

# Re-thinking E-commerce Business Modelling in Terms of Interactivity

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The business and management communities are interested in understanding cyberspace as a business venue. To date, understanding has been pursued by analysing the cyberspace venue using presumptions from theories and practices evolved in and for the traditional business venue of the physical world ('real space'). We believe the results have been poor, because these communities underestimate the uniqueness of cyberspace. More specifically, they underestimate how much the character of cyberspace negates or obviates factors fundamental to established business practices and theories thereof.

This can be illustrated by considering the constructs of area (extent) and distance (proximity). We acknowledge these essential dimensions in real space, and we metaphorically apply them to 'territorialize' abstract spaces. To date we have applied 'extent' to territorialize (e.g.) the flow of commerce as well as its governance through marketing regions and regulatory jurisdictions, respectively. We have applied 'proximity' to define costs influencing business decisions on suppliers, customers, and marketing tactics. These applications overlook the fact that 'spatial conception of the Internet is pure analogy' (Bambury 1998), and an imperfect analogy at that.

The fact is cyberspace effectively negates much of the territorialization

inherent in conventional business experience. Extent is no longer demarcated by location, because Internet 'locations' are Internet Protocol designators universally addressable one to another. Instead, the relevant 'extent' is that of an online global audience vastly larger than localized consumer populations. Except for transfer of physical goods, proximity is essentially uniform among all members of this audience as a result of both universal addressing and near-instantaneous data transfer. As such, these factors (literally or analogically) are of limited utility in analysing and redesigning enterprise structures and processes.

These novel conditions require a rethinking of business analysis, and we shall proceed with reference to the work of Normann and Ramirez in the late 1980s and early 1990s. Their analysis of business innovation in some 20 European multinationals clearly indicated value-creating systems had changed due to technology-driven discontinuities (Normann and Ramirez 1994). Offerings (products and entailed services) are designed by a 'provider' with a set of properties which may be bundled or unbundled by a customer via a 'code' (information guide). The provider helps the customer create value, and the customer actively contributes to the value creation process. This reciprocal relationship is quite distinct from the

## A b s t r a c t

To date, e-commerce business modelling is both confusing and confused. To focus theory and research agendas we analyse the cyberspace venue and business transactions. Our literature review and theoretical development highlight interactivity as the key dimension in e-commerce (and the modelling thereof). Our examination of interactivity has yielded a three-phase model for business transactions, a focus on agitecture (pattern of interactions / relationships), a new viewpoint on aggregation, and the construct of 'paramediation' as an improved characterization of value chain collaboration. These results provide a basis for upcoming theoretical analyses and practical testing.

Keywords: e-commerce, business model, interactivity, affordance, agitecture, paramediation

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Table 1. A Three-Phase Schema for Business Transactions

Phase	Poremptive	Emptive	Abemptive
(Literal Meaning)	'Toward the transaction'	'Pertaining to the transaction itself'	'Away/deriving from transaction'
Example of vendor activity	<ul style="list-style-type: none"> <li>• Market product</li> </ul>	<ul style="list-style-type: none"> <li>• Take order</li> <li>• Deliver product</li> <li>• Receive payment</li> </ul>	<ul style="list-style-type: none"> <li>• Support user</li> <li>• Support product</li> </ul>
Example of consumer activity	<ul style="list-style-type: none"> <li>• Recognize need</li> <li>• Seek product</li> </ul>	<ul style="list-style-type: none"> <li>• Enact order</li> <li>• Make payment</li> <li>• Receive product</li> </ul>	<ul style="list-style-type: none"> <li>• Deploy product</li> <li>• Use product</li> </ul>

conventional one-way 'value chain' business activity model, characterized by linearity, unidirectionality and sequentiality.

Normann and Ramirez term this new form a 'value constellation', characterized by synchronicity, parallelism and distributed co-processing. Consumers and other partners, suppliers, etc., actively co-produce relationships, manifested as offerings, along with the enterprise. These joint value-creating processes are assets, the stability of which depend upon active, educated, well-informed and sophisticated customers. Customers are now part of the firm's competence network along with suppliers, manufacturers, partners and investors (Pralhad and Ramaswamy 2000). Customer-supplier relationships are increasingly based on active dialogues, in which the consumer directly contributes to value creation.

