BUSINESS MODELS:

IDEAL TYPES, VALUES, PROFITS AND TECHNOLOGIES

Professor Charles Baden-Fuller  
c.baden-fuller@city.ac.uk  
Centenary Professor, Cass Business School, City U. London,  
and Senior Fellow, Wharton School, U.Penn

Dr Alessandro Giudici  
alessandro.giudici.2@city.ac.uk

Professor Stefan Haefliger  
stefan.haefliger.1@city.ac.uk  
Cass Business School - City University London  
London EC1Y 8TZ  
United Kingdom

Professor Mary S. Morgan  
m.morgan@lse.ac.uk  
London School of Economics  
London WC2A 2AE  
United Kingdom

ABSTRACT

We construct ideal types of business models that describe a firm’s relationship with its customers that
in turn gives value to creative or technical knowledge. We pay particular attention to two
possibilities: the dyadic and the triadic business model. Within the dyadic category we find well-
known often discussed sub-categories of work-for-hire, simple product, servitized-product, and razor-
blade business model, and within the triadic we find the market-matchmaking and multisided business
model. We carefully define each business model type (and sub-type) from a conceptual-principled
point of view, and explore the differences between these idealized types in terms of value for the
users; profits or surplus for the suppliers; and technological arrangements. Our paper draws on and
extends the current literature in economics, strategy and platform-technology.

Acknowledgments: Financial support for this paper and the wider project Building Better
Business Models from EPSRC (EP/K039695/1) and partners is gratefully acknowledged. Special thanks for intellectual contributions from our project collaborators including Paolo Aversa, Simone Santoni, Vincent Mangematin, Tatiana Mikhalkina, James Knuckles, George Day, Ian (Mac) MacMillan and Rahul Kapoor, as well as Staffan Müller-Wille, (Max Plank Berlin) and more general thanks for encouragement and insights from other colleagues at Cass, Wharton, Grenoble, Glasgow and Reading universities.
BUSINESS MODELS: CONCEPTS, CATEGORIES AND CONSEQUENCES

INTRODUCTION
One of the key questions in strategic management concerns the choice of business model made by an entrepreneur or new venture wanting to exploit a new creative idea or technology (Chesbrough, 2002; Teece, 2010). What is the role of business model choice in ensuring the greatest influence, or in the potential profit pool? We know that some entrepreneurs seek business models that allow them to pursue non-financial goals related to influence (Rindova, Barry and Ketchen, 2009); and that a novel business model may result in greater profits (Amit and Zott, 2001). Yet, there is a lack of clarity about the mechanisms that make these connections. We therefore start by building a coherent account of how we (researchers and teachers) should conceive a business model (for this context) and why this conception gives insight into these issues faced by the entrepreneur.

The literature using the phrase Business Model has grown fast in volume and sophistication in recent years; so much so that the phrase is now widely considered as “a new unit of analysis that is distinct from the product, firm, industry, or network” (Zott, Amit and Massa, 2011: 1020). This new unit of analysis is applied in many spheres. One research stream, for example, sees the business model as a description of a firm's configuration of key activities and resources (e.g. Parmigiani and Mitchell, 2009; Vidal and Mitchell, 2013; Zott and Amit, 2008; 2010), with much attention paid to e-businesses (Amit and Zott, 2001; Clemons, 2009; Dubosson-Torbay, Osterwalder and Pigneur, 2002; Pauwels and Weiss, 2008). Other scholars – although rooted in an empirical tradition - take a more conceptual approach, seeing the business model as a summary representation to indicate how firms resolve the challenge of delivering value to its customers, and as a mechanism through which firms mobilize technology to make money (Chesbrough, 2010; Gambardella and McGahan, 2010). For example, Casadesus-Masanell and Ricart (2010) use a number of interesting visual and mathematical devices to represent decisions and linkages in a manner consistent with the literature on configurations (Siggelkow, 2002). In another stream, researchers are concerned with how the business model is used by managers as a model-like device to make sense of the world and to form a basis for their actions (Doganova and Eyquem-Renault, 2009; Perkmann and Spicer, 2010; Baden-Fuller and Morgan, 2010). In this literature, the business model is not a real world object but a cognitive device that allows the researcher to understand how managers predict and manage outcomes of profits and influence. These models of business are influenced by real world experience, including what academics write – and so there is a
connection between the cognitive world of models and the real world (Morrison and Morgan, 1999).

In this paper, we propose that scientific research and managerial practice on business model design could be advanced by developing a classification system built upon first principles (e.g. Hempel, 1965; Irwin, 1990) related to how value is created and for whom (Day and Moorman, 2010; Teece, 2010) and by deriving a set of mutually exclusive and collectively exhaustive business model ideal types (Baden-Fuller and Morgan, 2010) that might be robust to changing context and time (e.g., Doty and Glick, 1994; McKelvey, 1975). Ideal types and categories are mental constructs that mediate “between our ideas and theories on the one hand, and the things in the world we want to describe and explain in immediately practical ways” (Baden-Fuller and Morgan, 2010: 161). They have been highly influential in modern social science since the seminal work of Max Weber (1904) in which they were characterized as fundamental instruments of scientific investigation (Gordon, 1991).

