



# RESEARCH NOTE

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## Business Models for Electronic Markets

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Electronic commerce over the Internet may be complementary to traditional business, or it may represent a whole new line of business. In either case, in view of the new features of the Internet, some critical questions to be answered include:

- ❑ what are the emerging business models? (and related to this)
- ❑ which strategic marketing approaches are applied, or emerging?

This article addresses the first question above by providing a framework for the classification of Internet electronic commerce business models. This framework has been developed on the basis of current commercial Internet business and experimental work in European R&D programmes.

## Introduction

Electronic commerce can be defined loosely as “doing business electronically” (European Commission 1997). Electronic commerce includes electronic trading of physical goods and of intangibles such as information. This encompasses all the trading steps such as online marketing, ordering, payment, and support for delivery. Electronic commerce includes the electronic provision of services, such as after-sales support or online legal advice. Finally it also includes electronic support for collaboration between companies, such as collaborative design.

Some forms of electronic commerce exists already for over 20 years, e.g. electronic data interchange (EDI), in sectors such as retail and automotive, and CALS (Computer Assisted Lifecycle Support) in sectors such as defence and heavy manufacturing.

These forms of electronic commerce have been limited in their diffusion and take-up. Recently, however, we see an explosive development in electronic commerce. The reasons for that are, of course, the Internet and the World Wide Web, which are making electronic commerce much more accessible. They offer



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easily usable and low cost forms of electronic commerce. Electronic commerce on the basis of the Internet is set to become a very important way of doing business.

Forrester (1997) forecasts that business-to-business (B-to-B) electronic commerce will grow to \$327 billion in the year 2002 - that is the value of goods and services traded via the Internet. This excludes the value of the hardware, software and services that are needed to perform electronic commerce, whose value is estimated at several hundred billions of dollars likewise. Between 1996 and 1997 electronic commerce has been growing at over 1000 percent per year. While such high growth rates will not be sustained, it is clear that electronic commerce will become pervasive: Datamonitor (1997) expects in 5 years time 630,000 US companies and 245,000 European companies to be involved in full-fledged integrated B-to-B electronic commerce. The Report on Electronic Commerce (1998) expects that the business-to-business penetration rate will grow from 10% in 1997 to 90% in 2001.

Although the number of consumers on the Net by the year 2000 could be several 100 millions it is expected that business-to-business will constitute the larger part of electronic commerce.

With the new medium - the Internet – also new ways of doing business are developing. Most of those that capture the public attention are consumer-oriented (such as Amazon.com, Tesco). Less publicity is given to the way the Internet can be used for business-to-business electronic commerce, although such commerce is a reality today (e.g. Cisco, General Electronic procurement, etc). New forms of electronic commerce are being piloted in many sectors of industry, for business-to-business, business-to-consumer and business-public administrations relationships. Advanced pilot experiments in new business models are being supported by the European Commission in the ESPRIT and ACTS European research, technology development and demonstration programmes. This work is part of a more general framework of policy-making and programmes for global electronic commerce, which also addresses the legal and regulatory framework and other factors in the business environment.

## Classification of business models

The literature about Internet electronic commerce is not consistent in the usage of the term ‘business model.’ Moreover, authors often do not even give a definition of the term.

Therefore, before embarking upon an approach to construct business models, first a definition is given of what is meant by a business model.

### Definition of a business model

- ◆ 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.

A business model in itself does not yet provide understanding of how it will contribute to realise the business mission of any of the companies who is an actor within the model. We need to know the marketing strategy of the company in order to assess the commercial viability and to answer questions like: how is competitive advantage being built, what is the positioning, what is the marketing mix, which product-market strategy is followed. Therefore it is useful to identify beyond business models also “marketing models”.



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### Definition of a marketing model

- ◆ A business model; and
- ◆ The marketing strategy of the business actor under consideration.