In cyberspace this interactivity is conducted with multi-level access, multi-channel communications, multi-modal content, and a shifting customer population. These factors make it difficult for a business to maintain yet another form of conventional territorialization – its self-defined configuration as specified in its business model. The implications of 'value constellations' therefore illustrate our initial point: *Cyberspace has de-territorialized business, and e-commerce must be addressed in a new perspective unencumbered by historically territorialized concepts.*

In this paper, we review the confusing (and confused) state of business modelling with respect to e-commerce. Our prevailing theme is that the novel issues in e-commerce are primarily issues concerning interactivity among buyers and sellers, because the Internet is a communication medium. As a result, we argue a shift of focus is appropriate for e-commerce business modelling – a shift subordinating the resultant enterprise architecture specification to specification of the interactions the redesigned enterprise is intended to conduct in cyberspace. We argue this focus eliminates the distinctions currently made between B2C and B2B, which are considered firmly based in 'real space' economic theory (well-illustrated by the papers published in the *Journal of Business-to-Business Marketing*). To keep the discussion as illustratively clear as possible, the paper will address transactions involving tangible goods. Because traditional service provision has relied so heavily

on information, it is more difficult to lucidly differentiate the impact of the Internet in this area.

## E-COMMERCE

### A Three-Phase Schema for Business Transactions

To illustrate the impacts of commerce in cyberspace, we must dissect business transactions. Analytically, business transactions can be usefully differentiated into phases of interaction between supplier and consumer, as illustrated in Table 1. We use the terms *poremptive*, *emptive*, and *abemptive* to denote activities leading up to, enacting, and leading away from the transaction, respectively.

This three-phase schema provides us with a basis for drawing some useful distinctions in comparing conventional business activity in real space with e-commerce. For the purposes of this paper, we shall concentrate on the first two phases (poremptive and emptive activity). Of particular significance is the poremptive phase, which is overwhelmingly an informational (as opposed to physical) activity when compared with the other two phases.

The traditional venue for commerce is real space, wherein the end result of commerce is (e.g.) a transaction involving the transfer of a tangible good from one to another geographic location. In this conventional setting, poremptive and emptive interactions are accomplished through channels selected (and/or maintained) by the sellers (e.g., brick and mortar retail stores). In the new cyberspace venue, the end result of commerce may well be the same as before (transfer of a physical product). However, customer poremptive activity is no longer constrained to vendor-selected channels of access (e.g., storefronts). As a result, control over customer poremptive activity is surrendered to the customers themselves or to intermediaries brokering customers' access to vendor products and/or information about those products.

We consider this increase in customers' and external intermediaries' control over the poremptive phase the key to understanding the new topology of e-commerce (as opposed to conventional trade). Topology is the term used to connote the architecture, or physical configuration, of

a data network. In a similar sense, we use it to connote the layout of an interactional network. With diminished control over the poremptive phase, enterprises should redirect their sales and marketing strategies to allow for more proactive customers. The thrust of marketing shifts from how best to target potential buyers to how best to be targeted by those potential buyers. This in turn requires re-emphasizing/re-evaluating the customer's attitudes, preferences and poremptive capabilities. With respect to attitudes and preferences, both business management and academia are researching issues of customer goodwill and consumer trust (Camp 2000, Gambetta 1988, Schneider 1999).

In this paper, we focus upon the third, as yet undeveloped, topic – poremptive capabilities. Increased poremptive control costs consumers in terms of reading, writing and computer skills to access and navigate the Internet. Effective poremptive reconnaissance requires additional skills for identifying and collating alternatives. Accordingly, customers will exhibit varying degrees of *sophistication* ('having or showing a knowledge of how to behave' – *Longman Dictionary Of Contemporary English* 1983) with respect to cyberspace navigation and manipulations. Each customer's potential poremptive control is proportionate to his/her sophistication.

For sellers, customer relationships are increasingly volatile. The firm must be sufficiently cognizant of customers' value-creating activities to facilitate motivation for contact, collaboration and transaction (Normann and Ramirez 1994). As such, businesses can exploit cyberspace to the extent their sophistication (with respect to providing accessibility and transactional capabilities) is sufficient to lure and serve customers in the new venue. This prioritizes 'expressiveness' or 'eloquence' in portraying the business and its products. The cliché for success in real space was 'location, location, location' – the ultimate territorialization. We suggest the analogous maxim for e-commerce is the de-territorialized 'locution, locution, locution'.

