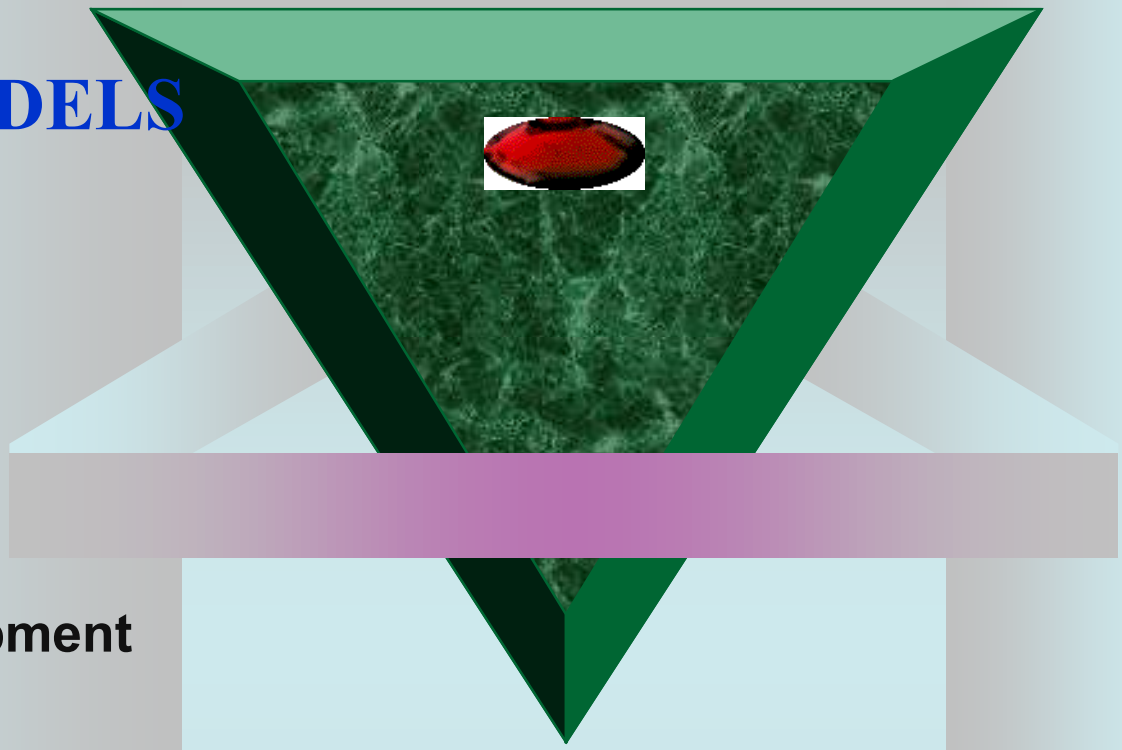
Chp 4. BUSINESS CATEGORIES AND MODELS IN Internet



- 4.1 Business Categories
- 4.2 Business Models
- 4.3 The E-Commerce Development And Functional Architecture

- Bibliography

by Professor Vasile AVRAM, PhD

4.1 Business Categories

Concepts, Notions, and Definitios introduced:

- **Digital firm**
- **Business processes**
- **Electronic market**
- **Electronic business (e-business)**
- **Electronic commerce (e-commerce)**
- **VPN**
- **Intranet**
- **Extranet**
- **Private industrial network**
- **The e-business – e-commerce relationships**
- **CRM (Customer Relationship Management)**
- **SCM (Supply Chain Management)**
- **Business categories**

4.1 Business Categories

Digital firm. A digital firm is one where nearly all of the organization's significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.

Business processes. A business process refer to the unique manner in which the work is organized, coordinated, and focused to produce a valuable product or service.

Electronic market. By linking thousands of organizations and millions of individuals into a single network the Internet creates the foundation for a vast marketplace. An electronic market is an information system that links together many buyers and sellers to exchange information, products, services, and payments.

4.1 Business Categories

Electronic business (e-business). The extensive use of business information system through an organization is commonly referred to as electronic business or e-business.
There are two common definition of e-business concept:
“all electronically mediated information exchange, both within an organization and with external stakeholders supporting the range of business processes”;
“the use of Internet and other digital technology for organizational communication and coordination and management of the firm”.

Electronic commerce (e-commerce). Electronic commerce (e-commerce) is the process of buying and selling goods and services electronically with computerized business transactions using Internet, networks, and other digital technologies.