Our approach to seeing the business model as a conceptual device that focuses on the way a firm engages with its customers to harness its creative or technical knowledge base stands in sharp contrast with much prior literature in two ways. First, the conceptual-cognitive-model based view is different from the realist approach of much of strategic management, because we emphasize ideal types that whilst informed by evidence are not a synthesis of real world observations. And second, our locus of attention is on the boundary between the firm and the consumer (the ultimate customer). This is a different focus from those traditionally adopted by strategy scholars who during the 1980s embraced an external competitive advantage view of the world (largely based on the work of Michael Porter who in turn was influenced by the industrial economists Bain and Scherer) and then moved in the mid-1990s towards being internally focused on resources (largely based on the views of Barney and Grant, who in turn drew heavily on Edith Penrose). The justification for our new focus and approach is that it clarifies issues that hitherto seemed murky and sheds new light on the dangers of taking too narrow a view of resources and competitors, and is in line with moves in marketing (see for instance Vargo and Lusch, 2004). Our approach also allows us to connect to economists who write about business models from public policy perspectives – particularly Rochet and Tirole (2003 and 2006) - as well as those focused on the economics of technology such as Parker and van Alstyne (2005).

We begin by reviewing the literature on classifications of business models and then move to explain our approach, highlighting how it is based on principles and conceptual reasoning.
We explain in some detail our two principle business model categories, how they encompass many well-known existing subcategories. We explore what these categories mean for understanding the value given to consumers and profit pay-offs for the firm, and in particular how different business models give rise to different amounts of value and different profit pools. In our discussions we pay attention to some of the debates concerning platform technology – showing how the business model choices interact with platform choices in determining outcomes.

PAST WORK ON CATEGORIZING

Conversations with the philosophers, reveal that there are two broad approaches to scientific classification – realist and principle-conceptual1. In the realist camp we have of course the biologists (notably Linneaus), where classification is empirically driven (taxonomic) but with clear rules and agreement about the relevant object of study (in the case of Linneaus it was reproduction) – and about the methods of classifying (such as hierarchy). These methods of classification are constantly challenged by new observations about the world that can upset the established order (see for instance the review of Ankeny, 2001, that shows how Linnean traditions are being challenged). At the other extreme we have the mathematicians and chemists, who see the world in terms of theoretical (typological) structures albeit ones informed by evidence. For example, mathematicians claim there are only 5 regular solids (Euclid). And in chemistry it is widely accepted that Menedelev’s table of elements based on atomic weight is a theoretically constructed and predictive system of classification although it has its roots in empirically derived observations.

Strategic management classifies many things, typically observing the phenomenon at stake, identifying a few key dimensions and creating a realist-taxonomic structure – such as we find in discussions of organizational structure (see for instance Mintzberg, 1993, Structure in 5s, for a philosophical perspective on what strategists do more generally see Durand and Paolella, 2012). In contrast the closely allied discipline of economics has more often used a conceptual-principled taxonomic-approach to classification, more closely allied to Mendelev’s work in chemistry that has strong mathematical features because they are theoretically argued. Empirical facts play a role – but in a very different manner – because they guide rather than define. These kinds of typological classification are very obvious in the monopoly-oligopoly-competition discussions that were originated by Marshall and were

---

1 We are particularly indebted to Staffan Müller-Wille for explicating this distinction, see Muller-Wille (2007).
developed in the school of industrial economics: the types were theoretically constructed ideal types not obviously observable in the world.

Work on categorizing business models has proceeded along these two approaches: *realist* and *conceptual(principled)*. The *realists* focus on what has happened in the economy and see the business model concept as part of the strategy lexicon and intertwined with technology. Since such taxonomic classifications are often contained in a particular situation, they are sensitive to changes in time and place. Economic historians have had a very clear notion of classifying business models and business model innovation when they use words such as ‘recipes’ or ‘modes’ to categorize the real economic activity of firms or groups of firms in discussing industrial revolutions (e.g. Guild System, Factory System, American System, Toyota System). In this “realist world”, the categories of business models are almost always taxonomic. They are based on a rich description of technology and institutions. Examples from economic history include Hounshell (1985) on the American System and why it was different from the factory system. Examples from management include Thompson (1967), who proposed a distinction between long-linked technology (essentially mass production) and intensive technology (that is firms organized in teams); more recently Amit and Zott (2001) who mapped firms by categories of novelty and efficiency when using emerging digital technology; and Demil and Lecoq (2010) who mapped the evolution of a single firm and its business model, see also Lambert and Davidson (2012).

The other more *principled* approach, such as that adopted by Teece (2010), sees the concept of the business model as separate from technology and strategy, and enquires how understanding business models and business model innovation sheds light on old strategy and technology questions. This approach is in the spirit of Chesbrough and Rosenblum (2002) and Chesbrough (2002) who asks: when does a novel technology require a novel business model? This question implies that defining and analyzing business models is a category-making task based on abstract principles that can take place largely separated from technology (although a manifestation of the model can contain technology – e.g., Baden-Fuller and Haefliger, 2013).