## BUSINESS MODELS FOR E-COMMERCE

Currently, importance is attached to understanding how cyberspace operations will affect specification of business structures and processes – i.e., an enterprise's value creating systems and capabilities. Such specifications are compiled as a discrete *business model* – a construct whose universal invocation is not matched by any universally recognized definition. For the sake of this discussion, we shall follow Timmers' (1998: 4) definition: 'An architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues.'

To date, e-commerce business model overviews have exhibited dissimilar contextualization and differential foci, as illustrated in Table 2.

Because the empirical evidence is case-based, anecdotal, and still emerging, there is no sound basis for constructing (much less evaluating) models. We believe this situation is made worse by two problematical presumptions:

1. *Re: The context of business modelling*: Business in cyberspace can be addressed in the same manner as business in real space.
2. *Re: The approach to business modelling*: Models of cyberspace business can be delineated in the same manner as previously.

In the following two subsections, we shall address these problematical presumptions in turn.

### Re-thinking the context for business modeling

Industry and government are struggling to understand how businesses can best adapt to, and thrive in, cyberspace. Unfortunately, the empirical data is sparse and consists of anecdotes and isolated case studies. By default, analyses repeatedly base themselves on historical experience with physically enacted exchanges in real space (Bambury 1998). Business models descended from this experience address physical goods proceeding from origin to customer possession – the very process facilitated by, but not enacted within, the new cyberspace venue. Furthermore, such models territorialize (e.g.) production (outputs per unit time); customer base (local population); and markets (geographic sales areas). These models are therefore ill-suited for framing the de-territorialized character of cyberspace.

The Internet is a communications medium whose impacts derive from innovations in interactions, not actions *per se*. The new venue's most critical dimension is interactivity among networked participants. As noted earlier, firms must now engage in active dialogues with customers to develop and exploit offerings. Optimum adaptation to cyberspace will entail optimum consideration of business in terms of interactivity. This in turn will require a shift in the default scope of concern when delineating a business model.

Enterprise-specific re-organization trends during the last two decades (Business Process Re-Engineering, Just-in-Time, outsourcing, down-sizing, focus on core competencies, etc) have proceeded from the enterprise's internal perspective. This internal focus alone does not explain the well-documented trend of firms' redefining their roles in the broader marketplace – e.g., ceasing to be 'conglomerates', retreating from 'full service', and focusing on niche activities. These outcomes are better explained as adaptations based on expectation of participation in one or many alliances or networks. In other words, these are adaptations grounded in changes in the interactions in which these firms engage (both currently and prospectively).

Ultimately, business is about transaction, intercourse and interaction. The old adage 'Build a better mousetrap, and the world will beat a path to your door' is taken too literally

Table 2. Variety in E-commerce 'Business Model' Schemata

BAMBURY (Bambury 1998)	BUCKLEY (Buckley 1999)	RAYPORT (Rayport 1999)	TIMMERS (Timmers 1998)	WERBACH (Werbach 2000)
<ul style="list-style-type: none"> <li>• Mail-order</li> <li>• Advertising based</li> <li>• Subscription</li> <li>• Free trial</li> <li>• Direct marketing</li> <li>• Real estate</li> <li>• Incentive scheme</li> <li>• B2B</li> <li>• Library</li> <li>• Freeware</li> <li>• Open source</li> <li>• Info barter</li> <li>• Digital products and delivery</li> <li>• Access provision</li> <li>• Website hosting and Internet services</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregators</li> <li>• Auctions</li> <li>• Exchanges</li> </ul>	<ul style="list-style-type: none"> <li>• Content business</li> <li>• Advertising-driven</li> <li>• E-commerce (goods for profit)</li> <li>• E-commerce (non-goods, non-profit)</li> </ul>	<ul style="list-style-type: none"> <li>• e-shop</li> <li>• e-procurement</li> <li>• e-auction</li> <li>• e-mail</li> <li>• 3rd party marketplace</li> <li>• Virtual communities</li> <li>• Value chain integrator</li> <li>• Value chain service provider</li> <li>• Collaboration platforms</li> <li>• Information brokers</li> </ul>	<ul style="list-style-type: none"> <li>• Originators</li> <li>• Syndicators</li> <li>• Distributors</li> <li>• Consumers</li> </ul>