4.1 Business Categories

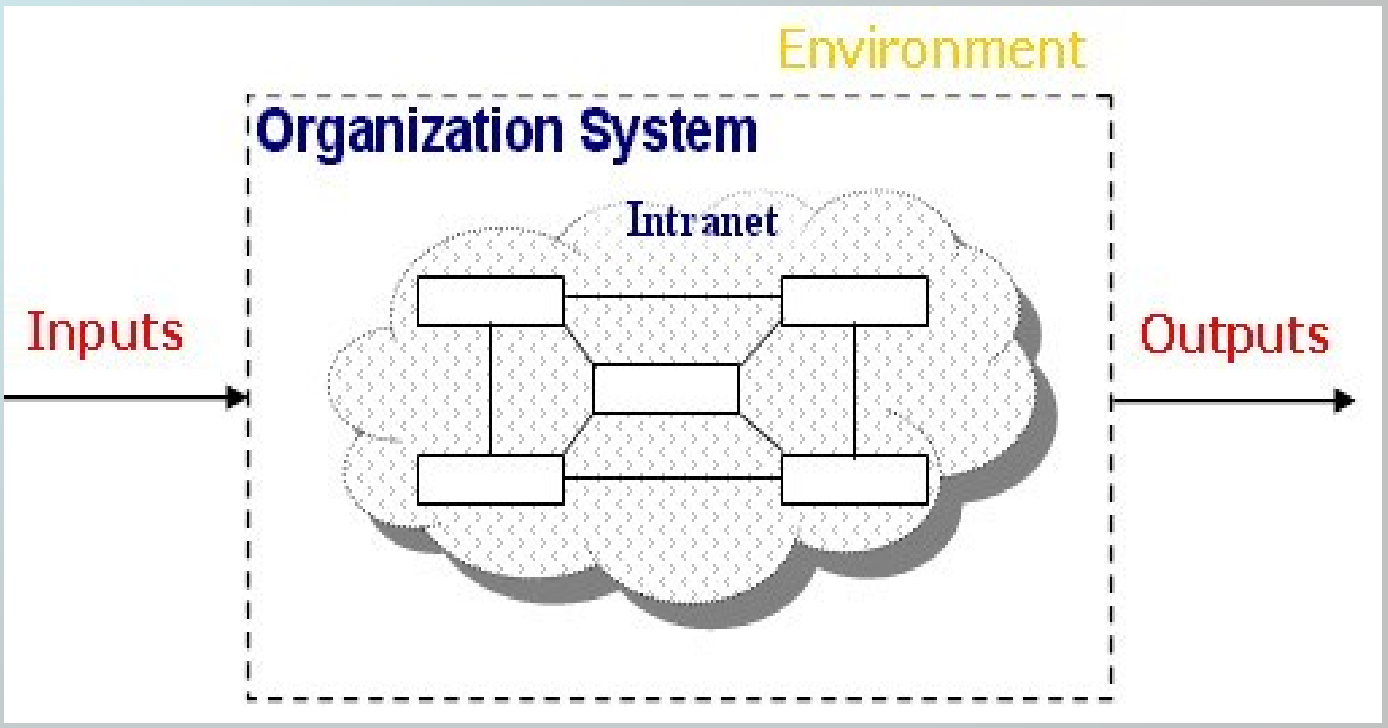


Figure 4.1 Intranet

4.1 Business Categories

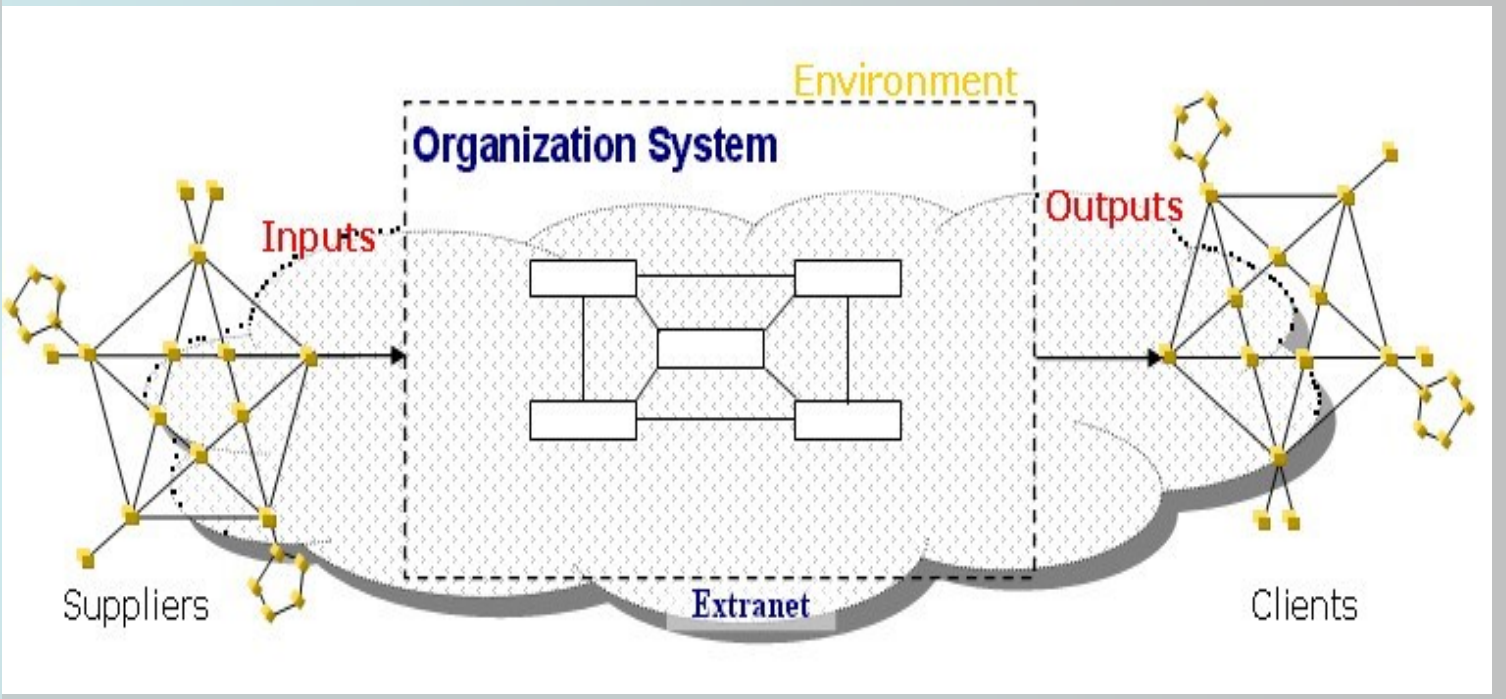


Figure 4.2 Extranet

4.1 Business Categories

Private industrial network. A private industrial network or net marketplace (or e-hubs) is a web-enabled network linking systems of multiple enterprises (firms, companies, organizations etc) for the coordination of enterprises trans-organizational business processes.

4.1 Business Categories

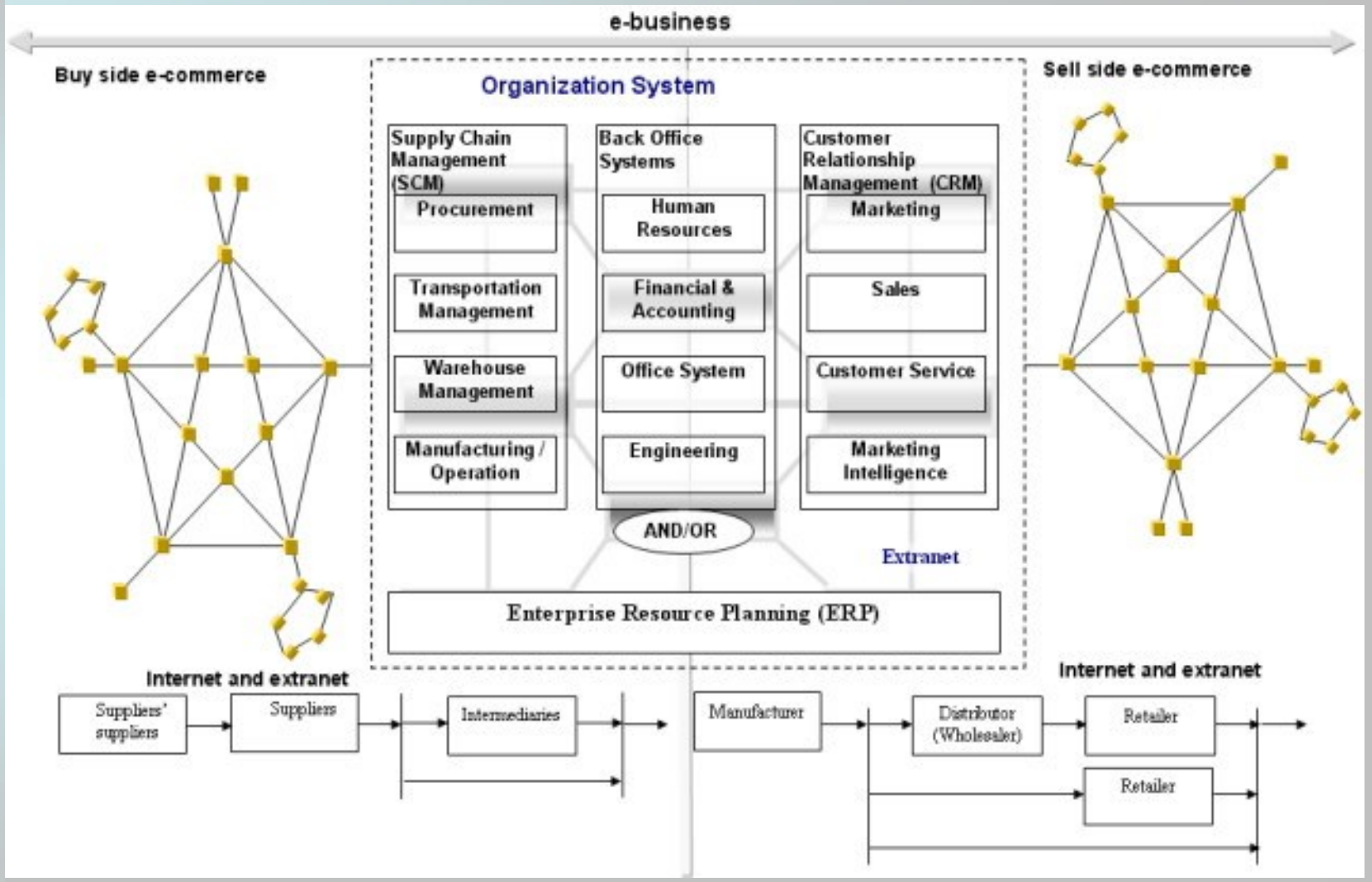


Figure 4.3 The extended company and management of customers and suppliers relationships

4.1 Business Categories

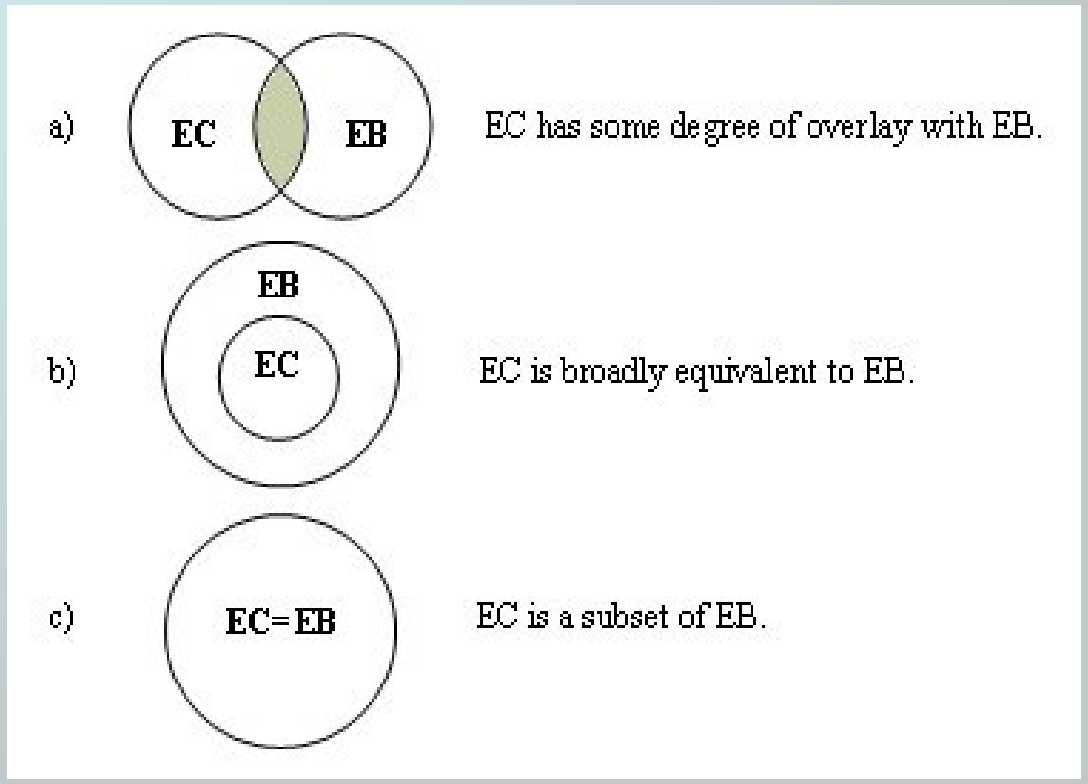


Figure 4.4 e-commerce – e-business relationships
(Source of figure [BIS-TDM])