There is no agreement among academics on how to determine the categories in this theory driven domain, but it is suggested that a typological approach outlining ideal types is likely to be more appropriate than the realist taxonomic approach. This is because a theory-driven, concept-based approach gives rise to a more robust analysis of how such models might work and how innovation might arise; and because it respects the social science view that relationships are central.
CONCEPTUALIZING BUSINESS MODELS IN A RELATIONAL ENVIRONMENT

The starting point of our principles-based reasoning is that the business model may be seen as an account of how the firm establishes and maintains potentially profitable relations with one or more customer groups (Day and Moorman, 2010; George and Bock, 2011; Kirzner, 2009), and how customers also get benefit from these relationships. Business model design, in other words, encompasses the articulation of anticipated value creation and value capture dynamics within specific market-based relational environments envisioned by the firm.

Because relationships with customers are central to thinking about business models, it seems sensible to look at the sociological-economic literature as a starting point. Although it is based on social relations (in which economic transactions can be embedded), it is highly relevant to pay attention to Granovetter’s (1985; see also Uzzi, 1996) embeddedness view and Simmel’s (1950; see also Krackhardt, 1998) insights on the fundamental difference between social relations involving just two versus three or more parties. Consumers are social animals, and even though we are looking at economic transactions, it is appropriate to distinguish between business models designed to leverage simple dyadic versus more complex multiparty relations between firms and their customers. For instance, at a conceptual level, the sale of a product or service or the provision of some business advice generally involves a simple relation between a seller and a buyer and the completion of value creation and value capture fully occurs in a dyadic relational environment. At a conceptual level, a middleman may be involved in the processes of delivery of the product or service, provided the dyadic nature is sustained in the transaction. Again, at a conceptual level, this dyadic relationship also applies when the buyer is not the user – but he or she has a direct dyadic relationship with the user as occurs in a tightly knit family-household or friendship.

Our distinction between dyadic and triadic business models is reinforced by both the literature on value networks and technology strategy as well as brokerage. Building on Thompson (1967), Stabell and Fjelstad (1998) show that chains and shops are dyadic, whereas the value networks often (but not always) involve more than two parties. Similarly, the sociology of networks explores forms of brokerage (Spiro, Acton and Butts, 2013; Obstfeld, 2005) in dynamic networks that are distinct from dyadic relations due to their ability to exclude one party. What is relevant for business models, furthermore, is the distinction within triadic relations that allow or prevent interaction between the two other parties.
Among triadic models, there are two sub-types: the first we call market-matchmaking that allows for interaction whereas the multi-sided (sometimes called multi-sided mediated) business model prevents it. Using Obstfeld (2005) we note matchmaking is iungens brokerage and multi-sided is gaudens, iungens meaning ‘joining’ and gaudens meaning ‘benefitting’. A market-matchmaking business model involves three actors: the owner-organizer of the market that tries to create and capture value by facilitating transactions between two customers groups – buyers and sellers. The market can be a real physical space or a virtual space that connects buyers and sellers either at a particular time or on a continuous basis.

In the triadic market-matchmaking business model, the pricing and value possibilities are highly constrained in the sense that the organizer of the business model does not create additional value beyond the joining of the two parties and that it is immaterial (from the profit view point) which of the two parties pays the transaction fee to the organizer. The net price for both parties (after fees) and the profit to the organizer is the same whether buyers pay, sellers pay, or buyers and sellers share the costs. (This well-known Marshallian analysis was confirmed by Coase in his famous analysis and reaffirmed in Rochet and Tirole, 2006).

In the second case, that of multi-sided business model, the relation between two or more customer groups always requires the presence of an organizer who is also a mediator, typically providing a consumer related product or service to one group called the “user-customer” paid for by the other customer group often labelled “advertising-customer”; this is a gaudens relationship in the analysis of Obstfeld (2005). In this situation, there is clearly value that is created by the organizer beyond joining, and it is important to carefully consider the prices that are charged to each of the two different customer groups, and to recognize that the resulting profits and values are very sensitive to these prices (a situation analyzed carefully by Rochet and Tirole, 2003 and 2006; as well as Parker and van Alstyne, 2005). Whereas Rochet and Tirole; and Parker and van Alstyne are largely concerned about the effects of different pricing and regulatory structures; here in this piece we are concerned with a more fundamental question – should the entrepreneur choose to adopt a dyadic or triadic arrangement, and if triadic which of the two types? Our conceptual-principled based classification system of dyadic versus triadic is visualized in Figure 1 below.

---

2 And to make the situation gain maximum traction, without losing much generality, when discussing the triadic-multisided case we focus almost exclusively on the particular situation where the user-customer gets free (or almost free) services or products with the revenues generated from the other customer group on the other side of the platform.
We can identify real world firms that at one time or another appear to fit these idealized categories. We label these real cases as exemplars. For example, consulting firms (such as McKinsey) and food producers (such as McDonalds) as exemplars of dyadic business models; and stock exchanges and websites such as airbnb.com as exemplars of triadic-market-matchmakers; and not-for-profit enterprises (such as Oxfam) that serve the poor as well as search engines (such as Google) as exemplars of triadic multi-sided business-models. We note that our exemplars contain firms that cross the divide of old and new technologies.

