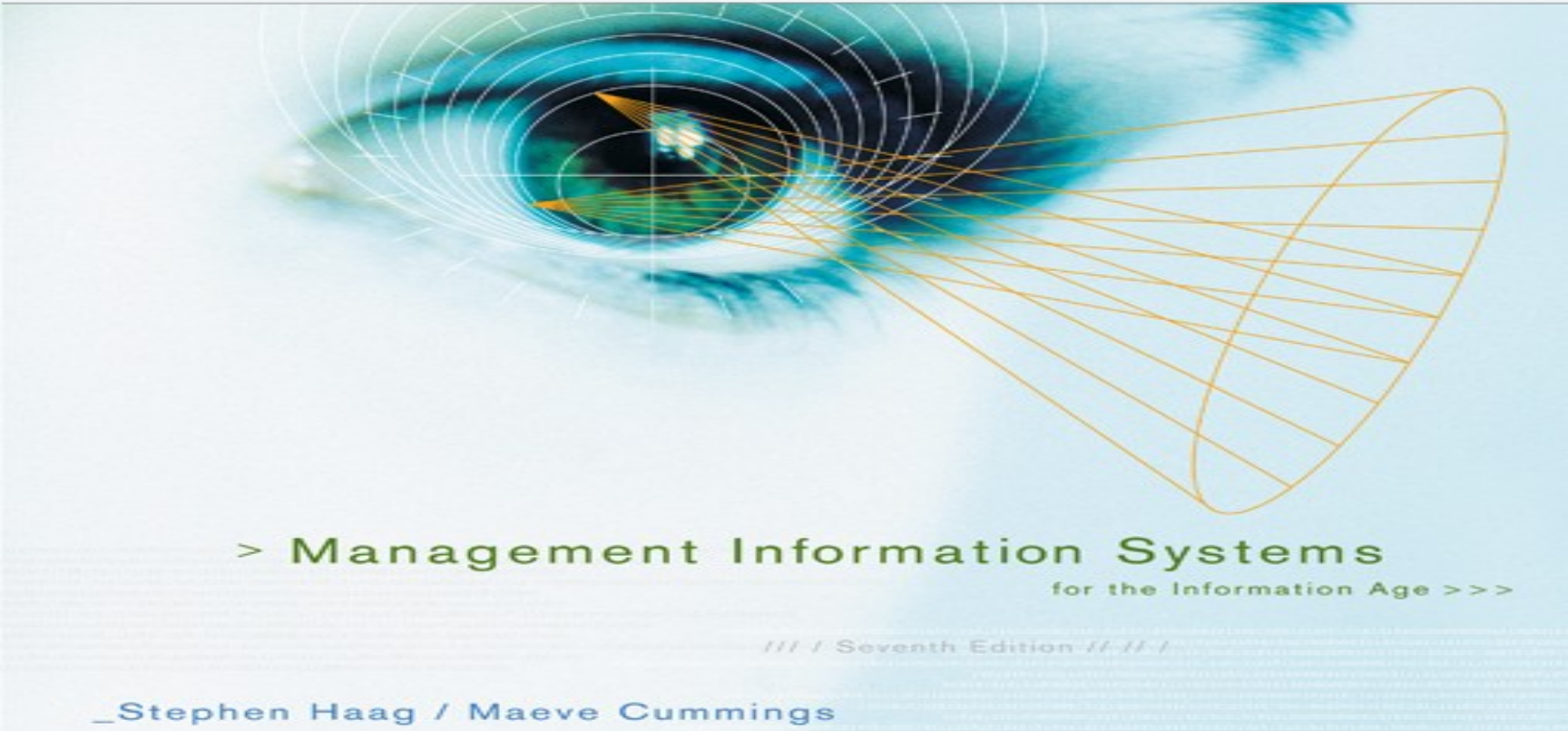
Chapter 1
THE INFORMATION AGE IN WHICH YOU LIVE
Changing the Face of Business



STUDENT LEARNING OUTCOMES

1. Describe MIS and the 3 important organizational resources within it – people, information, and IT.
2. Describe how to use Porter's Five Forces Model to evaluate the relative attractiveness of an industry.
3. Compare and contrast Porter's 3 generic strategies, top line versus bottom line, and the run-grow-transform framework for developing business strategy.
4. Describe the role of value-chain analysis for identifying value-added and -reducing processes.

IS YOUR SOCIAL SECURITY NUMBER WORTH $98?

- Information technology has greatly accelerated both the “good” and the “bad”
- IT can be used to increase profit, reduce costs, increase service quality, and benefit society
- IT can also be used to steal your personal information, commit fraudulent acts, etc
- Many sites on the Web are – right now – selling your personal information

What Your Personal Information Is Worth?

- $490 – credit card number and PIN
- $147 – driver's license number
- $147 – birth certificate
- $6 – PayPal logon and password
- $78-$294 – billing data including account number, address, birth date, etc

Questions

1. Have you, a friend, or a family member been a victim of identity theft? If so, tell the story to your class.
2. How often do you buy your credit report? Did you know you get one for free annually?
3. Is technology good or bad?