*Descriptive Context for the Models*

Translated + Internet Native	Generic	Internet-Specific	Internet-Specific	Syndication-Specific
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*Criterion for Categorization*

Type/conditions of service provided end consumers	Type of intermediation between buyers and sellers	Type of focal product or value-creating service	Type of sales venue or value-creating services	Position in syndication value chain
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in modern business practice. Current practice prioritizes the internal process of building the better product at the expense of considering those 'external' processes through which the adage's payoff is to be obtained – i.e., knowledge of the need, broadcasting the fact of availability, and handling any demand. This 'internally focused perspective' has even evolved to the extent businesses gear their business decisions to facilitate improvement in internally defined parameters, yet separate from the business process itself (e.g., quarterly earnings statistics; shareholder psychology; stock valuation). Crudely stated, modern business and management strategies tend to treat enterprises as 'black boxes' (i.e., absent consideration of the total transactional environment). This limits the scope of business development to whatever can be done by re-engineering the business enterprise in and of itself.

The impact of the Internet has been to provide an open venue for interactivity including business transactions. Business modelling should accordingly expand its scope from enterprises as 'black boxes' to enterprises as working entities in this open venue. This means the basic terms of reference with which business models are currently framed

would change. For example, much has been written and debated over how to engineer enterprises to effect strategies of 'supply-push' versus 'demand-pull'. This discussion has typically focused upon the constructs of 'supply' and 'demand' (as objects of reference and manipulation). The interactional focus of e-commerce requires a shift of emphasis to the constructs of 'push' and 'pull' themselves (as processes of reciprocal interactivity and influence).

As such, we offer the following contrast to illustrate the definitive criterion for differentiating e-commerce from traditional trade:

- *Business in Physical Space.* You generate value when you supply a tangible unit product the consumer procures and possesses.
- *Business in Cyberspace.* You generate value when you supply an *affordance* a consumer (e.g., an individual customer; another business) elects to pursue.

We invoke the term 'affordance' following psychologist James J. Gibson – i.e., an opportunity for action furnished (i.e., 'afforded to') an actor. Phrased another way, an affordance is a real, external state of affairs of specific

operational relevance to an actor (Reed 1988). The actor discovers and learns how to make use of information available in the environment in ways that are relevant, i.e., meaningful, to his/her activities and needs (Gibson 1979). An affordance is equally a fact of the environment and a fact of (actor) behaviour. This usage is not the same as the more common connotation of ‘having sufficient means’ (i.e., ‘be able to purchase’). Although this latter connotation is certainly important in business transactions, it is the Gibsonian sense that applies to the prospect or opportunity for transaction – the most relevant aspect of cyberspace’s impact on commerce.

## Re-Thinking the approach to business modelling: Infrastructure vs Agitecture

Business modelling has prioritized the structure (configuration of fixed elements) of an enterprise in and of itself (i.e., as another fixed element). Cyberspace is a fluid realm of actions in which elements are not fixed in a traditional sense. Furthermore, as a communicational medium cyberspatial activity is delineated among players, not by the players themselves. Although a structural perspective on a single enterprise is naturally valuable to management (defined themselves in terms of that unit enterprise) seeking a ‘business model’ (by definition a structured schema), it would seem ill-suited to the character of the nascent cyberspace business venue.

More specifically, business modelling focuses upon optimum enterprise *infrastructure* (structural composition) – a view circumscribed by the bounds of the enterprise itself. Cyberspace business modelling must focus upon an enterprise’s configuration of actions and operations – a vantage whose delimitation expands to the bounds of those domain(s) in which the enterprise operates. We call such a configuration the enterprise’s *agitecture*, by application of the Latin *agere* (to do or act). Agitecture connotes an enterprise’s activities as an entity within a domain of interactions with other entities. It is therefore distinct from prior ‘process-oriented’ perspectives focused upon the enterprise itself (i.e., the enterprise procedural/processual infrastructure). Enterprise infrastructure will necessarily set the character and features of enterprise agitecture. Conversely, specification of agitecture informs and guides the specification of relevant infrastructure. Current business modelling both starts and stops with infrastructure, whereas cyberspace’s nature requires starting with agitecture (current and prospective), then formulating an infrastructure suited to the target parameters derived therefrom.