SUBCATEGORIES AND THEIR RELATIONSHIPS TO WELL KNOW TYPES

We note that careful inspection of our triadic category enabled us to create sub-categories that are also principle-conceptually based and are related to well-known types (market-matchmaking and multi-sided). In this section, we explore subdivisions of the dyadic arrangements – that also spill over to triadic.

Focusing on the customer-firm interface in the dyadic case, we create subcategories based on the nature of the information contained in ties that create value. We explore what
the firm offers in the exchange between itself and the customer in terms of value – is it embedded within the artefacts such as the product and manuals or is it supplied separately by the actors? In the first case, we have a product and in the second the firm is operating work-for-hire.

This distinction has been noted by many writers in different streams, particularly the classical economists who according to Grant (1996) point out that making a product at scale requires a different process for dealing with and delivering its knowledge from providing work-for-hire. Under the work-for-hire business model, the user-customer is engaging directly with an individual or team in which knowledge is typically embodied. In contrast, when the product is made at scale, there is a separation between the team making the product and the user. The firm’s knowledge and skill is embedded in the product along with the accompanying manuals. This conceptual distinction of “work-for-hire” versus “product” has nothing to do with the tangible-intangible distinction of economists; but is closely related to the distinctions drawn by Thompson (1967) in his categories of firm types, amplified by Stabell and Fjeldstad (1998) in their discussion of the distinction between value chains and value shops, and taken up by those who write about how to create value by project based organizing (initiated by Davies and Brady, 2000, Nightingale, 2000 and Hobday, 2000).

Product business models are often further subdivided, and we highlight three subcategories of particular interest: (simple) product, servitized product, and products that are part of a set of complementors. The (simple) product business model has been described already, and the servitized product is when the product is no longer offered as a good but rather as a service, typically bundled with complementary offerings. The common example is “power by the hour” for engines (see for instance Davis, 2004). Traditionally, an engine (for say an airplane) is offered as a (simple) product for purchase with maintenance service (work-for-hire) also offered separately, perhaps by the same firm; whereas power-by-the-hour is the offering of the same engine but with the promise of engine time at a particular location for a particular requirement, where the supplier firm makes all the service and support. Such an offer can be highly attractive where the customer finds the product difficult to manage perhaps because it is complex, or because the support services are hard to organize efficiently.

The complementary product case is when the firm offers a product or group of products that are part of a wider eco-system or value-net situation; which is where consumers typically consume the product(s) in question alongside other items: razors and blades, (pre-digital) camera and film; game and console, hardware and software, etc. (Teece, 1986; Stabell and
Feldstad, 1998; Adner and Kapoor, 2010). In these situations, the firm making the product offering is aware that the success of its product depends on not just its own efforts, but those of complementary providers. In the special case of “razor-blade”, the firm offers the products separately, but prices the ‘razor’ element at a price below cost and the ‘blade’ at a higher than cost price to extract more profit.

It is important to note that (except where explained below) these cases are not triadic, because the user (should) internalize the costs of all the elements of the eco-system (that is both the razor and prospective blades) when calculating the overall cost of any final combination. The firm that produces the blades may wish to subsidize the producer of razors to stimulate its sales, but that still does not make the business model triadic – even though it is a ‘platform’ in the words of Cusumano and Gawer (2002). As Rochet and Tirole (2006) explain, and Parker and van Alstyne, 2005, reaffirm, the razor-blade issue is covered by the Coase theorem and so is not a multi-sided but a dyadic.

To illustrate the point, we borrow from others to note that electricity generation and electricity distribution are (likewise) not part of a triadic multi-sided arrangement, even though there are important pricing and access issues between the parties. The distributor of electricity may have a natural monopoly, and be incentivized to raise its prices, so the electricity generators have an incentive to pay them (or have them regulated) to prevent this. The arrangement of the electricity distributor does not make this a triadic business model. Raising the access price will decrease the overall volume demanded, as some consumers will stop consuming due to their budget constraint. From the perspective of the final customer, the fee for the electricity access is added together with the fee for electricity usage when deciding how much to buy. Video games played on a console have a similar feature to razor-blades from the customer view point, the costs of the game and the costs of the console are computed together – and there is no other actor involved that is not part of the eco-system. As the economics literature rightly explains, there are important issues of pricing and access in such arrangements but they are not part of triadic business model markets.

However advertising supported markets are truly multi-sided because the amount of money paid by the advertiser is decided independently and without reference to the price paid by the user, and vice-versa. In this piece, when talking of multi-sided triadic business models we have a particular interest in the situation where the user does not pay – as is mirrored in search engines, free to use video games, and charities for the needy.