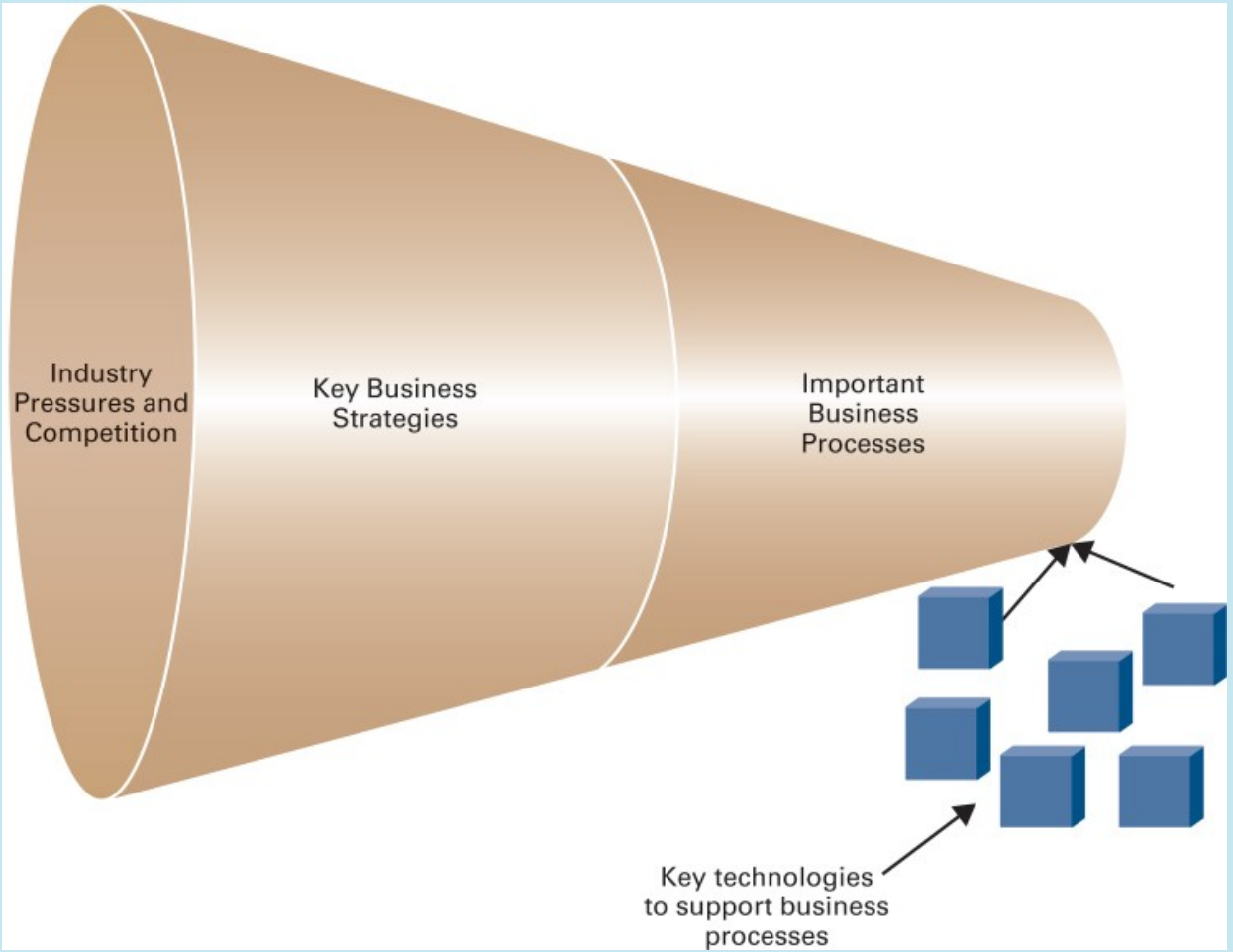
INTRODUCTION

- You live in a digital age
- Average American relies on more than 250 computers per day
- According to *Time* magazine, 14% of cell phone users stopped having sex to take a phone call
- 50 of the 2006 *Fortune 500* companies were IT companies
- Dell Computer is one of them – it was started in 1984 and now has 65,000 employees worldwide

INTRODUCTION

- This book is about the use of technology (called *management information systems* or *MIS*) in business
- The modules (there are 13) teach you how to use technology to increase your personal productivity
- The chapters (there are 9) illustrate how businesses use technology to…
  - Increase market share and profits
  - Eliminate time and location boundaries
  - Etc

Business Must Drive Technology



Business Must Drive Technology

1. Assess state of competition and industry pressures affecting your organization
2. Determine business strategies to address competitive and industry pressures
3. Identify business processes to support your chosen business strategies
4. Align technology tools with those business processes

NEVER DO THIS IN REVERSE!!

CHAPTER ORGANIZATION

1. Management Information Systems
   - Learning Outcome #1
2. Porter's Five Forces Model
   - Learning Outcome #2
3. Porter's Three Generic Strategies
   - Learning Outcome #3
4. Value-Chain Analysis
   - Learning Outcome #4

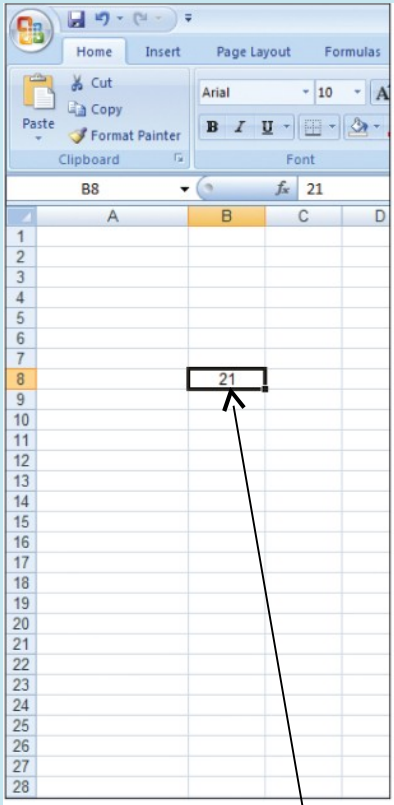
MANAGEMENT INFORMATION SYSTEMS

- ***MIS*** – planning for, development, management, and use of IT tools to help people perform all tasks related to information processing and management
- Three key resources in MIS
  1. Information
  2. People
  3. Information technology