We claim reliance upon infrastructural features obscures as much as it illuminates when seeking general business models. Let us illustrate this with the B2B taxonomy of Kaplan and Sawhney (2000). Kaplan and Sawhney’s first key dimension (manufacturing versus operating inputs) discriminates on the basis of consumers’ internal usage, and hence is predicated on consumer infrastructure. Insofar

as this distinction is clearest in manufacturing operations (i.e., the ‘old economy’), one must question its criticality to service providers specifically and cyberspace businesses generally. It is unclear what permutations for analogous subdivisions within a ‘personal operations infrastructure’ would permit this dimension to be applied to end consumers (i.e., individuals and households). The point is that this infrastructurally delineated dimension is problematical to generalize even within the context of B2B (beyond consumers who are manufacturers).

Switching from infrastructure to agitecture has the analytical advantage of minimizing the ‘noise’ of details peculiar to one or another player. For example, an agitectural perspective would avoid the issues noted above for Kaplan and Sawhney’s distinction between purchaser inputs. Generalization of such models requires the ability to treat both individual and business consumers as predominantly equivalent – i.e., to prioritize their commonalities over their peculiarities in accordance with their relative equivalence as cyberspatial operators. We claim such equivalence is already implicit in the business modelling literature, camouflaged primarily by terminology designed to address one or another audience. Kaplan and Sawhney’s second key dimension (systematic versus spot sourcing) discriminates among modes of agitectural behaviour (recurrent subsidiary versus repeated discrete transactions). Note this agitecturally delineated dimension is analytically neutral with respect to the transactors’ respective infrastructures. This makes it more readily transposable to individuals and households, and hence more readily useful in understanding e-commerce (among both businesses and end consumers).

Another illustration concerns Buckley’s taxonomy (see Table 2). His three categories each establish a forum (nexus for interaction). With aggregators, this will serve to mediate between populations of consumers and suppliers. Exchanges and auctions provide more direct dyadic engagement between a given buyer and a given seller. What is ‘aggregated’ by all three is not the goods being transferred, but the set of potential interactions implicit in a given transaction. The detailed features (e.g., dynamicism of pricing) are secondary to this focusing of interactional relationships.

## How an Agitectural Perspective Affects E-commerce Analysis

We have argued for four key orientations in e-commerce business analysis and modelling:

- Focus on the customer
- Prioritizing interactivity as the critical phenomenon
- Addressing customer affordances in and during such interactivity
- Framing analyses in terms of interactional agitecture as opposed to structural architecture.

In this final section we shall illustrate the impact of treating these orientations seriously and adopting the perspective they entail.

Table 2 presented representative taxonomies differentiating business models via intermediation, exchange, product and value chain position. These distinctions are framed with regard to firm infrastructure or to the overall process ‘architecture’ comprised of multiple firms. If we adopt the vantage of the interacting customer, we see the transactional goal is to procure and receive a product or service. The subsidiary goals are feasibility (e.g., costing, logistics) and optimality (among alternatives). There is no necessity to address, much less understand, the mechanics of any ‘chain’ terminating in the goal state. As a result, the customer’s agitectural vantage prioritizes points of contact over nodes of production. This in turn leads to reinterpretation of familiar themes in the e-commerce business modelling literature. We shall close this introductory paper by presenting two such reinterpretations as illustrative examples.

### Aggregation as an Agitectural Characteristic

Interaction need only occur with one or a few members of the value constellation. Interactivity for all but the customer transaction is outside the scope of that customer’s ken and concern. These principles allow us to return to and re-examine a common feature in e-commerce taxonomies. One of the most cited e-commerce models (or metamodels) is a forum or nexus through which the consumer obtains unified access to a variety of products. Buckley’s ‘aggregators’, Timmers’ (e.g.) ‘e-malls’, and Kaplan and Sawhney’s ‘hubs’ are examples of such ‘aggregation’ in both B2C and B2B supply chains. The conventional, structural, business modelling perspective treats such aggregation in terms of intersections in the supply chain.

From a customer-focused agitectural perspective, this same aggregation is treated in terms of interactivity in the course of a unit transaction. In other words, it is not the supply streams whose aggregation is of primary importance – it is the set of different porempive/emptive interactions entailed in completing a given transaction. Customer sophistication is less a limitation when these interactions are fewer (or at least all facilitated from a common starting point). The number and diversity of affordances to be exploited is reduced, as are the potentials for transaction-defeating events such as making errors, getting lost, becoming overwhelmed, and giving up from frustration.