*The classification developed below is for business models only.*

### Value chains and business models

A systematic approach to identifying architectures for business models can be based on value chain de-construction and re-construction, that is identifying value chain elements, and identifying possible ways of integrating information along the chain. It also takes into account the possible creation of electronic markets. These can be fully open, that is, with an arbitrary number of buyers and sellers, or 'semi-open' that is with one buyer and multiple sellers (as in public procurement) or vice-versa. The scheme is as follows:

- (i) Value chain de-construction D means identifying the elements of the value chain, for example as in Porter (1985) who distinguishes nine value chain elements. Namely, as primary elements inbound logistics, operations, outbound logistics, marketing & sales, service; and as support activities technology development, procurement, human resource management, corporate infrastructure;
- (ii) Interaction patterns, which can be 1-to-1, 1-to-many, many-to-1, many-to-many. In this context '1-to-1' is to be understood in as enumerating the number of parties involved rather than in the 'one-to-one marketing' sense. It is also understood that 'many' means that information from several actors is being combined.
- (iii) Value chain re-construction, that is integration of information processing across a number of steps of the value chain. The combinations are of the value chain elements involved in such integration. Two sets of value chain elements would be mentioned if we consider the interaction patterns mentioned in point (ii) above.

Possible architectures for business models are then constructed by combining interaction patterns with value chain integration. For example, an electronic shop is 'single actor'-to-'single actor' marketing & sales. A basic electronic mall consists of N times an e-shop. An electronic mall having a common brand offers many-to-1 marketing & sales (brand information is common across 'many' suppliers in the mall). An electronic auction where multiple buyers are bidding for the sales offer of one supplier brings together sales of one supplier at a time with the procurement of multiple buyers, while combining the bid information from the multiple buyers.

The *a priori* feasibility of technical implementation of the architecture of any business model depends very much upon the state-of-the-art of the technology. This holds for the integration dimension, for the realisation of the single functions, and for the support for interaction patterns. The commercially viability of any business model is a different matter altogether which is the domain of a marketing model analysis.

We observe, from actual business on the Internet and pilot projects, that:

- information and communication technology enables a wide range of business models;
- the capability of the state-of-the-art technology is just one criterion in model selection;
- technology in itself provides no guidelines for selecting a model in commercial terms;
- guidance to technology development can come from the definition of new models;
- many of the conceivable models have not yet been experimented with commercially.



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While the systematic approach above leads to a huge number of potential business models, we observe in practice only a small number of these being implemented. In the next section eleven such business models or generalisations of specific business models are included. Examples of all of these can be found on the Internet today. Some of these are still experimental while others are in fully commercial operation. The selection of eleven has been made on the basis of background and case study research<sup>1</sup>. The more general approach presented above remains useful in order to identify and experiment with new business models.

### ***What Are the Business Models?***

Eleven business models currently in use or being experimented with are listed below.

#### **E-shop**

This is Web marketing of a company or a shop. In first instance this is done to promote the company and its goods or services. Increasingly added is the possibility to order and possibly to pay, often combined with traditional marketing channels. Benefits sought for the company are increased demand, a low-cost route to global presence, and cost-reduction of promotion and sales. Benefits for the customers can be lower prices compared to the traditional offer, wider choice, better information, and convenience of selecting, buying and delivery, including 24-hour availability. Where repeat visits to the e-shop are done, one-to-one marketing can increase those benefits for both seller and buyer. Seller revenues are from reduced cost, increased sales, and possibly advertising. Most commercial Web sites are business-to-consumer electronic shops, selling for example flowers by Fleurop (<http://www.fleurop.com>) or air tickets by Travelocity ([www.travelocity.com](http://www.travelocity.com)).

#### **E-procurement**

This is electronic tendering and procurement of goods and services. Large companies or public authorities implement some form of e-procurement on the Web (an example is Japan Airlines at [www.jal.co.jp/](http://www.jal.co.jp/)). Benefits sought are to have a wider choice of suppliers which is expected to lead to lower cost, better quality, improved delivery, reduced cost of procurement (e.g. tendering specs are downloaded by suppliers rather than mailed by post). Electronic negotiation and contracting and possibly collaborative work in specification can further enhance time- and cost saving and convenience. For suppliers the benefits are in more tendering opportunities, possibly on a global scale, lower cost of submitting a tender, and possibly tendering in parts which may be better suited for smaller enterprises, or collaborative tendering (if the e-procurement site supports forms of collaboration). The main source of income is reduction of cost (automated tender processing, more cost-effective offers).