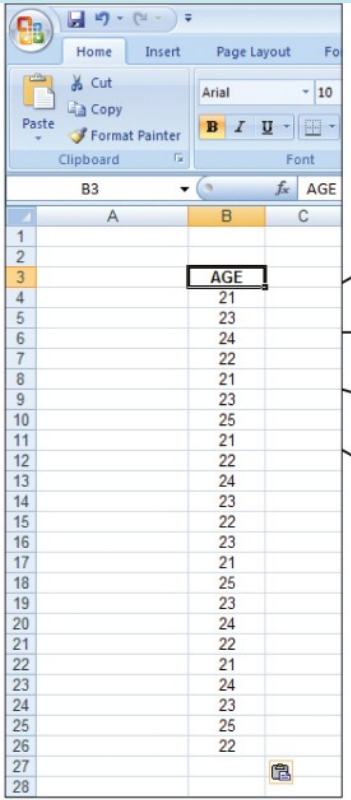
Information Resource

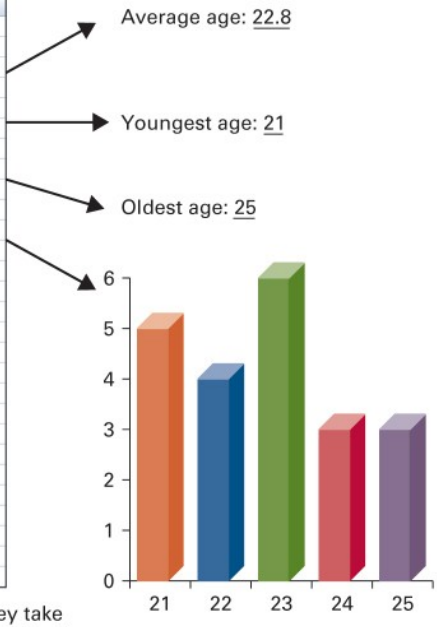
- Intellectual asset hierarchy – data, information, business intelligence, knowledge
- ***Data*** – raw facts that describe a particular phenomenon such as the current temperature, the price of movie rental, or your age
- ***Information*** – data that have a particular meaning within a specific context

Information Resource



In an Excel cell, you can store a single piece of data. Here, the cell contains the number 21, which we're assuming to be your age.





Data become information when they take on meaning. Here, information is a list of ages of all customers, which starts to provide insight into your customers.