4.1 Business Categories

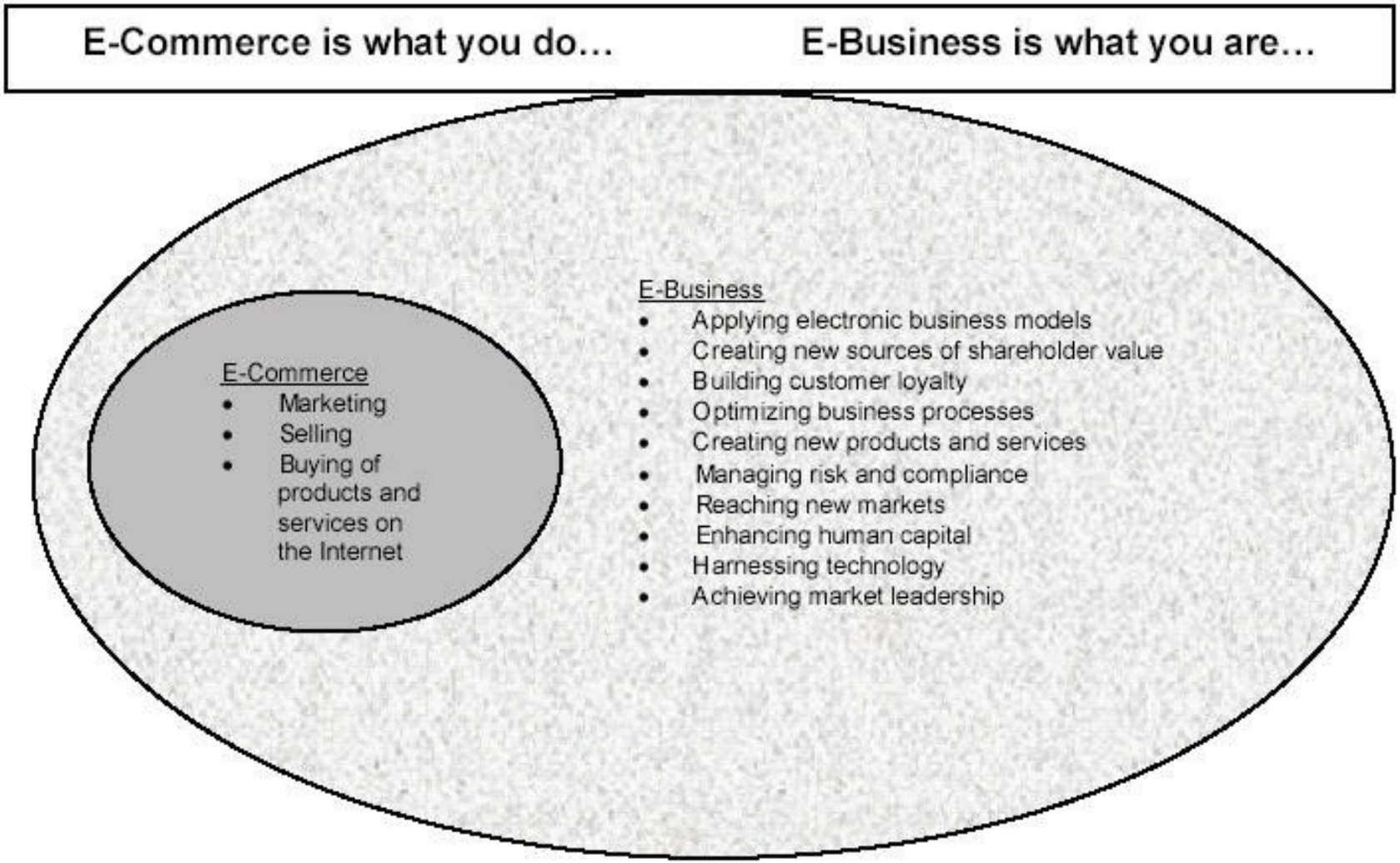


Figure 4.5 e-commerce is a part of e-business
(source [PG-07])

4.1 Business Categories

CRM (Customer Relationship Management). CRM focuses on managing all of the ways that a firm deals with its existing and potential new customers.

A starter definition of customer relationship management (CRM) is ”*The infrastructure that enables the delineation of an increase in customer value, and the correct means by which to motivate valuable customers to remain loyal - indeed, to buy again*[1].”

[1] **CRM Handbook, The:** A Business Guide to Customer Relationship Management, **by Jill Dyché,** Addison Wesley Professional,2001

4.1 Business Categories

SCM (Supply Chain Management). Supply chain management is the close linkage and coordination of activities involved in buying, making, and moving a product. It integrates supplier, manufacturer, distributor, and customer logistic processes to reduce time, redundant effort, and inventory costs. The supply chain is a network of organizations and business processes for procuring materials, transforming raw materials into intermediate and finished products, and distributing the finished products to customers.

4.1 Business Categories

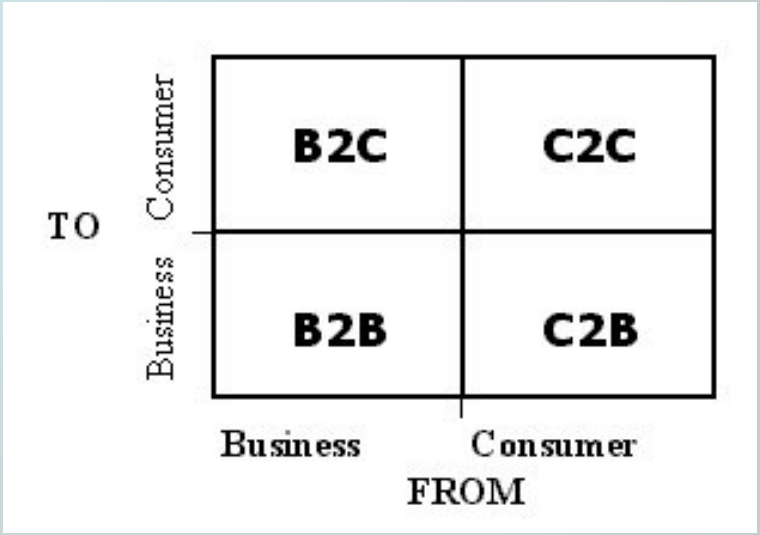


Figure 4.6 Business categories

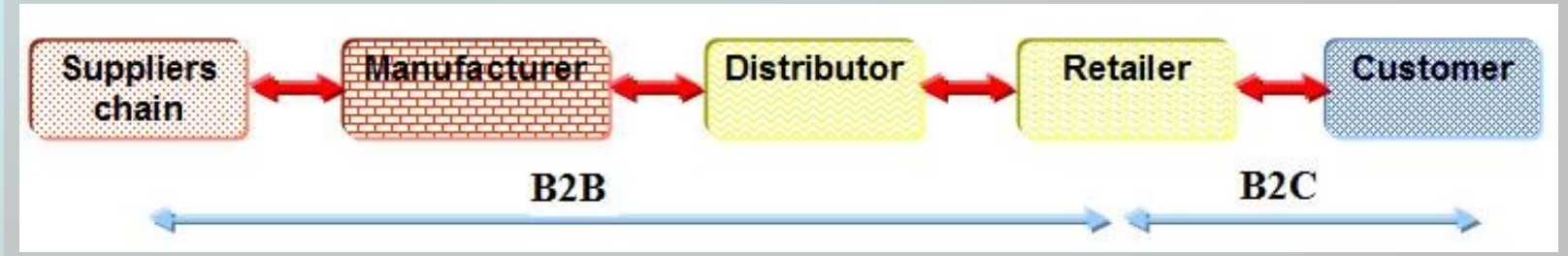


Figure 4. 7 The electronic business value chain

4.2 Business Models

A **business model** describes how the enterprise delivers a product or service, showing how the enterprise creates wealth. Business models have been defined and categorized in many different ways, the models are implemented in a variety of ways, and they are perhaps the most discussed and least understood aspect of the web.

4.2 Business Models

A definition of business model together with the evolution of business model concept can be given in reference [OPT]:
"*A business model is a conceptual tool that contains a big set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams*".

4.2 Business Models

”An e-business model is a description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants.”