#### **E-auction**

Electronic auctions (on the Internet) offer an electronic implementation of the bidding mechanism also known from traditional auctions. This can be accompanied by multimedia presentation of the goods. Usually they are not restricted to this single function. They may also offer integration of the bidding process with contracting, payments and delivery. The sources of income for the auction provider are in selling the technology platform, in transaction fees, and in advertising. Benefits for suppliers and buyers are increased efficiency and time-savings, no need for physical transport until the deal has been established, global sourcing. Because of the lower cost it becomes feasible to also offer for sale small quantities of low value, e.g. surplus goods. Sources of income for suppliers are in reduced surplus stock, better utilisation of production capacity, lower sales overheads. Sources of income for buyers are in

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<sup>1</sup> The inventory of European electronic commerce related projects ([www.ispo.cec.be/e-commerce/ecomproj.htm](http://www.ispo.cec.be/e-commerce/ecomproj.htm).) was a particularly useful tool to identify business models and classify projects accordingly.



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reduced purchasing overhead cost and reduced cost of goods or services purchased. Examples of electronic auctions are the ESPRIT project Infomar (for ESPRIT and ACTS projects see [www.ispo.cec.be/ecommerce/ecomproj.htm](http://www.ispo.cec.be/ecommerce/ecomproj.htm)) and FastParts ([www.fastparts.com](http://www.fastparts.com)).

### **E-mall**

An electronic mall, in its basic form, consists of a collection of e-shops, usually enhanced by a common umbrella, for example of a well-known brand. It might be enriched by a common - guaranteed - payment method. An example is Electronic Mall Bodensee ([www.emb.ch](http://www.emb.ch)), giving entry to individual e-shops. When they specialise on a certain market segment such malls become more of an industry marketplace, like Industry.Net ([www.industry.net/](http://www.industry.net/)), which can add value by virtual community features (FAQ, discussion forums, closed user groups, ...). The e-mall operator may not have an interest in an individual business that is being hosted. Instead the operator may seek benefits in enhanced sales of the supporting technologies (e.g. IBM with World Avenue). Alternatively benefits are sought in services (e.g. Barclays with BarclaySquare), or in advertising space and/or brand reinforcement or in collective benefits for the e-shops that are hosted such as increased traffic, with the expectation that visiting one shop on the e-mall will lead to visits to 'neighbouring' shops.

Benefits for the customer (real or hoped for) are the benefits for each individual e-shop (see above) with additional convenience of easy access to other e-shops and ease of use through a common user interface. When a brand name is used to host the e-mall, this should lead to more trust, and therefore increased readiness to buy.

Benefits for the e-mall members (the e-shops) are lower cost and complexity to be on the Web, with sophisticated hosting facilities such as electronic payments, and additional traffic generated from other e-shops on the mall, or from the attraction of the hosting brand.

Revenues are from membership fee (which can include a contribution to software/hardware and set-up cost as well as a service fee), advertising, and possibly a fee on transactions (if the mall provider processes payments).

The commercial viability of the e-mall model has been questioned in its current implementation and in the current state-of-the-market. IBM World Avenue, for example, has folded. One of the reasons may be that the 'neighbour' concept does not translate into physical distance in cyberspace, where each location is only one click away. Therefore, not much additional convenience in finding shops is delivered. Furthermore, the sophisticated user (i.e. the majority of those on the Web today!) is able to handle a variety of seller-buyer user interfaces and therefore may be less attached to a uniform user interface. On the other hand, there are also indications that an increasing number of companies wish to outsource their Web-operations, which may increase the opportunity for e-malls or 3<sup>rd</sup> party marketplaces (see below). Possibly this reflects the shift from early adopters to mass-market use of the Internet amongst businesses.

### **Third-party marketplace**

This is an emerging model that is suitable in case companies wish to leave the Web marketing to a 3<sup>rd</sup> party (possibly as an add-on to their other channels). They all have in common that they offer at least a user interface to the suppliers' product catalogues. Several additional features like branding, payment, logistics, ordering, and ultimately the full scale of secure transactions are added to 3<sup>rd</sup> party marketplaces. An example for business-to-consumers is to provide a common marketing around a special one-off event profiled by well-known brand names, such as the recent e-Christmas experiment. ISPs may be interested in this model for business-to-business, using their Web builder expertise. However, it may equally appeal to banks or other value chain service providers. Revenues can be generated on the basis of



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one-off membership fee, service fees, transaction fee, or percentage on transaction value. Examples of 3rd party marketplace providers are Citius (as described by Jellasi and Lai 1996), TradeZone (<http://tradezone.onyx.net>), and to some extent FedEx VirtualOrder ([www.fedex.com](http://www.fedex.com)).