---

3 The argument and examples relating to this point varies at a few rather critical points between Rochet and Tirole, 2003, and Rochet and Tirole, 2006; we believe the second paper to be more correct.
Although the organizer of a triadic multisided business models mediates between two customer groups that are kept separate, it too has to engage with each of its customer groups in turn. This engagement generates potential further sub-categories of a similar form to those considered under the dyadic arrangement. These are: work-for-hire, simple product, servitized product, or even products that are complementors; and the two different sides of the triadic multi-sided business model can be different. The not-for-profit charity serving the needy in Africa example illustrates the point – one side of the business-model can collect money via work-for-hire type personalized selling and the other side can be involved in providing inputs on a product basis into a network of local charities; and the search engine is another, where the user-consumer requires a device to access the service; and the advertiser can get a highly tailored work-for-hire relationship. In this paper we do not explore this issue further, as it is not important for the results. Table one summarizes the discussions.

**TABLE ONE ABOUT HERE**

**Table 1: Four conceptual principle-based business model categories**

<table>
<thead>
<tr>
<th>Sub-Category</th>
<th>Main category – with justification</th>
<th>Subcategory customer engagement features</th>
<th>Subcategory monetization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service – work-for-hire</strong></td>
<td>Dyadic: Customers interact directly with firm, no other party needed</td>
<td>Customer-user designates the engagement, knowledge customized to transaction</td>
<td>Firm charges customer directly or indirectly via complementor</td>
</tr>
<tr>
<td><strong>Product -</strong></td>
<td>Dyadic: Customers interact directly with firm, no other party needed</td>
<td>Firm proposes standardized engagement, knowledge in product • Simple product • Servitized product • Razor-blade</td>
<td>Firm charges customer directly or indirectly via complementor</td>
</tr>
<tr>
<td><strong>Market-matchmaker</strong></td>
<td>Triadic: Customer groups (e.g. buyers and sellers) are linked by the organiser</td>
<td>Efficiency offer, market not involved in designing the good or service being traded</td>
<td>Market owner charges by transaction or access fees; buyer-seller also have a price</td>
</tr>
<tr>
<td><strong>Multi-sided</strong></td>
<td>Triadic: Customer groups (e.g. users and payers) are mediated by the business model organiser</td>
<td>Proactive: Business model owner designs products and services for each user-payer group, • Simple product • Servitized product • Product in eco-system(razor-blade)</td>
<td>Business model owner has wide range of options see Rochet and Tirole (2006)</td>
</tr>
</tbody>
</table>

©Authors assert copyright in this table
UNDERSTANDING VALUE FOR THE CUSTOMER

In answering our first major question: *How does customer value differ when a creative idea or technology is mobilized through different business models?* we note that the management and strategy literature takes an economist’s view that values items by the price people are willing to pay Priem (2007), Rindova and Petkova (2007) & Priem, Li and Carr (2012). (This approach follows Marshall - the famous late 19th century economist). In addition, critically, it typically considers only the dyadic possibilities.

Using this framing, our first case considers the *dyadic* situations of work-for-hire or simple product, and we point out that the value available to customers is limited because the user-customer pays a uniform price whose lower bound is the supplier’s marginal cost.

Remaining in the dyadic terrain, we next point out the case where stickiness and monopoly power can make some other subcategory business-models more effective. For example, the servitized-product business model gives rise to greater customer value than the simple product business model because bundling services with the product allows the user to save on information and reduce his/her transaction costs – a suggested reason given by firms that adopt such business models (see for instance Davies, 2004). Likewise, when the product is offered as part of a wider ecosystem of complementary offerings, there are a variety of other bundling possibilities – but in every case the value to the customer-user is bounded by the fact that he or she pays a positive price for the bundle of offerings – that limits the market potential from the perspective of the entrepreneur or venture.

In contrast, triadic multisided business model can give more customer value when the price is lowered because we move further down the demand curve. The critical case is where the user-customer group gets the good/service for “zero-price” which means greater “consumer surplus” in the Marshallian analysis - more can be obtained and greater utility enjoyed. But the benefits are not just a move down the demand curve, recent research has suggested that “zero-priced” goods have intrinsically greater value – that is not fully captured by the move down the demand curve to prices below marginal cost.

There are a wide variety of reasons why zero-priced goods are valued more highly, that are related to social norms and behaviors that are not fully captured in the economist’s thinking. Cognitive dissonance theory suggests that zero price is quite differently perceived (Festinger, 1957), as does the work on zero probability (Kahneman and Tversky, 1979). And the way that these intuitions spill over into consumer behavior are explored in a series of experiments by Shampanier, Mazar and Ariely (2007).
Proposition 1a: The option of offering a good or service at the zero price – that is associated with the triadic business model - will give rise to significantly greater value for customers than offering the same product under a dyadic model any price above zero, no matter how small.

The triadic multisided business-model can also give rise to further value being created through the interactions of the second side of the market with the user-customer that shifts the demand curve for the user-customer group outwards. The first interaction is the externality that is generated by the user-customer valuing the intervention of the second side. For example the value of a search engine can be enhanced by the content put on the site by advertisers. And there are additional possible network effects; that the level of demand on the second side is determined by the number of user-consumers, so when one side attracts more customers the demand curve on the other side also shifts to the right. Network effects can combine with externalities to produce a powerful combination.