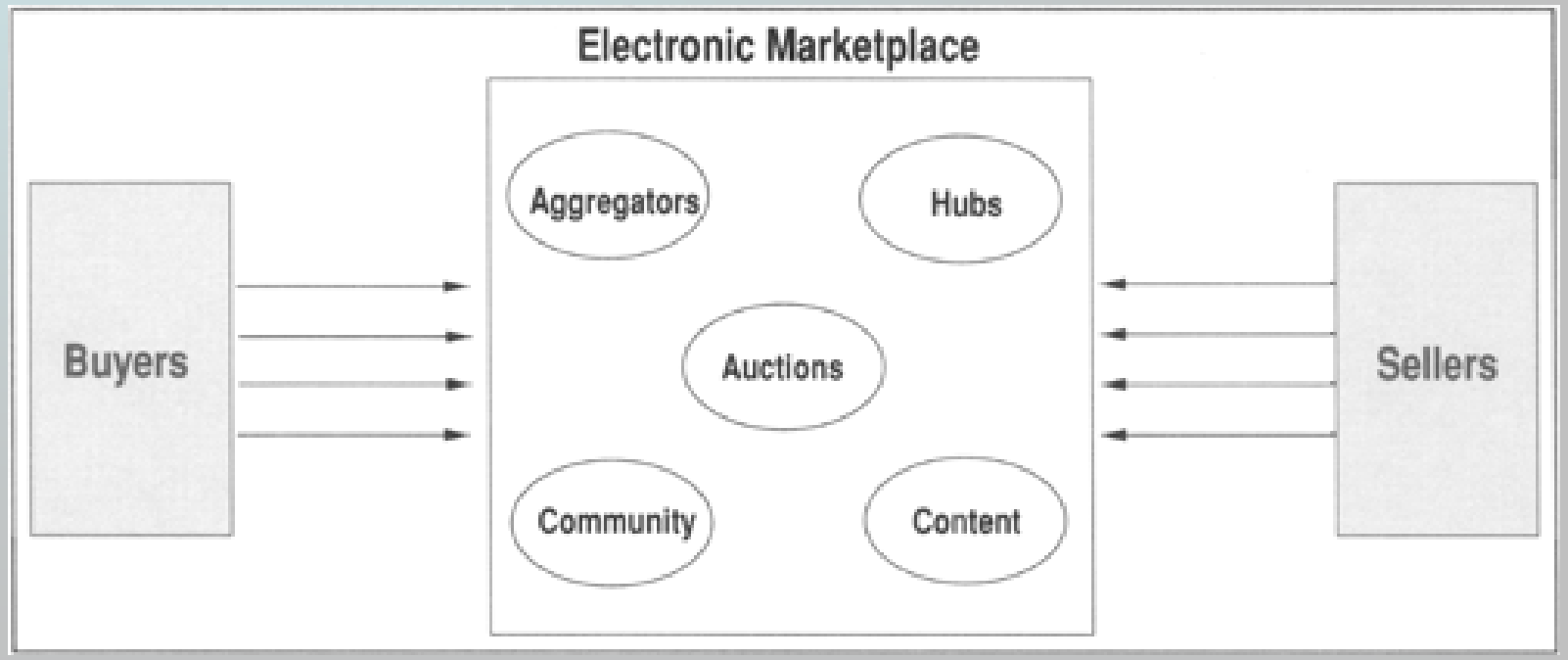


Figure 4. 8 Electronic marketplace for B2B commerce

4.2 Business Models

“The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit.[DT-10]”

Cloud-based opportunities requires from today’s companies to fundamentally rethink their sources about value creation and value capture and to adapt accordingly their policies, at lest in the following:

- Value creation - performing activities that increase the value of a company’s offering and encourage customer willingness to pay;

- Value capture - the monetization of customer value.

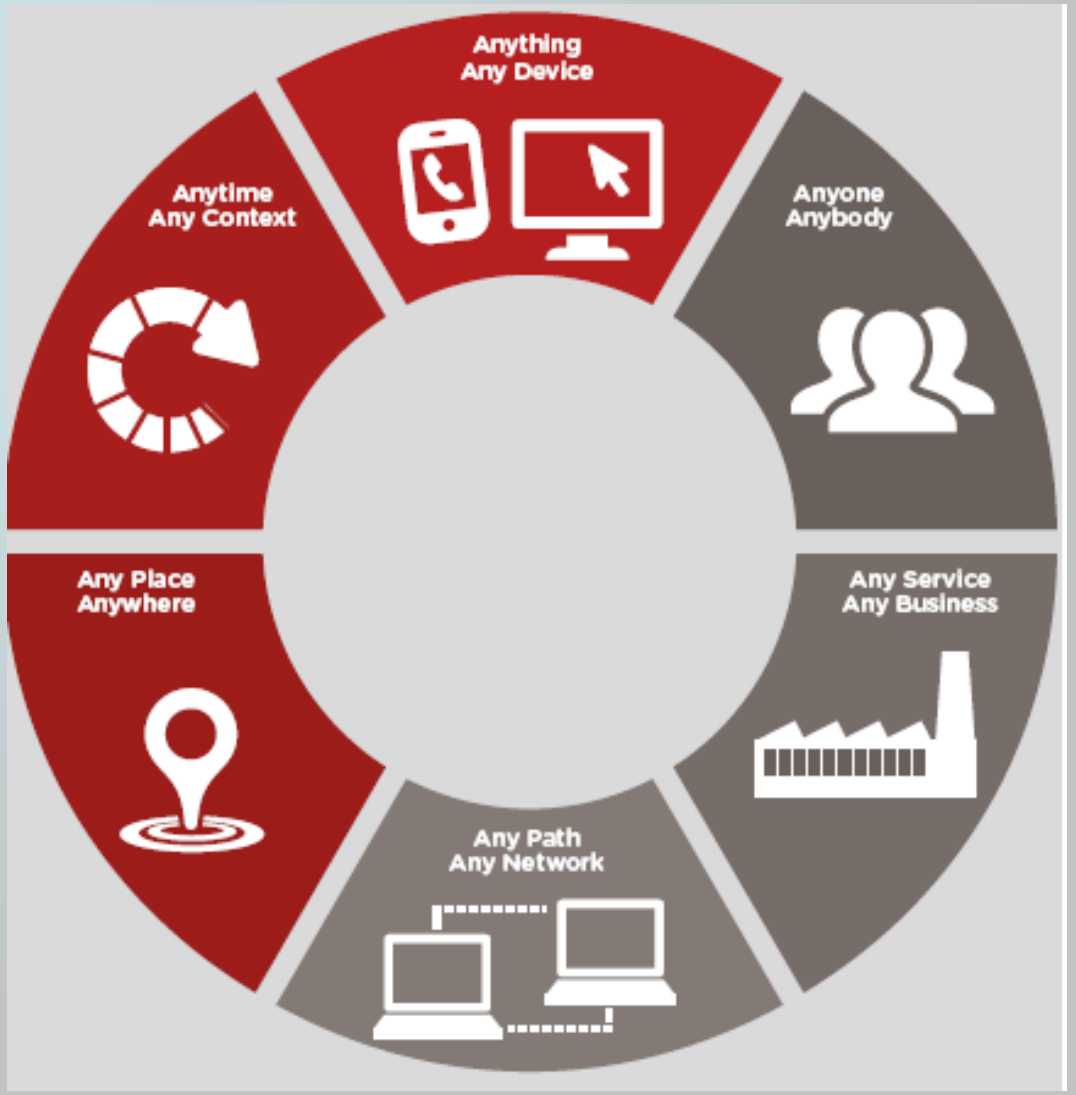
4.2 Business Models

Internet of Things (IoT) defined as the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. Things where able to sense their environment, to report their status and even to tell us what they are doing and plan to do or to perform actions at our request.