### **Virtual communities**

The ultimate value of virtual communities is coming from the members (customers or partners), who add their information onto a basic environment provided by the virtual community company. The membership fees as well as advertising generate revenues. A virtual community can also be an important add-on to other marketing operations in order to build customer loyalty and receive customer feedback, (see Hagel and Armstrong 1997).

Virtual communities are already abundant within specific market sectors for example in books such as Amazon.com, apparel/garments (<http://apparelex.com/bbs/index.htm>), steel industry ([www.indconnect.com/steelweb](http://www.indconnect.com/steelweb)), nanotechnology ([www.nanothinc.com](http://www.nanothinc.com)), and many others. Firefly provides an interesting case of virtual community building, adding value to the community by building customer profiles ([www.firefly.net](http://www.firefly.net)). Virtual communities are also becoming an additional function to enhance the attractiveness and opportunities for new services of several of the other business models listed here (e.g. e-malls, collaborative platforms, or 3<sup>rd</sup> party marketplaces).

### **Value-chain service provider**

These specialise on a specific function for the value chain, such as electronic payments or logistics, with the intention to make that into their distinct competitive advantage. Banks for example have been positioning themselves as such since long, but may find new opportunities using networks. New approaches are also emerging in production/stock management where the specialised expertise needed to analyse and fine-tune production is offered by new intermediaries. A fee- or percentage based scheme is the basis for revenues. Examples of value chain service providers are the FedEx or UPS ([www.ups.com](http://www.ups.com)) Web-based package shipping support.

### **Value-chain integrators**

These focus on integrating multiple steps of the value chain, with the potential to exploit the information flow between those steps as further added value. Revenues are coming from consultancy fees or possibly transaction fees. An example value chain integrator is the ESPRIT project.

TRANS2000 is in the area of multi-modal transport. Marshall offers its customers added value from transaction information, which is provided through Extranet solutions like PartnerNet and MarshallNet (see Young et al 1996, Mougayar 1997, and G7-10 WG 1997). Some of the 3<sup>rd</sup> party marketplace providers are moving into the direction of value chain integration.

### **Collaboration platforms**

These provide a set of tools and an information environment for collaboration between enterprises. This can focus on specific functions, such as collaborative design and engineering, or in providing project support with a virtual team of consultants. Business opportunities are in managing the platform (membership/usage fees), and in selling the specialist tools (e.g. for design, workflow, document management). Examples are in the products and projects spun off from the Global Engineering Network concept (Rethfeldt 1994) such as Deutsche Telekom/Globana's ICS and the ESPRIT GENIAL project and in experimental projects for 3D collaborative design and simulation<sup>2</sup>.

<sup>2</sup> See in particular the ESPRIT HPCN projects addressing the automotive, aerospace and space sectors.



## Business Models (1/2)

- **e-shop:** promotion, cost-reduction, additional outlet, (seeking demand)
- **e-procurement:** additional inlet, (seeking suppliers)
- **e-auction:** electronic bidding (no need for prior movement of goods or parties)
- **e-mall:** (collection of e-shops), aggregators, industry sector marketplace
- **3rd party marketplace:** common marketing front-end and transaction support to multiple businesses

Figure 1 Internet business models - 1

### Information brokerage, trust and other services

A whole range of new information services are emerging, to add value to the huge amounts of data available on the open networks or coming from integrated business operations, such as information search, e.g. Yahoo ([www.yahoo.com](http://www.yahoo.com)), customer profiling, business opportunities brokerage, investment advice, etc. Usually information and consultancy have to be directly paid for either through subscription or on a pay-per-use basis, although advertising schemes are also conceivable. A special category is trust services, as provided by certification authorities and electronic notaries and other trusted third parties. Subscription fees combined with one-off service fees as well as software sales and consultancy are the sources of revenue.