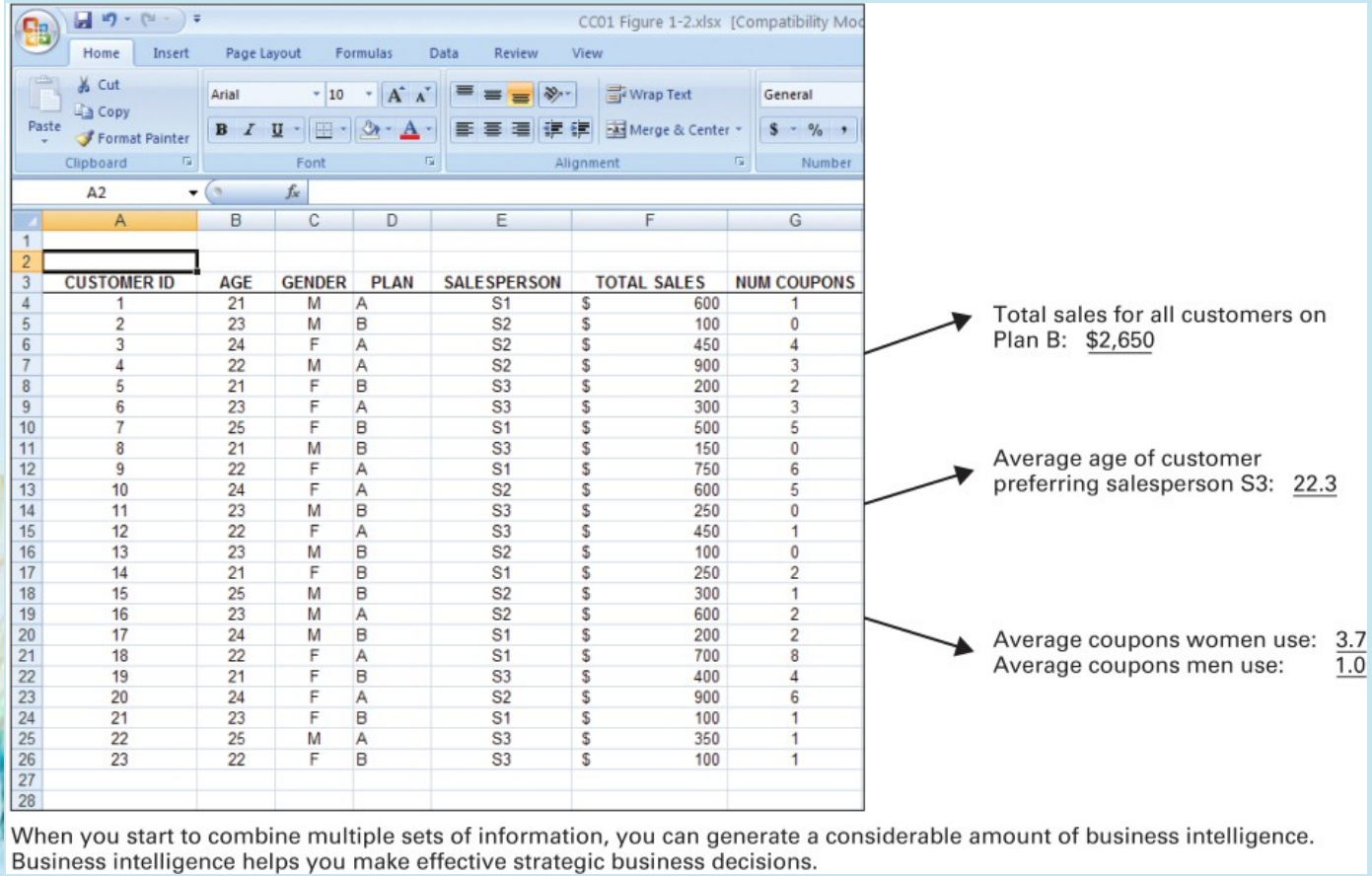
Your age – a piece of data

Information is often aggregated data that has meaning such as average age, youngest and oldest customer, and a histogram of customer ages

Information Resource

- ***Business intelligence (BI)*** – collective information about…
  - Customers
  - Competitors
  - Business partners
  - Competitive environment
- BI is information on steroids
- BI can help you make important, strategic decisions

Information Resource



	A	B	C	D	E	F	G
1							
2							
3	CUSTOMER ID	AGE	GENDER	PLAN	SALESPERSON	TOTAL SALES	NUM COUPONS
4	1	21	M	A	S1	$ 600	1
5	2	23	M	B	S2	$ 100	0
6	3	24	F	A	S2	$ 450	4
7	4	22	M	A	S2	$ 900	3
8	5	21	F	B	S3	$ 200	2
9	6	23	F	A	S3	$ 300	3
10	7	25	F	B	S1	$ 500	5
11	8	21	M	B	S3	$ 150	0
12	9	22	F	A	S1	$ 750	6
13	10	24	F	A	S2	$ 600	5
14	11	23	M	B	S3	$ 250	0
15	12	22	F	A	S3	$ 450	1
16	13	23	M	B	S2	$ 100	0
17	14	21	F	B	S1	$ 250	2
18	15	25	M	B	S2	$ 300	1
19	16	23	M	A	S2	$ 600	2
20	17	24	M	B	S1	$ 200	2
21	18	22	F	A	S1	$ 700	8
22	19	21	F	B	S3	$ 400	4
23	20	24	F	A	S2	$ 900	6
24	21	23	F	B	S1	$ 100	1
25	22	25	M	A	S3	$ 350	1
26	23	22	F	B	S3	$ 100	1
27							
28							

Total sales for all customers on Plan B: $2,650

Average age of customer preferring salesperson S3: 22.3

Average coupons women use: 3.7
Average coupons men use: 1.0

When you start to combine multiple sets of information, you can generate a considerable amount of business intelligence. Business intelligence helps you make effective strategic business decisions.

BI often combines multiple sets of information – customers, salespeople, and purchases in this case.