"The Internet of Things is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment." The Internet of Things (IoT) is turning many manufacturers of "things" into first-time software vendors that need licensing and entitlement management (LEM) solutions. [Gartner]

"The Internet of Things (IoT) is an environment in which objects, animals or people are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. IoT has evolved from the convergence of wireless technologies, micro-electromechanical systems (MEMS) and the Internet. The concept may also be referred to as the Internet of Everything.
[http://whatis.techtarget.com/definition/Internet-of-Things]"

4.2 Business Models



Source [UK-GOV]

4.2 Business Models

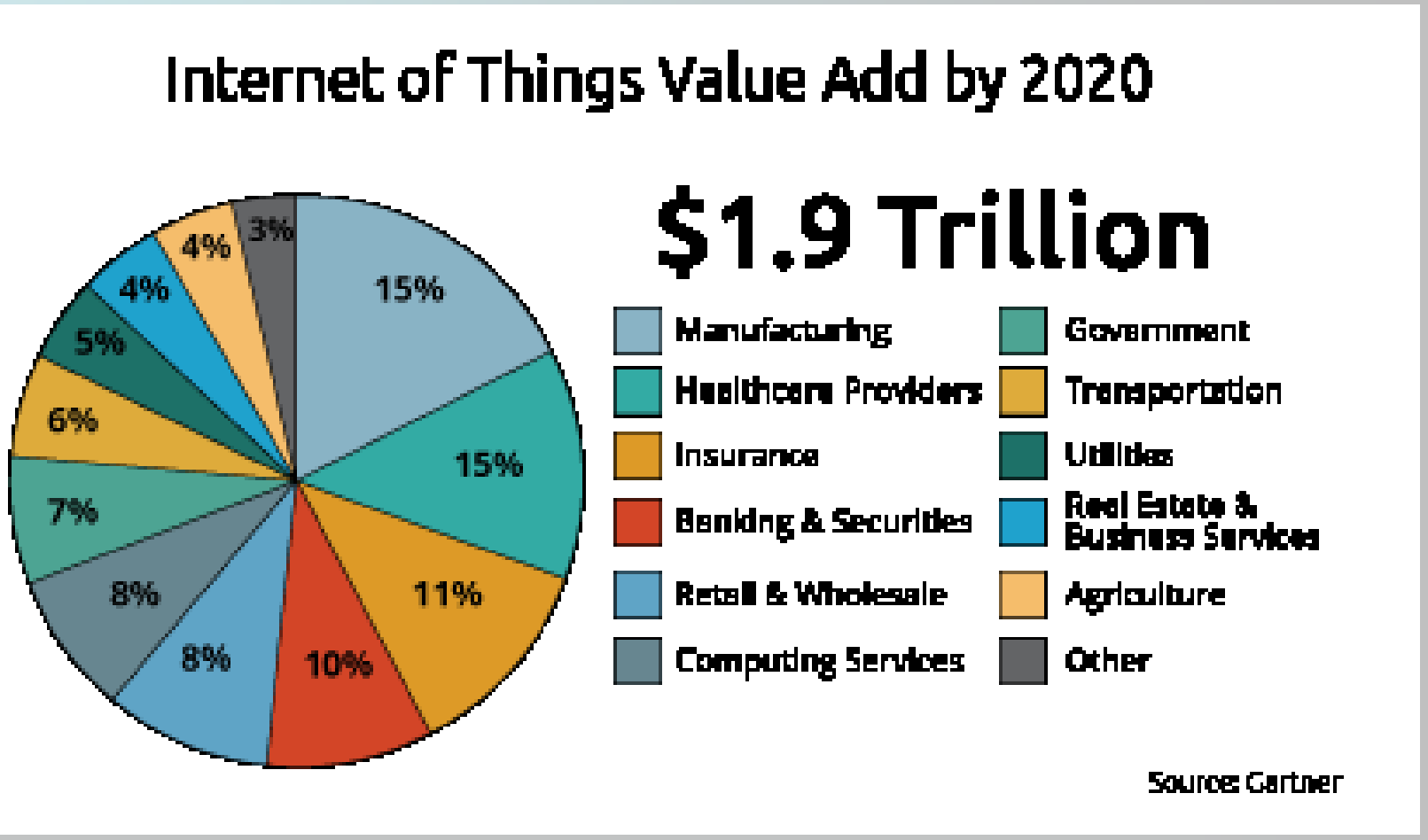
THE INTERNET OF THINGS REQUIRES A MINDSET SHIFT
Because you'll create and capture value differently.

		TRADITIONAL PRODUCT MINDSET	INTERNET OF THINGS MINDSET
VALUE CREATION	Customer needs	Solve for existing needs and lifestyle in a reactive manner	Address real-time and emergent needs in a predictive manner
	Offering	Stand alone product that becomes obsolete over time	Product refreshes through over-the-air updates and has synergy value
	Role of data	Single point data is used for future product requirements	Information convergence creates the experience for current products and enables services
VALUE CAPTURE	Path to profit	Sell the next product or device	Enable recurring revenue
	Control points	Potentially includes commodity advantages, IP ownership, & brand	Adds personalization and context; network effects between products
	Capability development	Leverage core competencies, existing resources & processes	Understand how other ecosystem partners make money

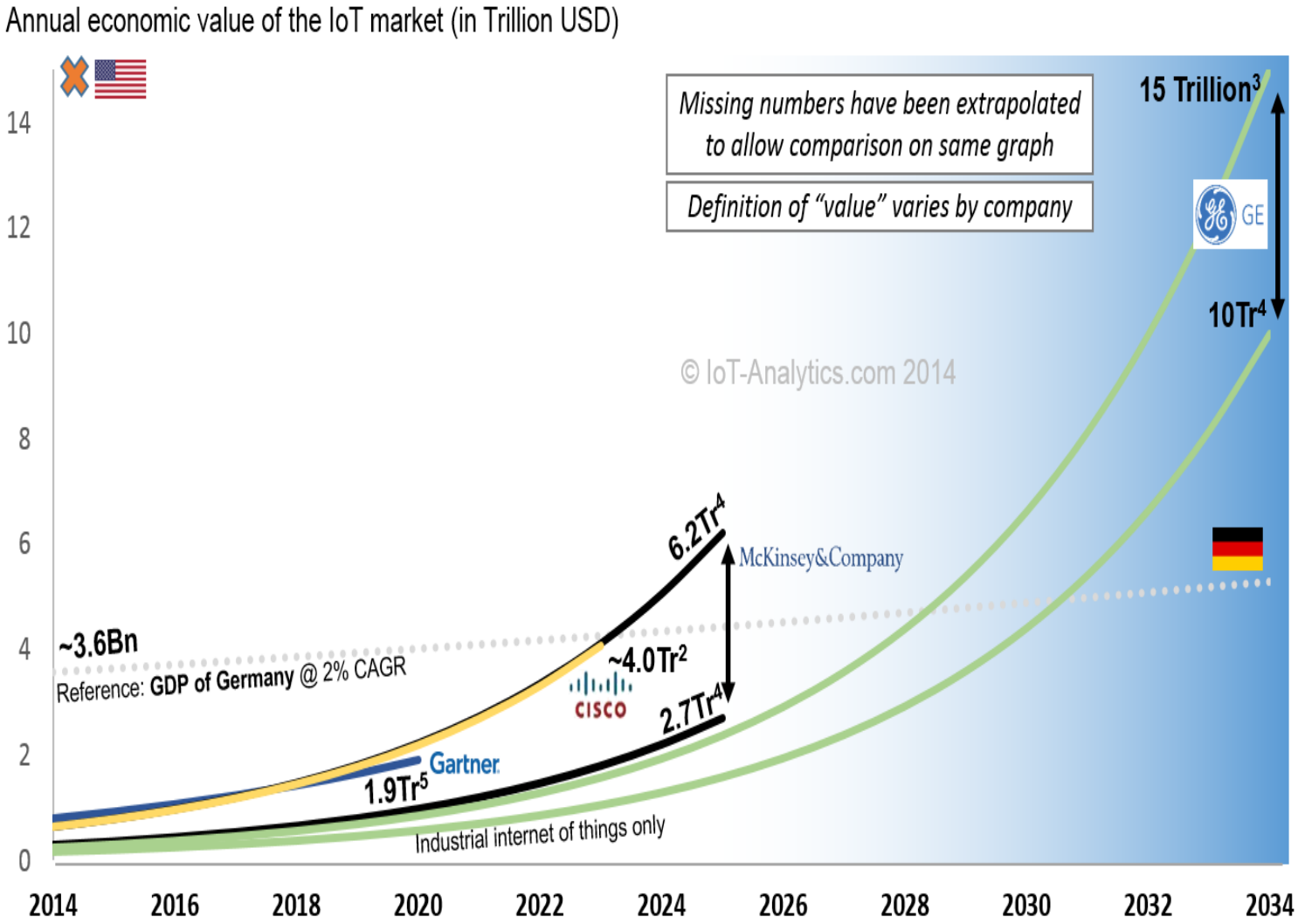
SOURCE SMART DESIGN HBR.ORG

Source of figure: [GH-14]