There are exceptional situations where the interactions of the second side can create negative externalities that shift the demand curve for the user-customer to the left – for instance the business model owner might sell the personal data of user-customers to third parties in a manner that is disliked by users – and in such circumstances total value to consumers will be less.

Proposition 1b: The value for the customer of a good or service delivered as part of a triadic multi-sided business model can be further enhanced (diminished) through positive (negative) externalities provided by the second side of the business model, and these externalities can be enhanced by network effects from the user-customers that bring greater demand to the second side.

Until this point, we have considered value only from the economic viewpoint. The sociological view of value moves beyond the absolute certainty of economic framing, recognizing that no value exists without social construction – see for instance, Pinch and Bijker (1984). Because demand has to be created, the resulting demand curves are path dependent, and so offering comparisons between different business models is fraught with uncertainty. However, such a perspective is still consistent with the idea that triadic business models can offer more value that the dyadic model.
PROFIT OPPORTUNITIES FOR THE FIRM

Although we make no assumption about the goals of the firm – they could be for-profit or not for-profit - the surplus-profit opportunities are different when ideas are mobilized through different business models. Whilst we rely heavily on the insights of Rochet and Tirole (2003 & 2006) and Parker and van Alstyne (2005) who explore the profit dynamics of different pricing regimes within multi-sided business models, they do not undertake the comparative statics of looking at what happens to profits when the firm shifts between different business model types.

We follow the same cases as the previous section, first considering the simple fixed-price dyadic work-for-hire and dyadic simple-product business models. Using the traditional economic textbook analysis, the profit opportunity is set by the area under the demand curve between price and average costs. When we move to servitized-product business model, it is possible to charge different consumers different prices, and so profits can be greater (ignoring transaction costs). When the product is part of a set of complementary items, the situation is again more complex – and price discrimination is also possible (e.g. razor-blade arrangements, see for instance Teece, 1986). At the upper bound, the maximum profit for any situation is the total available “consumer surplus”. (The consumer surplus is the sum total of the individual benefits that each individual customer gains from utilizing the service.) In line with economics literature we can say that for dyadic business models the profit (surplus) opportunities vary among the types of business model but in the limit the maximum amount that is available is the Marshallian consumer surplus, which in simple terms is total area under the demand curve less the costs of supplying the service.

Following the cases in the previous section, we next consider the triadic multi-sided business model. Here there are several situations.

- When demand on the second side is wholly independent of the price and volume of the user-consumer (that is where there are no network effects between the two sides) and where there are no externalities, then the firm can always make a greater level of profits (surplus) than in the equivalent dyadic case. This is because the firm can seek to profit maximize on each side of the business model independently, without fear of any interactions. This situation arises quite often but with minor consequences. For example when workers enjoy working for the enterprise and offer a certain (fixed) number of hours (say overtime) for free, the entrepreneur can consider the offer from the workers without altering the pricing strategy towards the final product/service.
The decision on each side is independent, even though the existence of the second side is critically dependent on there being at least some user-consumers.

- When demand on the second side is driven by network effects, that is the price charged to the user-consumer influences the level of demand on the second side, then again there is always an opportunity to increase profit over, and above, the amount generated on the dyadic business model. The bigger the network effect, the more important it is to consider charging user-consumers a zero price to maximize total profits. The extreme case of the zero-price is really important; here the profit (or surplus) is the traditional Marshallian profit pool of the complementary providers to the owner of the business model less the total costs, and the surplus generated by the customer-users is irrelevant to the profit equation. The zero-price option is chosen most often when the costs of supplying the service to the user-customer is small, and potentially covered by the revenue from the other side – such as is likely for search engines and advertising, and simple on-line video-games and advertising, local newspapers and advertising.

- The existence of positive externalities between the second side and the user-consumer always increases the profitability of the multi-sided business model, but the case of negative externalities is important. Small negative externalities, especially in the presence of large network effects can still make the triadic multisided business model more profitable than the dyadic. But where network effects are modest, and where there are strong negative externalities, then it pays the entrepreneur to avoid the triadic business model and revert to the dyadic. Such cases are quite common – premium products and services are typically offered on a dyadic basis, because the adoption of another side (typically advertising or data sales) diminishes the enjoyment of the user-consumer by far more than the potential revenues from the second side.

These propositions are quite consistent with the work of Rochet and Tirole (2006), but are not highlighted by them. They borrow from, overlap but are not the same as those in Eisenmann, Parker and Van Alstyne (2011). In general, none of these authors consider the trade-off choices between different business models.

**Proposition 2a: The profit (surplus) opportunities of the triadic multisided business model is always greater than that of the (equivalent) dyadic business model, unless**
there are negative externalities between the second side of the business model and the experience of the user-consumer.