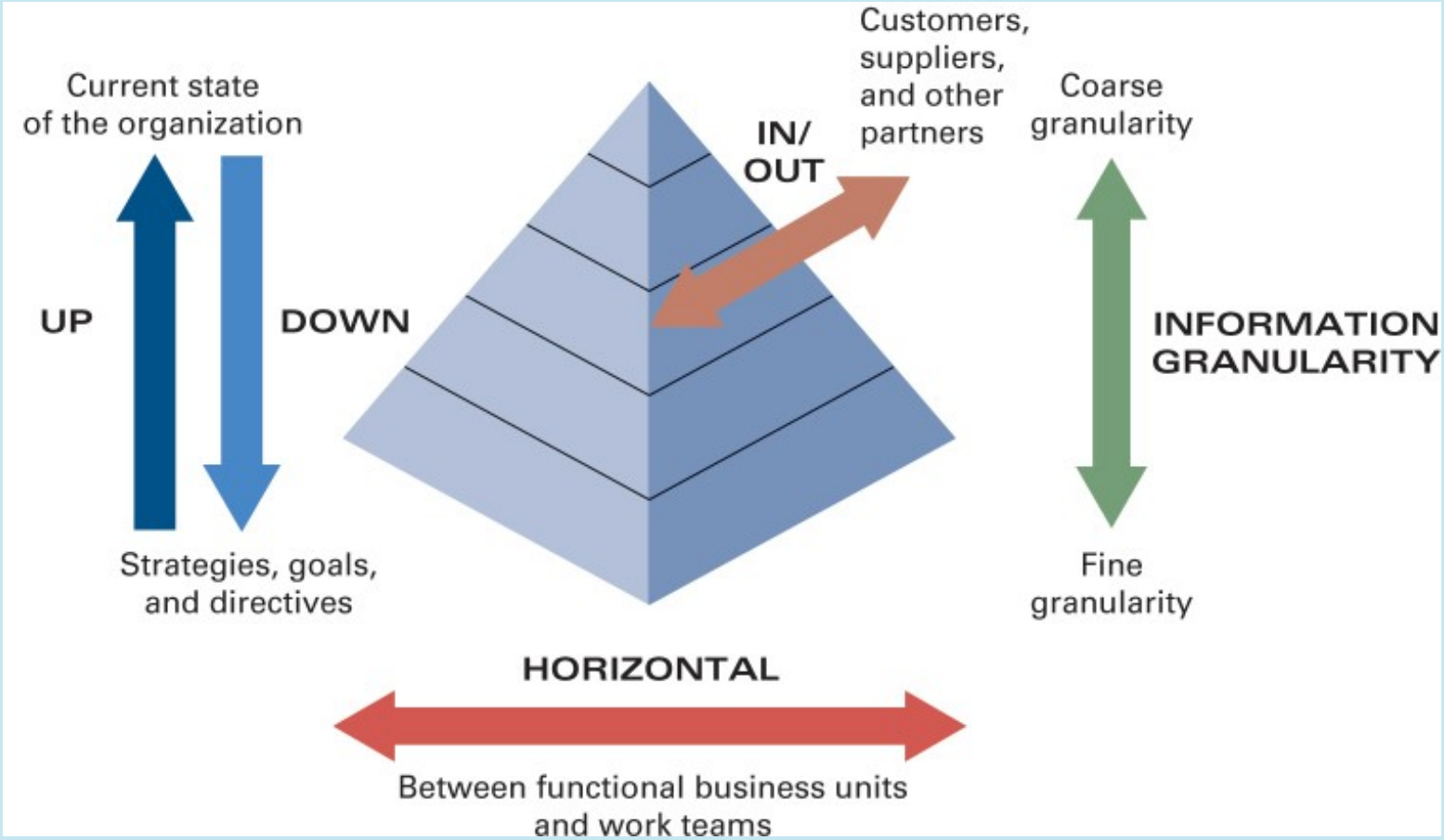
Information Resource

- ***Knowledge*** – broad term that can describe many things…
  1. Contextual explanation for business intelligence
  2. Actions to take to affect business intelligence
  3. Intellectual assets such as patents and trademarks
  4. Organizational know-how for things such as best practices

Information Resource – Quality Attributes

- Timeliness
  - When you need it
  - Describing the right time period
- Location (no matter where you are)
- Form (audio, text, animation, etc)
- Validity (credibility)
- Lack of any of the above can create ***GIGO (garbage-in, garbage-out)*** in a decision-making process

Information Resource – Organizational Perspective



Information Resource – Flows of Information

- Upward – describes state of the organization based on transactions
- Downward – strategies, goals, and directives that originate at a higher level and are passed to lower levels
- Horizontal – between functional business units and work teams
- Outward/inward – from and to customers, suppliers, distributors, and other partners

Information Resource – What It Describes

- ***Internal information*** – specific operational aspects of the organization
- ***External information*** – environment surrounding the organization
- ***Objective information*** – quantifiably describes something that is known
- ***Subjective information*** – attempts to describe something that is unknown

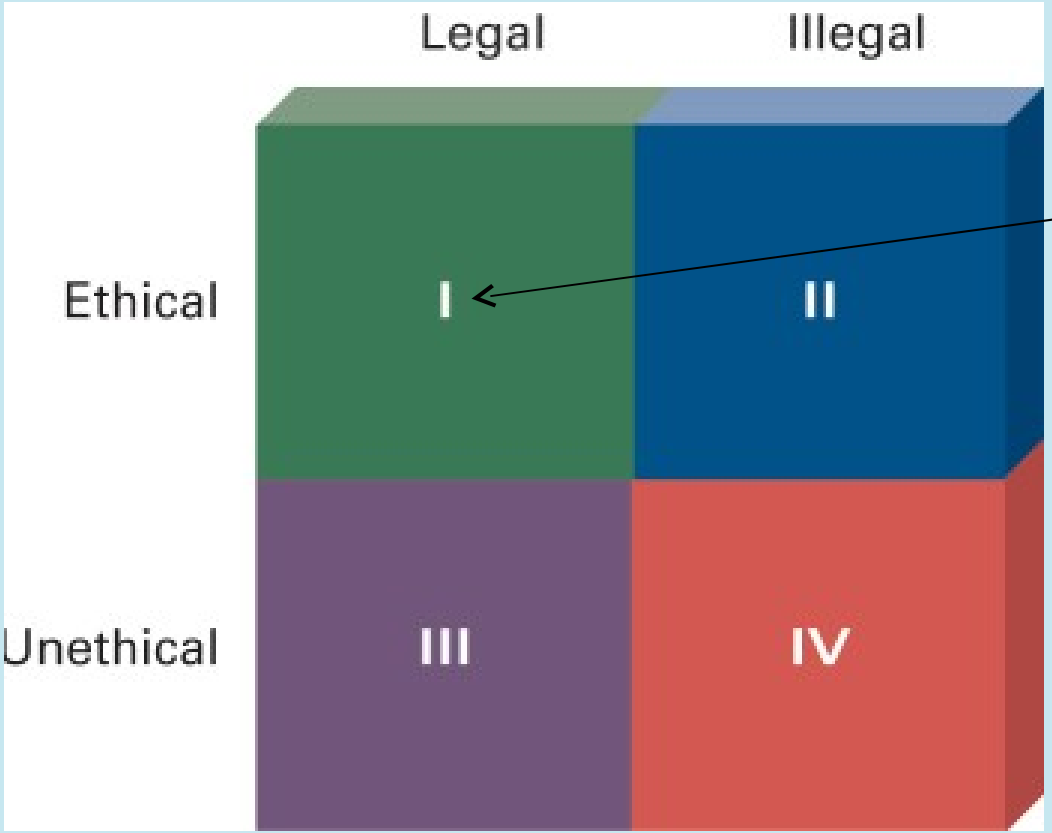
People Resource

- People are the most important resource in any organization, with a focus on
  - Technology literacy
  - Information literacy
  - Ethical responsibilities