4.2 Business Models



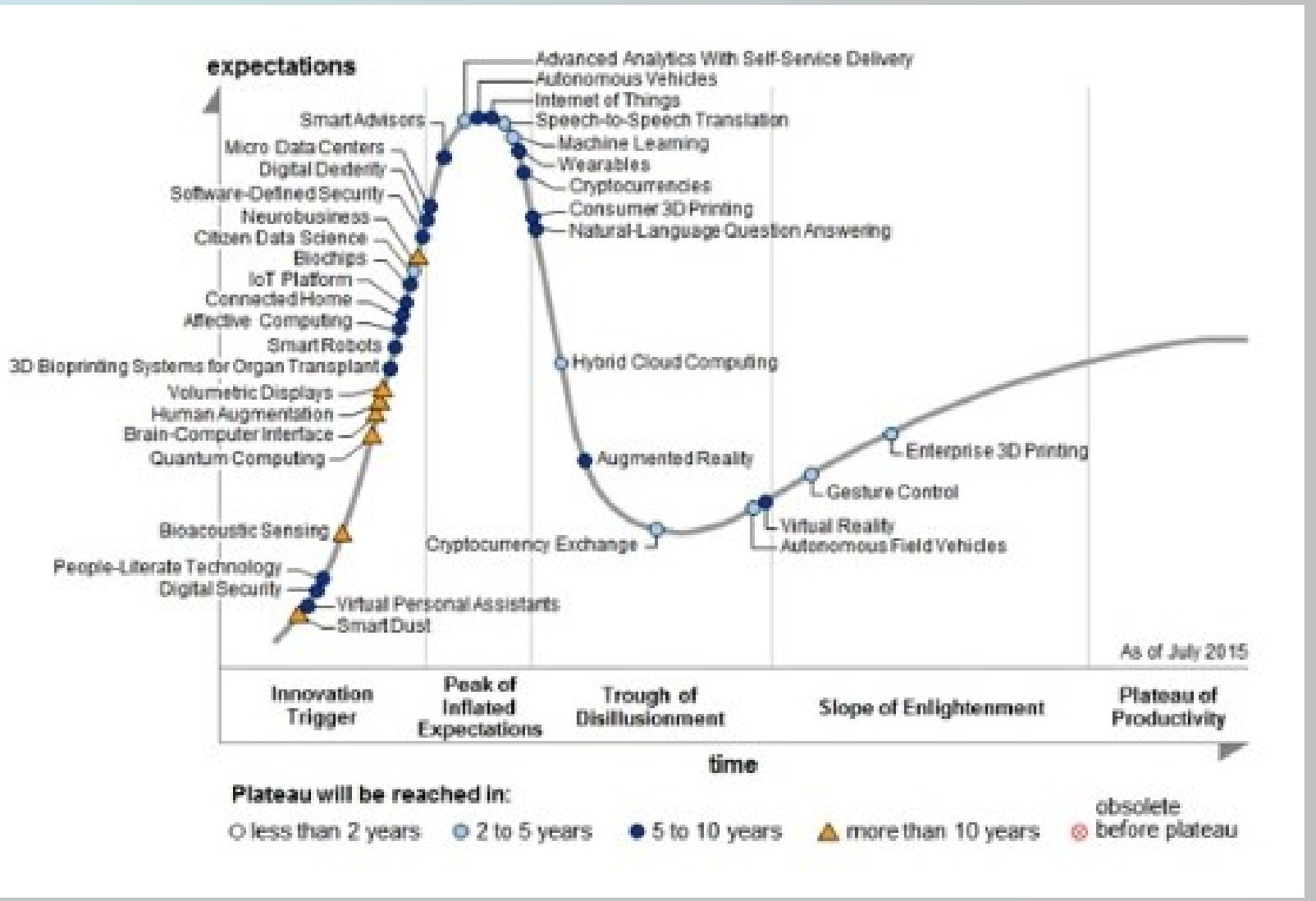
Global IoT/IoE economic value forecasts



Source	Date	Original quote[1]
McKinsey&Company (4)	2013	"IoT has the potential to create **economic impact** of **$2.7-6.2 trillion** annually **by 2025**"
GE (3) Industrial internet only	2012	"Industrial Internet could **add $10-15 trillion** to **global GDP in 20 years**"
CISCO (2)	2013	"**$19 trillion** in **IoE value is at stake** in the **next decade**"
Gartner (5)	2013	"IoT will result in **$1.9 trillion** in **global economic value-add** in **2020**"
Germany	GDP of the total economy	

1. Wording as initially published 2. Cisco "value at stake" has been forecast as $19 trillion over total decade. Value has been spread over 10 years assuming the same annual growth rate as Cisco's IoT device forecast 2014-'20 3. GE's "potential GDP impact" was forecasted as $10-15 trillion in 20 years. Value for the previous years has been assumed using the average IoT device growth rate 2014-2020 of 21% 3. McKinsey's "potential economic value-add" for the years 2014-2024 calculated taking the average IoT device growth rate 2014-2020 of 21%. 5. Gartner's numbers have been calculated using Gartner's annual IoT revenue growth 2014-2020 of 8%.
Sources: McKinsey, General Electric, Cisco, Gartner, IoT Analytics

Reference point: Total GDP of the USA in 2014



Source: http://www.datamation.com/data-center/internet-of-things-reaches-peak-hype-gartner.html

4.2.1 Classification of e-business models

In determining an appropriate e-business model, several criteria can be used, such as [PG-07]:

- **Involved parties**, such as business-to-business, business-to-consumer, and/or consumer-to-consumer;
- **Revenue sources**, such as transaction fee, product price, and/or exposure fee;
- **Value configuration**, such as value chain, value shop, and/or value network;
- **Integration** with customers and/or partners;
- **Relationships**, such as one-to-many, many-to-many, and/or many-toone;
- **Knowledge**, such as know-how, know-what, and know-why.

4.2.1 Classification of e-business models

One classification of Internet business models is presented by K. Laudon and J. Laudon ([KLJL]):

Virtual storefront: Sells physical products directly to consumers or to individual businesses (Amazon.com, EPM.com)

Information broker: Provides product, pricing, and availability information to individuals and businesses. Generates revenue from advertising or from directing buyers to sellers (Edmunds.com, Kbb.com, Insweb. com, IndustralMall.com)

Transaction broker: Saves users money and time by processing online sales transactions, generating a fee each time a transaction occurs. Also provides information on rates and terms (etrade.com, Expedia.com)

4.2.1 Classification of e-business models

Online marketplace: Provides a digital environment where buyers and sellers can meet, search for products, display products, and establish prices for those products (eBay.com, Priceline.com, ChemConnect.com, Pantellos.com)

Content provider: Creates revenue by providing digital content, such as digital news, music, photos, or video, over the Web (WSJ.com, CNN.com, TheStreet.com, Gettyimages.com, MP3.com)

Online service provider: Provides online service for individuals and businesses. Generates revenue from subscription or transaction fees, from advertising, or from collecting marketing information from users (@Backup.com, Xdrive.com, Employease.com, Salesforce.com)

Virtual community: Provides online meeting place where people with similar interests can communicate and find useful information (Motocross.com, iVillage.com, Sailnet.com)

Portal: Provides initial point of entry to the Web along with specialized content and other services (Yahoo.com, MSN.com, StarMedia.com)