Proposition 2b: Where there are negative externalities from the second side of the business model, and where the total surplus available on the second side is small in comparison to the surplus on the user-consumer side, then it pays to remain a dyadic business model and avoid triadic options.

BUSINESS MODELS, PLATFORMS AND TECHNOLOGY
How does advanced technology inter-face with business model choices? It is important not to confuse products, or services or technologies that perform a function that is essential to a broader technological system with the concept of the triadic business model. The first does not necessarily imply the second.

It is well known that when firms are involved in platform ecosystems, their product design and pricing influences the design and demand for other complementary products (Teece, 1986; Stabell and Feldjstad, 1998, Cusumano and Gawer, 2002, Gawer, 2014). The personal computer is a platform because it allows component producers and software to provide complementary services; yet the business model for monetizing personal computers is typically dyadic - the final consumer pays for the computer directly and (ideally) considers the total price of the computer and all its peripherals in making the purchasing decision. Of course there are important plays between component providers, some of whom pay others to participate or not – but this does not obviate the fact that overall demand is driven by a single set of customers.

A platform has greatest value when it can mobilize and connect multiple otherwise unconnected customer groups – the triadic business model situation. Search engines are triadic and they operate a digitally advanced technological platform; they are multi-sided because they connect advertisers and users who are otherwise separated. Some component actors can in exceptional circumstances do the same – designers of silicon chips can persuade not just those using the device to pay a fee, but they can persuade providers of complementary design services that in turn are monetized by advertising to contribute. It is this tracing back to a new ultimate consumer-user that makes the business model triadic.

In sharp contrast, not all the triadic multi-sided business models need a technological platform – charities for helping the poor being a salient example. The beneficiaries (typically
served using face to face service rather like work-for-hire) are financed by middle class and wealthy donors who do not benefit directly from these services. Although a modular digital platform technology is able to assist these charities in both collecting revenues and distributing service more efficiently, the business model does not rely on modern or modular technology to be effective. Table 2 summarizes the 4 possibilities

**TABLE 2 ABOUT HERE**

**Table 2: Platform-business model configurations**

<table>
<thead>
<tr>
<th></th>
<th>Non-platform technology</th>
<th>Platform technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triadic Business Model</strong></td>
<td>Charities that assist the poor and needy</td>
<td>Advertising supported digitally driven search engine that bundles services together</td>
</tr>
<tr>
<td><strong>Dyadic Business Model</strong></td>
<td>Classic stand-alone product</td>
<td>Razor-blade such as camera and film – the camera being a platform for film and other services</td>
</tr>
</tbody>
</table>

© Authors assert copyright in the table

**DISCUSSION**

Our work has sought to set out a principled-based classification system for business models that has as its central focus the investigation of the relationship between customers and the firm. We borrowed from sociology to create a socio-economic account that distinguishes between *dyadic* and *triadic* business models, that is generative and can account for well-known *dyadic* types such as work-for-hire, simple product, razor-blade and servitization, and *triadic* types of market-matchmaking and multi-sided. Our ideal types are categories set out to assist thinking, not to present the world exactly. In the real world everything is messy; almost all *dyadic product* firms operate a complementary *work-for-hire dyadic* business model because their owners give advice or offer any form of personalized pre-sales or after-sales service. Moreover the boundaries are blurred – most firms are potentially triadic as
there are often staff who come to work for pleasure as well as for money, and some of the supply network provide services or goods or knowledge for less than full cost.

Our discussion of value and profit comparisons between different business model categories is parsimonious and simple. Despite the extensive work undertaken by economists, we believe that none are cogent in explaining the trade-offs faced by the entrepreneur-venturer, or fully appreciating how these choices influence value. We recognise that our discussion only scratches the surface of a wide range of situations.

There are at least two ways in which business model research can build on our first insights: on the firm level and on the industry level. On the level of the firm, our classification allows a clearer understanding of what is meant by business model innovation, pointing out that the topic can be dealt with more easily in the conceptual category-based system than in the purely realist approach. Our perspective suggests that researchers should classify changes by reference to how closely their activity systems come to fit to a particular ideal type (an approach followed by Casadesus Masanell and Yoffee, 2007). Firms may - in their rhetoric - talk of moving between, combining, adopting and rejecting different business models (Perkmann and Spicer, 2010; or Doganova and Eyquem-Renault, 2009, or Mikhalkia and Cabantous, 2015). They can also adopt multiple types into a portfolio (see particularly Sabatier, Rousell, Mangematin, 2010). Our framing however allows researchers who study the empirical experience to make the distinction as to whether the result is new to the firm, new to the industry or new to the world; that is taking a particular business model category and applying it to a new situation (industry or country), or even as innovating into genuinely new categories or combinations of categories. This approach stands in contrast to that of the realists, where researchers are always confronted with the problem of defining consistent boundaries between categories that makes it difficult to know if an innovation is new to the industry or world. Our approach provides a great opportunity to revisit past empirical work on business model innovation using this classification system to further tease out the contingencies and dynamics of business model innovation.