People Resource

- ***Technology-literate knowledge worker*** – knows how and when to apply technology
- ***Information-literate knowledge worker***
  - Can define information needs
  - Knows how and where to obtain information
  - Understands information
  - Acts appropriately based on information
- ***Ethics*** – principles and standards that guide our behavior toward other people

People Resource - Ethics

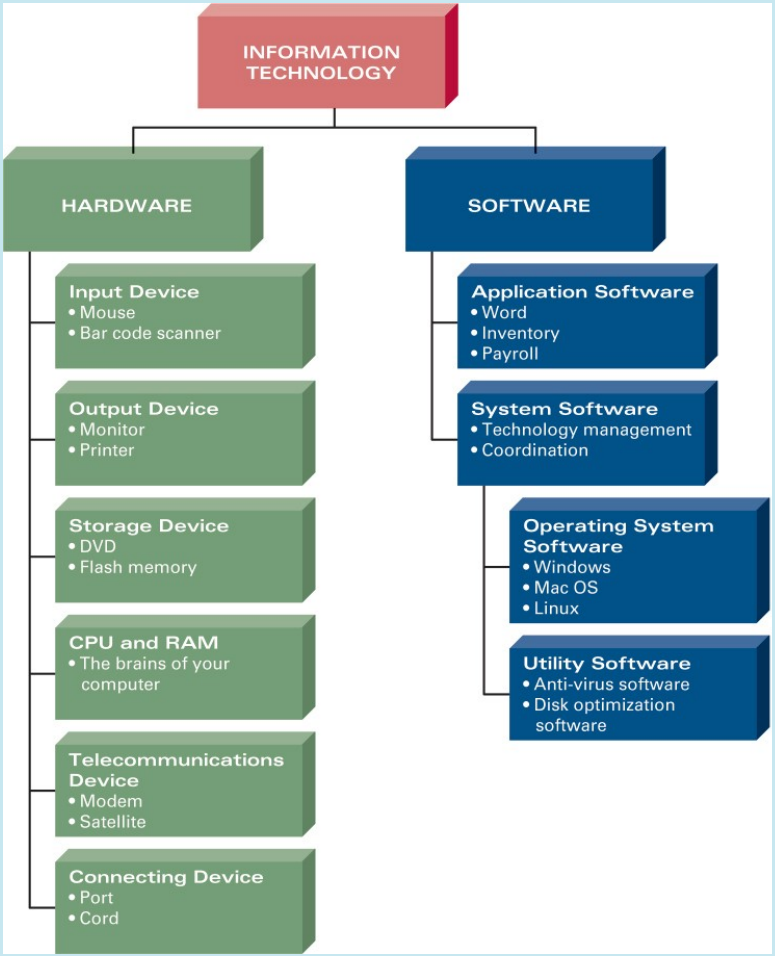


You always want your actions to fall in Quadrant I – both ethical and legal.

Information Technology Resource

- ***Information technology (IT)*** – computer-based tools that people use to work with information
  - ***Hardware*** – physical devices that make up a computer
  - ***Software*** – set of instructions that your hardware executes to carry out a specific task for you

Information Technology – Hardware



Information Technology – Hardware

1. ***Input device*** – tool for entering information and commands
2. ***Output device*** – tool for see or hearing results
3. ***Storage device*** – tool for storing information
4. ***CPU*** – hardware that interprets and executes instructions (***RAM*** temporarily stores information and software for the CPU)
5. ***Telecommunications device*** – for sending info
6. Connecting devices – like cables, ports, etc.