4.3 The E-Commerce Development And Functional Architecture

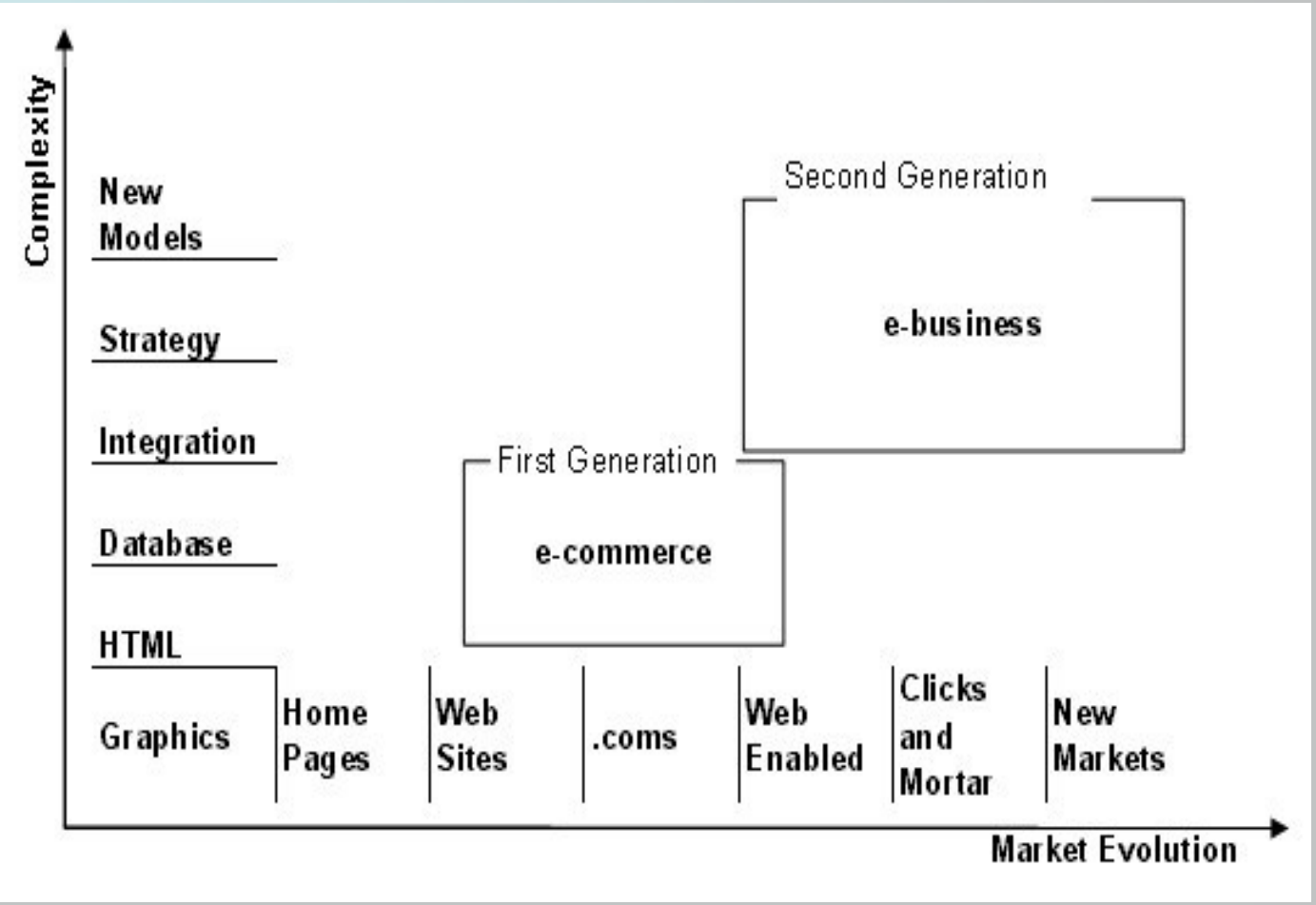


Figure 4.9 The Market Evolution and Complexity of e-Commerce / e-Business Development
Source: e-Business Management Models: A Services Perspective and Case Studies, Revere Group, *Todd Miller, Matthew L. Nelson, Stella Ying Shen and Michael J. Shaw*

4.3 The E-Commerce Development And Functional Architecture

	2000	2001	2002	2003	2004	% of total selling in 2004
Total ($B-billions)	$657.0	$1,233.6	$2,231.2	$3,979.7	$6,789.8	8.6%
from which:						
North America	$509.3	$908.6	$1,498.2	$2,339.0	$3,456.4	14.8%
USA	$488.7	$864.1	$1,411.3	$2,187.2	$3,189.0	13.3%
Canada	$17.4	$38.0	$68.0	$109.6	$160.3	9.2%
Mexico	$3.2	$6.6	$15.9	$42.3	$107.0	8.4%
Asia Pacific	$53.7	$117.2	$286.6	$724.2	$1,649.8	8.0%
Japan	$31.9	$64.4	$146.8	$363.6	$880.3	8.4%
Australia	$5.6	$14.0	$36.9	$96.7	$207.6	16.4%
Korean	$5.6	$14.1	$39.3	$100.5	$205.7	16.4%
West Europe	$87.4	$194.8	$422.1	$853.3	$1,533.2	6.0%
Germany	$20.6	$46.4	$102.0	$211.1	$386.5	6.5%
England	$17.2	$38.5	$83.2	$165.6	$288.8	7.1%
France	$9.9	$22.1	$49.1	$104.8	$206.4	5.0%
Italy	$7.2	$15.6	$33.8	$71.4	$142.4	4.3%
Holland	$6.5	$14.4	$30.7	$59.5	$98.3	9.2%
Latin America	$3.6	$6.8	$13.7	$31.8	$81.8	2.4%
Source: Forrester Research, Inc.						

4.3 The E-Commerce Development And Functional Architecture

Region	Percent
North America	50.9%
Asia/Pacific	24.3%
Europe	22.6%
Latin America	1.2%

4.3 The E-Commerce Development And Functional Architecture

U.S. Shipments, Sales, Revenues and E-commerce: 2006 and 2005

[Shipments, sales and revenues are in billions of dollars.]

Description	Value of Shipments, Sales, or Revenue				Year to Year Percent Change		% Distribution of E-commerce	
	2006		2005					
	Total	E-commerce	Total	E-commerce	Total	E-commerce	2006	2005
Total *	**20,912**	**2,937**	**19,583**	**2,579**	**6.8**	**13.9**	**100.0**	**100.0**
B-to-B*	**10,605**	**2,716**	**9,924**	**2,393**	**6.9**	**13.5**	**92.5**	**92.8**
Manufacturing	5,020	1,568	4,742	1,344	5.9	16.7	53.4	52.1
Merchant Wholesale	5,585	1,148	5,181	1,049	7.8	9.4	39.1	40.7
Excluding MSBOs[1]	3,909	613	3,586	551	9.0	11.3	20.9	21.4
MSBOs	1,676	535	1,596	498	5.0	7.3	18.2	19.3
B-to-C*	**10,307**	**221**	**9,659**	**186**	**6.7**	**18.8**	**7.5**	**7.2**
Retail	3,887	107	3,688	87	5.4	22.0	3.6	3.4
Selected Services	6,420	114	5,971	99	7.5	14.9	3.9	3.8

* We estimate business-to-business (B-to-B) and business-to-consumer (B-to-C) e-commerce by making several simplifying assumptions: manufacturing and wholesale e-commerce is entirely B-to-B, and retail and service e-commerce is entirely B-to-C. We also ignore definitional differences among shipments, sales, and revenues. The resulting B-to-B and B-to-C estimates, while not directly measured, show that almost all the dollar volume of e-commerce activity involves transactions between businesses. See the "Note to reader" for cautions relating to the interpretation of the "Total" shown here.

[1]Manufacturers' Sales Branches and Offices

Figure 4. 10 The evolution of e-commerce in US (Source: US Census Bureau http://www.census.gov/**)**

4.3 The E-Commerce Development And Functional Architecture

Quarter	Retail Sales (millions of dollars)		E-commerce as a Percent of Total	Percent Change From Prior Quarter		Percent Change From Same Quarter A Year Ago	
	Total	E-commerce		Total	E-commerce	Total	E-commerce
Adjusted[2]							
4th quarter 2008(p)	938,052	31,946	3.4	-7.8	-5.7	-9.1	-5.5
3rd quarter 2008(r)	1,017,934	33,873	3.3	-1.5	-1.1	0.2	4.2
2nd quarter 2008	1,033,794	34,237	3.3	0.7	1.8	2.4	8.3
1st quarter 2008	1,026,876	33,645	3.3	-0.5	-0.4	3.0	13.1
4th quarter 2007(r)	1,032,040	33,793	3.3	1.6	4.0	5.5	19.4
Not Adjusted							
4th quarter 2008(p)	980,135	37,073	3.8	-4.0	17.3	-8.6	-4.9
3rd quarter 2008(r)	1,021,320	31,613	3.1	-2.6	-2.8	0.9	4.6
2nd quarter 2008	1,048,726	32,509	3.1	8.6	0.4	2.3	8.7
1st quarter 2008	965,500	32,383	3.4	-9.9	-16.9	3.7	13.3
4th quarter 2007	1,072,153	38,992	3.6	5.9	29.1	4.9	19.0

Figure 4. 11 Estimated Quarterly U.S. Retail Sales: Total and E-commerce (Source: US Census Bureau http://www.census.gov/**)**

4.3 The E-Commerce Development And Functional Architecture

Table 1. Estimated Quarterly U.S. Retail Sales: Total and E-commerce[1]

(Estimates are based on data from the Monthly Retail Trade Survey and administrative records.)

Quarter	Retail Sales (millions of dollars)		E-commerce as a Percent of Total	Percent Change From Prior Quarter		Percent Change From Same Quarter A Year Ago	
	Total	E-commerce		Total	E-commerce	Total	E-commerce
Adjusted[2]							
2nd quarter 2015(p)	1,171,513	83,863	7.2	1.6	4.2	1.0	14.1
1st quarter 2015(r)	1,152,986	80,451	7.0	-1.3	3.7	1.8	14.8
4th quarter 2014	1,168,601	77,558	6.6	0.2	1.8	3.8	14.0
3rd quarter 2014	1,166,778	76,172	6.5	0.6	3.6	4.1	15.6
2nd quarter 2014(r)	1,159,653	73,490	6.3	2.3	4.8	4.3	14.8
Not Adjusted							
2nd quarter 2015(p)	1,187,172	78,750	6.6	10.2	5.1	0.9	14.4
1st quarter 2015(r)	1,077,586	74,920	7.0	-12.1	-19.9	1.5	14.4
4th quarter 2014	1,225,969	93,530	7.6	4.9	32.9	3.9	13.9
3rd quarter 2014	1,168,187	70,351	6.0	-0.7	2.2	4.2	15.7
2nd quarter 2014	1,176,780	68,858	5.9	10.9	5.1	4.6	15.1

Figure 4. 11a Estimated Quarterly U.S. Retail Sales: Total and E-commerce
(Source: US Census Bureau http://www.census.gov/**)**