On the level of the industry, business models can serve as units of analysis that link activities of value creation with activities of value capturing that may span several firms. We can talk of the business model for the smartphone industry being dyadic when there are no advertisers or data sales in the overall equation, and triadic in the opposite instance. And our analysis the value of a smartphone lies in the eyes of the consumer. She (he) will typically consider total costs of hardware and software when making a decision, a cost that depends on a complex of business relationships in the ecosystem binding hardware manufacturers to an
entire stack of software providers – and it is this that drives overall industry demand. However, each app developer is confronted by a tricky problem that the developer is only an element in the system. The developer needs to identify a business model that fits into the *system integrators* who have already established their business model that sells the smartphone. Two consequences arise for future research.

First, it becomes clear that in many industries business models are nested within a value network. This is consistent with Stabell and Fjelstad whose work (1998) pioneered a perspective on networks of firms that take value creation as a focus. It may be argued that much of the alliance literature has lost this purposive and creative outlook on firm ties. Our classification makes clear that a value chain is a special case and that value capturing from an (ultimate) customer enables a larger yet tightly linked network that can be characterized as a business model. Theoretically, customer value may drive the design of business ecosystems and the business model as a unit of analysis could help formulate a purposive or functional logic that starts where customer value can be monetized. In other words, business model research can support the work on strategic alliances with ideal types of business models visible in various forms of brokerage and network formation.

Second, business models challenge the distinction between corporate strategy and industry dynamics. A conglomerate with separate business units can be defined as a firm with a business model portfolio, and an industry can be defined as a value network. If we take seriously the role of the customer as the arbiter of value then pricing is more than a local performance outcome: value capturing as monetization is inextricably linked with value creation, be it within the same firm or not. The buyer of a smartphone discriminates among smartphones independent of the transfer pricing between, say, hardware and software; and the consequences for strategic thinking touch upon both corporate strategy and industry dynamics because value, more than transaction costs, drive preferences and demand.

We only scratched the surface when discussing technology. We recognize that technology plays a critical role in how we think about these categories and how they are enacted (Baden-Fuller and Haefliger, 2013). There we noted that prior to the arrival of digital technology, firms found it difficult to enact triadic business models as profit-making businesses. The key elements of these business models: a platform and mechanisms for connecting buyers and sellers without the two sides interacting directly, was often problematic to enact. The arrival of digital technology altered the way in which firms could enable these models, as well as altered the quality of what they could deliver via the platforms. We can say that Google’s free search paid by advertising did not invent a new
business model in the sense of creating a new concept-based category; rather, Google’s innovations with the technology of platforms made the importance of a hitherto marginal way of organizing (triadic - platform) more central. It made the category an object for theoreticians – as is made very clear in the work of Rochet and Tirole (2006), who use both old and new technology examples as illustrations for their theorizing. It also helped managers of businesses to grasp the potential value in moving their firms from one business model category to another. Whilst conceptually a category does not contain technology, its enactment can do so. So we can say that technology makes some ideal types more relevant and understandable, and in that sense we can say changes in technology may be strongly associated with business model innovation.

There are further benefits for our approach. Currently there are many tool-kits and frameworks offering assistance to managers for designing their business models and thus to understand how they can create and capture value. Many of these systems ask managers to classify the firm’s competencies and capabilities, but it is apparent that the choice of business model determines which competencies are valuable, in particular shifting between dyadic and triadic categories requires different capabilities and competencies in the customer-firm interface. This suggests that whilst competencies and capabilities are an element that help determine the choice of business model, it is as Casadesus-Masanell and Ricart (2010) suggest, business model choice that comes first.

Finally, we ask whether different categories under our classification system have different degrees of difficulty for enactment by managers, either as a new start up, or as a venture division, or for an existing firm or division to “move towards” from a position to another category. This could be on account of lack of cognitive difficulties (as well as resource difficulties). Several researchers have pointed to the cognitive challenge as being the key blockage e.g. Tripsas and Gavetti (2000), Sosna et al. (2010), and more recently Rumble and Mangematin (2015). A principle-based classification system allows for a more comprehensive study to be undertaken across a wide sample of firms in different contexts to determine whether these difficulties are general.
REFERENCES.

© C. Baden-Fuller, Guidici, Haefliger, Morgan, Cass Business School, 2015
Mangematin V. and Rumble R., forthcoming 2015, Business Models: Configurations and Antecedents; *Advances in Strategic Management, 34 xxx-yyy*
Muller-Wille, S. 2007 “Collection and collation: theory and practice of Linnaean botany” *Studies in History and Philosophy of Biological and Biomedical Sciences* 38: 541-562
Pinch, T. J. and W.E. Bijker (1984) The social construction of facts and artefacts: or how sociology of science and the sociology of technology might benefit each other *Social Studies of Science* 14(3) 399-441
Priem, R.L., S. Li, J.C. Carr (2012) Insights and new directions from demand-side approaches to technology innovation, entrepreneurship and strategic management research *Journal of Management* 38(1) 346-374


Vargo, S.L. and R.F. Lusch, 2004, Evolving to a new dominant logic in marketing, *Journal of Marketing* 68(1) 1-17