Information Technology – Software

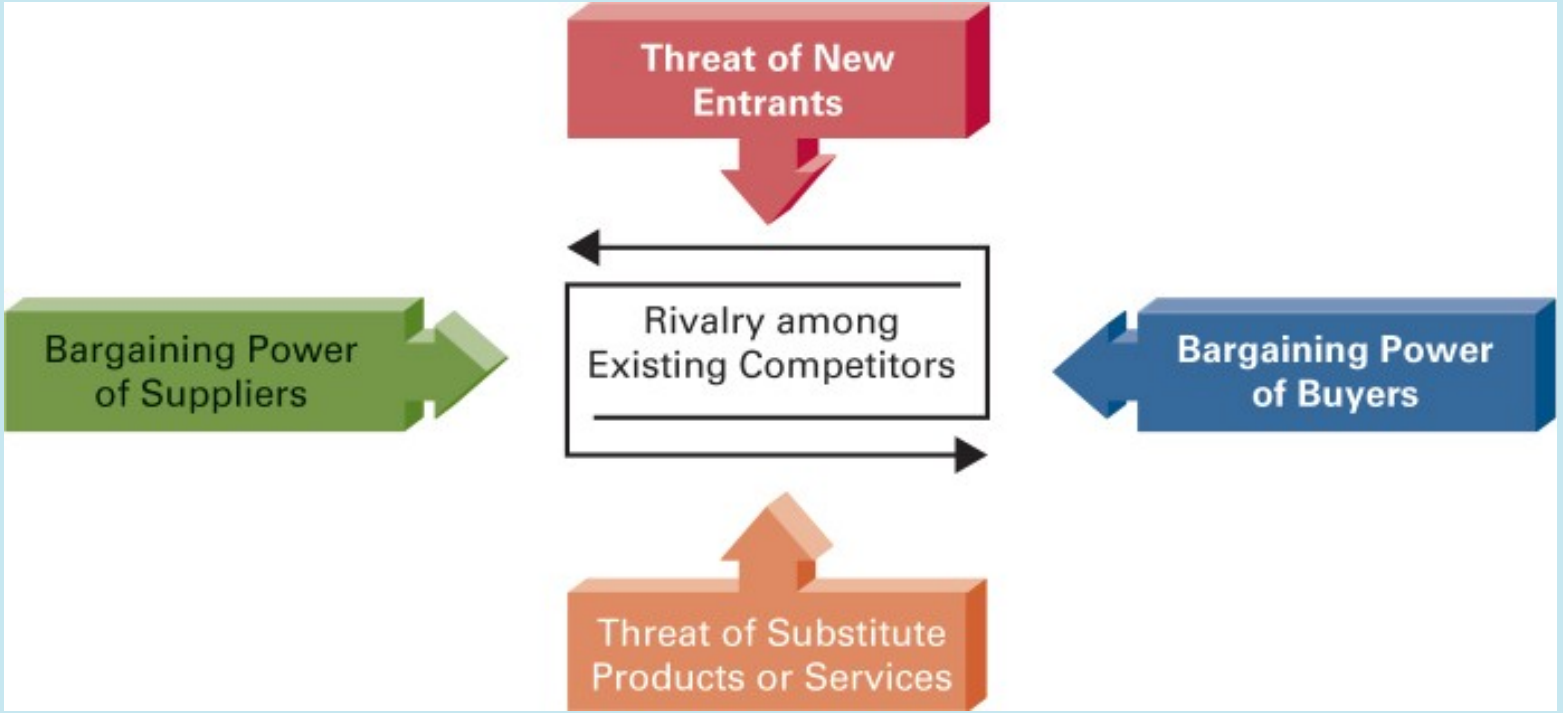
- Two types of software
- ***Application software*** – enables you to solve specific problems and perform specific tasks (Word, payroll, inventory management, etc)
- ***System software*** – handles tasks specific to technology management (operating system, anti-virus, etc)

See Extended Learning Module A for a review of IT hardware and software

PORTER'S FIVE FORCES MODEL

- The ***Five Forces Model*** helps business people understand the relative attractiveness of an industry and the industry's competitive pressures in terms of
  1. Buyer power
  2. Supplier power
  3. Threat of substitute products or services
  4. Threat of new entrants
  5. Rivalry among existing competitors

PORTER'S FIVE FORCES MODEL



Buyer Power

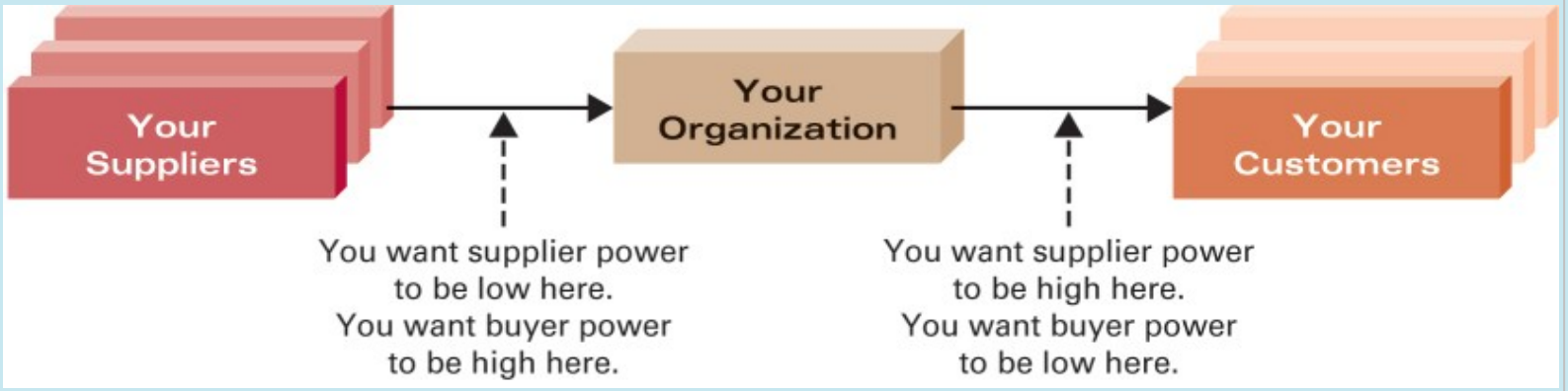
- ***Buyer power*** – high when buyers have many choices and low when their choices are few
- Competitive advantages are created to get buyers to stay with a given company
  - NetFlix – set up and maintain your movie list
  - United Airlines – frequent flyer program
  - Apple iTunes – buy/manage your music
  - Dell – customize a computer purchase

Buyer Power

- ***Competitive advantage*** – providing a product or service in a way that customers value more than what the competition is able to do
- ***First-mover advantage*** – significant impact on gaining market share by being the first to market with a competitive advantage
- All competitive advantages are fleeting
  - E.G., all airlines now have frequent flyer programs

Supplier Power

- ***Supplier power*** – high when buyers have few choices and low when choices are many
- The opposite of buyer power



Threat of Substitute Products and Services

- ***Threat of substitute products and services*** – high when there are many alternatives for buyers and low when there are few alternatives
- Switching costs can reduce this threat
- ***Switching cost*** – a cost that makes buyers reluctant to switch to another product/service
  - Long-term contract with financial penalty
  - Great service
  - Personalized products based on purchase history