4.3 The E-Commerce Development And Functional Architecture - The functional architecture for e-commerce

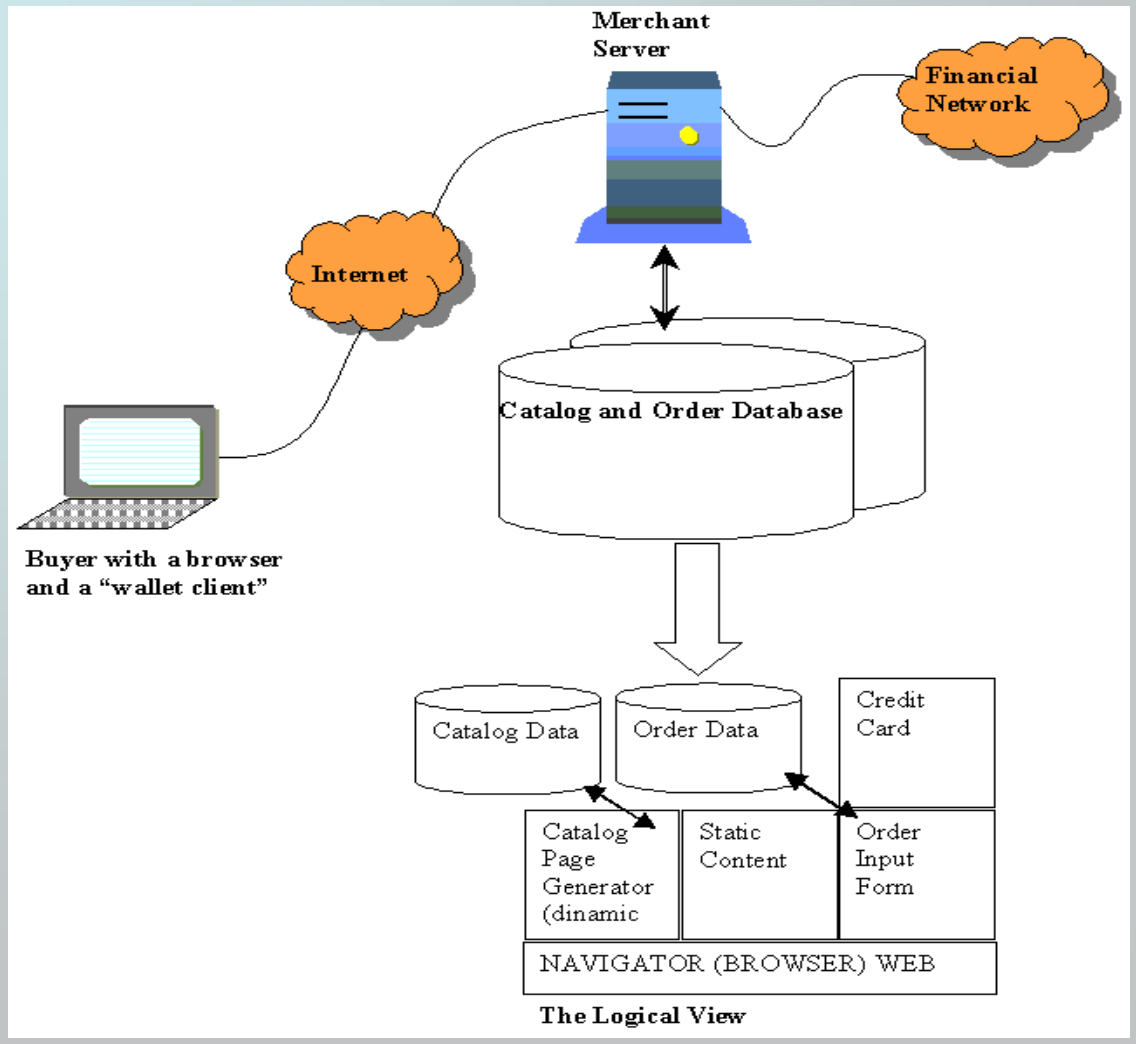


Figure 4.12 The functional architecture for e-commerce

4.3 The E-Commerce Development And Functional Architecture

By his nature the HTTP protocol do not ensure any protection for the text information sended or received. :
Encryption: the message must be *encoded* before sent to the web server and received back from the web server. The web server has a public key, and users will have a private key that enables them to decode the information. Only having the public key and the private key together will allow you to encrypt the message. The web server will have a public key and its own private key at the other end.
Certificates: To guarantee that the site you are dealing with at the other end is reputable, it can be certified by a Certificate Authority (Verisign www.verisign.com, for example. The authority is paid a yearly fee by the e-commerce vendor and in return, the authority performs checks on the business to prove that it is legitimate. These checks are then recorded in the form of a certificate. You can browse particular sites' certificates during the checkout process. To make your site trustworthy, you should go about obtaining a certificate from a Certificate Authority.

4.3 The E-Commerce Development And Functional Architecture

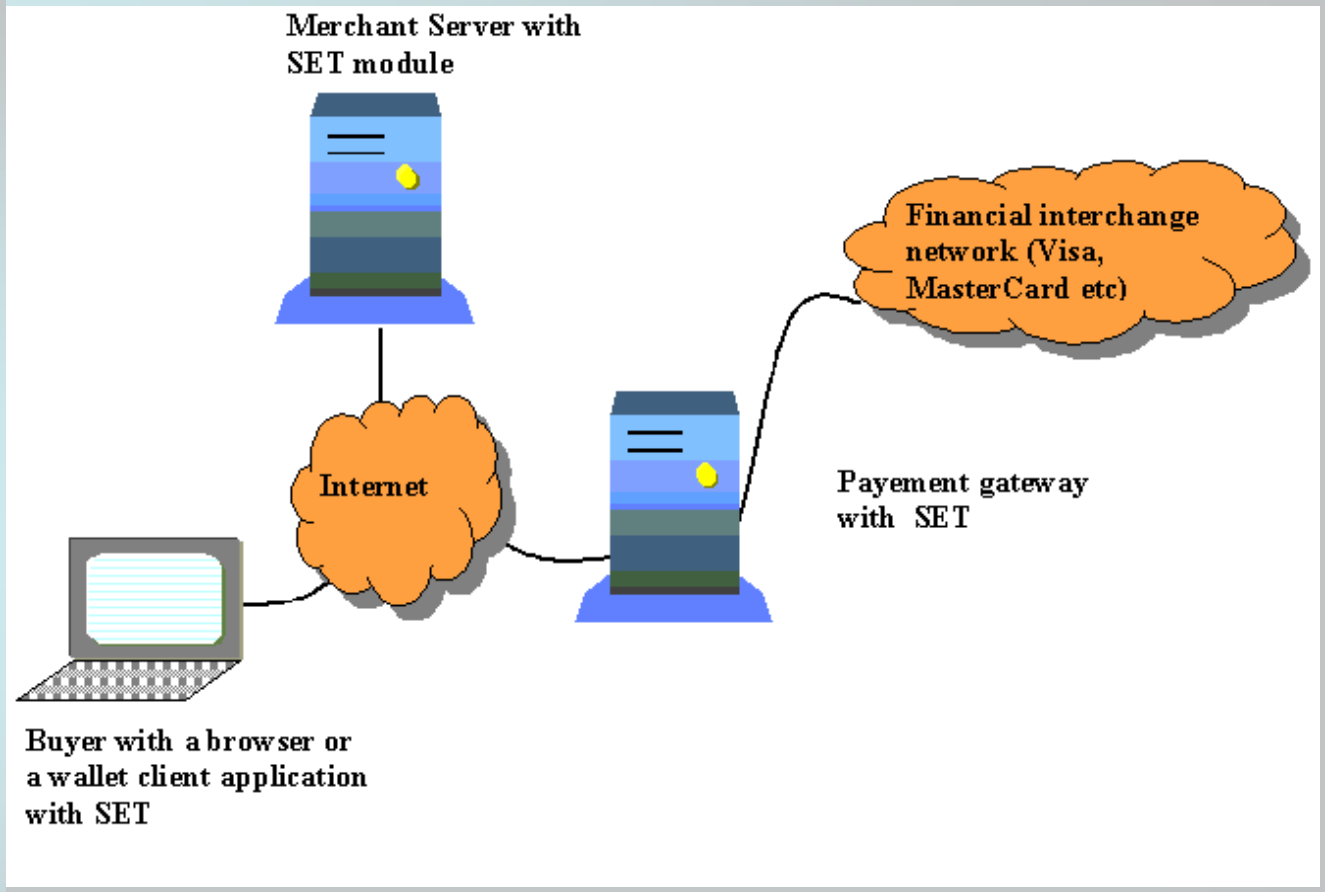


Figure 4.13 The functional architecture for e-commerce with SET

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