An example of a trust service provider is Belsign ([www.belsign.be](http://www.belsign.be)). Many consultancy and market research companies are now offering commercial business information services via the Internet. Search engines are a special category of information services, with the public Internet facility (rather than intranet versions) usually based on advertising as a source of revenue. Advanced information brokerage to support negotiation between businesses is being developed by the ESPRIT CASBA and MEMO projects.



## Business Models (2/2)

- **Virtual communities:** focus on added-value of communication between members
- **Value chain service provider:** support part of value chain, e.g. logistics, payments
- **Value chain integrator:** added-value by integrating multiple steps of the value chain
- **Collaboration platforms:** e.g. collaborative design
- **Information brokers:** trust providers, business information and consultancy

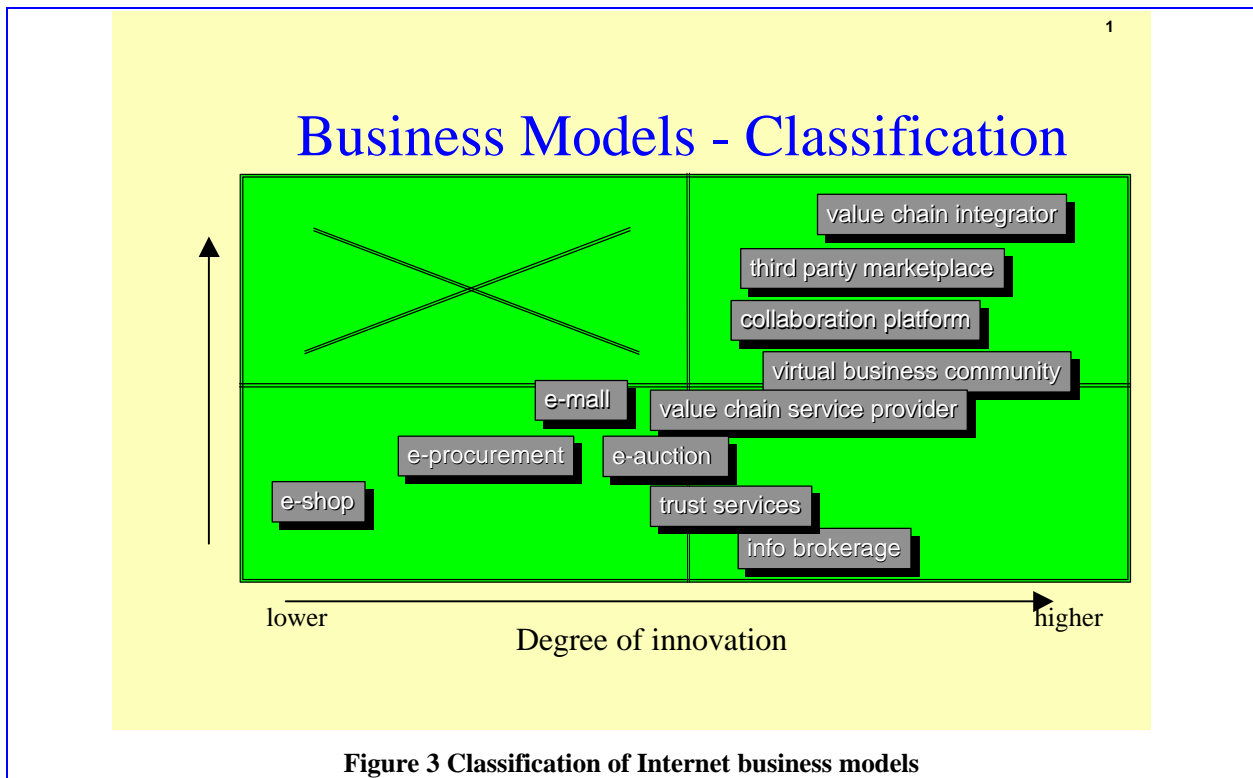
**Figure 2 Internet business models - 2**

### *Classification of business models*

We conclude with a qualitative mapping of the eleven business models along two dimensions. The first dimension gives the degree of innovation. This ranges from essentially an electronic version of a traditional way of doing business to more innovative ways, for example by externalising via the Internet functions that previously were performed within a company or by offering functions that did not exist before. The second dimension is the extent of integration of functions, ranging from single function business models (e.g. e-shops that only provide the marketing function over the Internet), to fully integrated functionality, e.g. value chain integration. Figure 3 shows the mapping.

