Market-level Analysis	Focus on SME e-commerce platforms defined as “ the use of Web 2.0 technologies ...designed specifically to support SMEs in the formation, development and management of commercial and social relationships with each other, with their economic partners, and with their customers” (page162).	<p>It offers a web-content analysis of 144 SME e-commerce platforms from the US and the UK. A cluster analysis building on the values of 3 theoretical constructs from business model theory leads to the identification of 5 strategic groups.</p> <p>The 3 theoretical constructs used to classify enterprises are:</p> <ul style="list-style-type: none"> - value proposition of the platform, which can be: information repositories and databases, networking opportunities to share ideas and potentially create new knowledge, sales systems such as electronic markets and trading systems; - web 2.0 sophistication, which can be: user-generated content, interactivity or additional technology; - revenue model maturity, taking advertisement as a common initial revenue model, other revenue models and their combinations inform the level of maturity. <p>The 5 clusters identified were:</p> <ul style="list-style-type: none"> -information laggards, which attract few visitors, look old-fashioned and have failed to make the transition to Web 2.0; -basic networking, which make use of Web 2.0 by a low to moderate degree, for e.g. they have blogs

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				<ul style="list-style-type: none"> -advanced networking, which have a more sophisticated use of Web 2.0. This group has 5 members and attracts 30% of all the visitors; -advanced networking mature, which have a high use of Web 2.0, use a variety of revenue models such as offering expert advice, web analytics and subscription schemes (Smarta, StartupDonut) - social media markets, which have a high use of Web 2.0 and include electronic market functionality
Academia	Ardolino, Saccani and Perona (2016)	The Rise of Platform Economy: a Framework to Describe Multisided Platforms	“multisided platform concerns the presence of two or more groups of users, connected in different ways by a platform” (page 257)	<p>Typology of MSPs based on the main functions of the platform:</p> <ul style="list-style-type: none"> - matchmaking: it enables the matching of users based on their own requests (dating platforms and job-seeking platforms) - external exchange: it enables the matching of requests by users for the purpose of exchanging a product or service but the transaction is carried outside the platform (classified website and lead generator platforms) - exchange: it facilitates transactions between users, with all the transaction-related activities being conducted on the platform - maker: it facilitates interactions by providing the appropriate tools or instruments to “make” the contents to be used by consumers (video games platforms and desktop OS platforms)
Academia	Kenney and Zysman (2016)	The Rise of the Platform Economy	“digital platform economy encompasses a growing number of digitally enabled activities in business, politics and social interaction”	<p>Enumeration of some of the most salient types of digital platforms based on a review of the literature. These are:</p> <ul style="list-style-type: none"> - Platforms for platforms – the Internet itself is the foundational platform. Other examples are Apple’s iOS and Google’s Android smartphone OS platforms; Google Cloud Platform facilitates the construction of cloud services

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				<ul style="list-style-type: none"> - Platforms that make digital tools available online and support the creation of other platforms and marketplaces – such as GitHub – a repository of open source software programs of all kinds; Zenefits offers an online marketplace of HR tools free to SMEs - Platforms mediating work – which change the mechanisms of intermediation and the operation of the labour market - such as LinkedIn, Amazon Mechanical Turk, UpWork -Retail platforms – such as Amazon, eBay, Etsy - Service-providing platforms – like Airbnb, Lyft, Kickstarter (project funding), AngelsList (venture capital), Zopa (peer to peer lending).
News Organization	Politico (2016)	Role of Online Platforms Technical Report DG CNECTX/XX/2016	<ul style="list-style-type: none"> (a) Platform markets are multi-sided; (b) Platform operators facilitate interactions. 	<p>It offers a classification aiming to link key platform characteristics to policy issues related to online platforms:</p> <p><i>Online advertising platforms</i> - "a two-sided platform serving (i) publishers (websites) that want to host advertisements, and (ii) advertisers that want to run ads on those sites".</p> <p><i>Marketplaces and e-commerce</i> - websites and applications that function roughly in the same way as village marketplaces used to. Namely to provide, in return for some form of commission, a central space to third-party sellers of goods and of services – with the marketplace offering, in principle, the ability to attract buyers.</p> <p><i>Internet search services</i> - They were developed out of an academic environment without immediate financial interest and typically offered free of charge. There are mainly two categories of business models that have</p>

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				<p>been developed within the area of search services which could be decided in a multitude of sub categories depending on the sector in which any search service is active. The first business model which generated profits was the so called "pay for placement model" which was first introduced by Goto in 1998. Another business model which started being implemented since around the year 2000 is that of "data monetization".</p> <p><i>Social media platforms</i> - "web-based services that allow individuals to construct a public or semi-public profile within a limited forum, to articulate a list of other users with whom they share a connection ('friends' on Facebook), and to view and traverse their list of connections and those made by others within the system".</p> <p><i>Mobile operating systems and app stores</i> - App stores, such as Google Play (Android), App Store (iOS), and Windows Store are online digital distribution platforms which connect users of mobile devices with the developers of mobile applications.</p> <p><i>Payment systems</i> - Electronic payment systems are typical examples of two-sided markets where payment service providers match two distinctive groups of users: merchants who pay various fees for the payment service and customers who normally get the service for free.</p> <p><i>Collaborative economy</i> - large online 'communities' of individuals or businesses wishing to exchange goods and/or services, 'regulated' by the crucial peer review-system, online platforms have been able to inspire trust in their users, thus unlocking a revolutionary efficiency</p>

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				<p>gain; limiting the number of assets and workers sitting idle.</p> <p><i>Creative content</i> - online service providers (OSPs) have developed business models allowing provision of or access to digital products which can be considered to constitute "digital content" (games, social media, storage services, etc.).</p>