This, we believe, is the most important sense in which eBay, Amazon, and Advanced Book Exchange (ABE) ‘aggregate’. The conventional view of ‘aggregation’ as supply chain consolidation applies only figuratively to eBay and ABE, because purchasers negotiate and effectuate final transfer of the purchased product outside the scope of these enterprises’ services. The agitectural perspective better explains these firms’ success in terms of their

‘aggregating’ porempive interactivity into searches within one venue.

### From Intermediation to Paramediation

From a customer-focused agitectural perspective, interactional partners are differentiated by transactional role, not value chain position. The necessity and the sequencing of interactions are framed with regard to the procurement transaction itself, not to the production/marketing process as seen by the sellers. So long as one focuses on the physical transfer of goods (a procedure subject to the territorializing bias of real space), it is easy to consider auxiliary parties as stepping stones in a linear path terminating with the customer. For example, it would seem straightforward to consider the UPS courier the last process node in getting a specific packaged product to the buyer.

However, this holds up only so long as we consider the focal phenomenon of interest the progress of that specific item from manufacture to market to final end-point delivery. This is not the perspective of the customer. Indeed, most of this ‘product’s progress’ is conducted out of the customer’s sight, and the UPS courier’s delivery marks not a last step, but the first occasion when the customer actually engages the ware he/she has obtained. Prior to that point, the product is hardly more than a cursory point of reference in a series of porempive enquiries and emptive interactions.

To the online buyer, the seller and the UPS courier operate collaboratively to effect the transaction. The discrete, bucket brigade sequentiality apparent when tracing ‘product’s progress’ is only weakly evident to the customer tracing ‘transaction’s progress’. As such, we believe the concept of ‘intermediation’ needs to be reconsidered in e-commerce business modelling. Emphasizing interactivity from the customer perspective leads us to recast this as *paramediation* – activities appearing parallel in achieving an end, and distinguished only temporally with respect to specific interactions in the course of the overall transaction. Paramediation applies ‘para’ (beside; parallel to) to connote co-effectuation of a transaction by means that appear more parallel than serial from the focal perspective.

The dramatic rise of PayPal as a payment facilitation service is a good example of paramediation. PayPal operates in parallel to the other actors in an online transaction (e.g., eBay and the seller). Although it is an ‘intermediary’ in getting the consumer’s money to the seller, PayPal cannot be construed as an intermediary in the conventional ‘product’s progress’ view of online business. To the consumer, PayPal is analogous to the UPS courier – another actor in the ‘constellation’ of contacts made to complete the transaction. The selection of Billpoint as eBay’s official payment facilitation partner further illustrates how paramediations can become *de facto* components (from the customer’s viewpoint) of a conventionally delineated ‘aggregator’. From our agitectural vantage, it is more

usefully seen as an additional type of interactivity ‘aggregated’ into the set of eBay interactions a buyer may engage. Even more interesting is ABE’s recently introduced paramediary payment facilitation in accepting credit card payments on behalf of participating booksellers who themselves do not accept credit cards. This example illustrates a conventionally recognized ‘aggregator’ which has itself adopted a paramediary role.

## Research Status

We have researched networked collaboration and interactivity for over a decade. Our recent review and analysis of e-commerce have:

- illuminated why cyberspace is a unique venue within which business models and practices need reinterpretation in terms of interactivity;
- provided a more discriminating transaction analysis through subdivision into poremptive/emptive/abemtpive phases;
- clarified the priority of poremptive activity in e-commerce;
- afforded clearer analysis of the confused state of e-commerce business model schemata;
- replaced architecture with agitecture as the primary analytical focus;
- identified customer affordance enhancement as a key e-commerce success factor;
- reinterpreted ‘aggregation’ from an agitectural perspective;
- introduced and illustrated ‘paramediation’ as an improved description for e-commerce collaboration.

These results form the basis for ongoing theory development via deeper analyses applying these innovative concepts. We are also assembling tools and methods for agitecturally focused applied research, leveraging our prior work in (e.g.) participatory business modelling (Whitaker *et al.* 1991). Finally, we are negotiating with firms to conduct case studies generating empirical data and testing our proposed approach. We believe such case studies will demonstrate both the viability and advantages of adopting interactivity as the proper focus of e-commerce analysis.

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