In the lower left-hand corner are basic e-shops, which are electronic version of traditional ways of selling only. On the other extreme, at the upper right hand corner is value chain integration, which cannot be done at all in a traditional form, is critically dependent upon information technology for letting information flow across networks, and creates added value from integrating these information flows. In between are business models that often find some degree of analogy in non-electronic business. For example, trust services have been provided since years by public notaries or by industry bodies. Their functionality is being re-implemented by electronic trust services. However, at the same time new trust functionality is being added, that intrinsically requires IT support, such as encryption and public and private key management. The same holds for value chain service provision, such as electronic payments support: partially this is a matter of offering by electronic means the same as what is already being offered non-electronically such as account management. At the same time new functionality is being provided such as Internet smart card support, e.g. for purchase cards in B-to-B trading.





### *Applying the classification*

Figure 4 summarises the classification of a number of the examples mentioned above. There seems to be a trend to gradually move towards increased integration of information flows<sup>3</sup>.

<sup>3</sup> The recent evolution of Industry.Net is a counter-example to the trend towards more integration. The new owners of Industry.Net, IHS, have decided to take it back to its roots as an industry mall. They thereby do not pursue the re-positioning of Industry.Net as a third party marketplace, which was initiated by the previous owner Perot (who was implementing a tight integration between transactions and marketing).

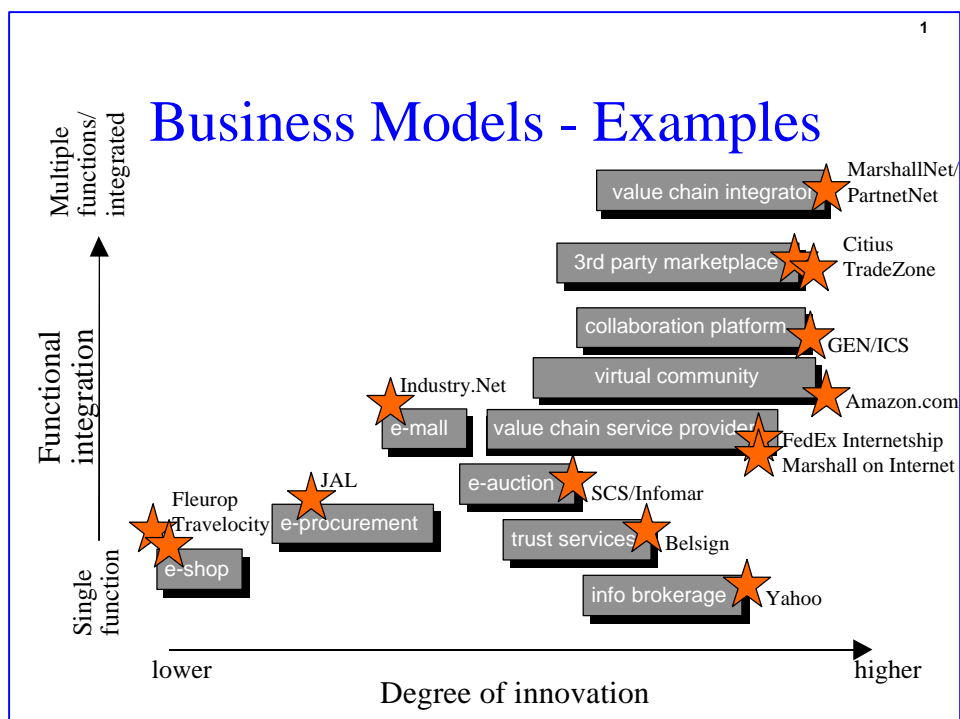


Figure 4 Examples of business models mentioned in the text

### Summary

A classification was provided of eleven business models that are currently found in Internet electronic commerce (business-to-business as well as business-to-consumer). Some of these models are essentially an electronic re-implementation of traditional forms of doing business, such as e-shops. Many others go far beyond traditional business such as value chain integration and seek innovative ways to add value through information management and a rich functionality. Creating these new business models is feasible only because of the openness and connectivity of the Internet.



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