Threat of New Entrants

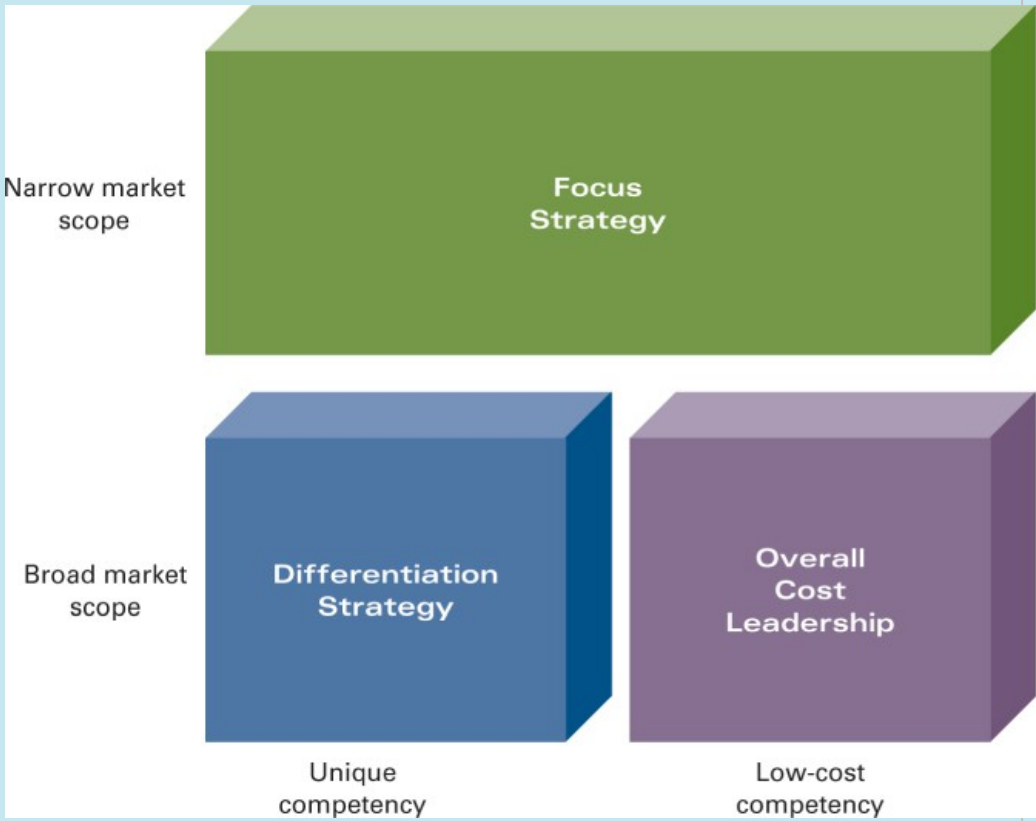
- ***Threat of new entrants*** – high when it is easy for competitors to enter the market and low when entry barriers are significant
- ***Entry barrier*** – product or service feature that customers have come to expect and that must be offered by an entering organization
  - Banking – ATMs, online bill pay, etc

Rivalry Among Existing Competitors

- ***Rivalry among existing competitors*** – high when competition is fierce and low when competition is more complacent
- General trend is toward more competition in almost all industries
- IT has certainly intensified competition in all sectors of business

PORTER'S THREE GENERIC STRATEGIES

- Porter identified 3 generic business strategies for beating the competition
  1. Overall cost leadership
  2. Differentiation
  3. Focus



Overall Cost Leadership

- ***Overall cost leadership*** – offering the same or better quality product or service at a price that is less than what any of the competition is able to do
  - Wal-Mart (Always Low Prices, Every Day Low Prices)
  - Dell – a computer the way you want it at an affordable price
  - Hyundai and Kia – reliable low-cost cars
  - Grocery stores – high-volume, low-margin

Differentiation

- ***Differentiation*** – offering a product or service that is perceived as being "unique" in the marketplace
  - Hummer – Like Nothing Else
  - Audi and Michelin – safety
  - Lund's & Byerly's – high-end grocery store

Focus

- ***Focus*** – focusing on offering products or services
  - To a particular segment or buyer group
  - Within a segment of a product line
  - To a specific geographic market
- Examples
  - Restaurants
  - Physician offices
  - Legal offices

Alternative Business Strategy Frameworks

- Top line versus bottom line – should your strategy focus on reducing costs (bottom line) or increasing revenues (top line)
- ***Run-grow-transform (RGT) framework*** – the allocation in terms of percentages of IT dollars on various types of business strategies

Top Line Versus Bottom Line

INCOME STATEMENT

Sales:	
_____	$_____
_____	$_____
_____	$_____
Total Sales	$_____
Expenses:	
Cost of Goods Sold	$_____
Admin Expense	$_____
Payroll	$_____
Total Expenses	$_____

Top Line
Reach new customers, offer new products, cross-sell services, offer complementary products

Bottom Line
Optimize manufacturing processes, decrease transportation costs, reduce cost of human capital, minimize errors in a process

Top Line Versus Bottom Line

- Top Line (increase revenue)
  - Reach new customers
  - Offer new products
  - Cross-selling
  - Offering complimentary products
- Bottom line (minimize expenses)
  - Optimizing manufacturing processes
  - Decreasing transportation costs
  - Minimizing errors in a process

RGT Framework

- How will you allocate IT dollars to
  - Run – optimizing execution of existing processes
  - Grow – increasing market share, products, and service offerings
  - Transform – innovating business processes, products, and/or services

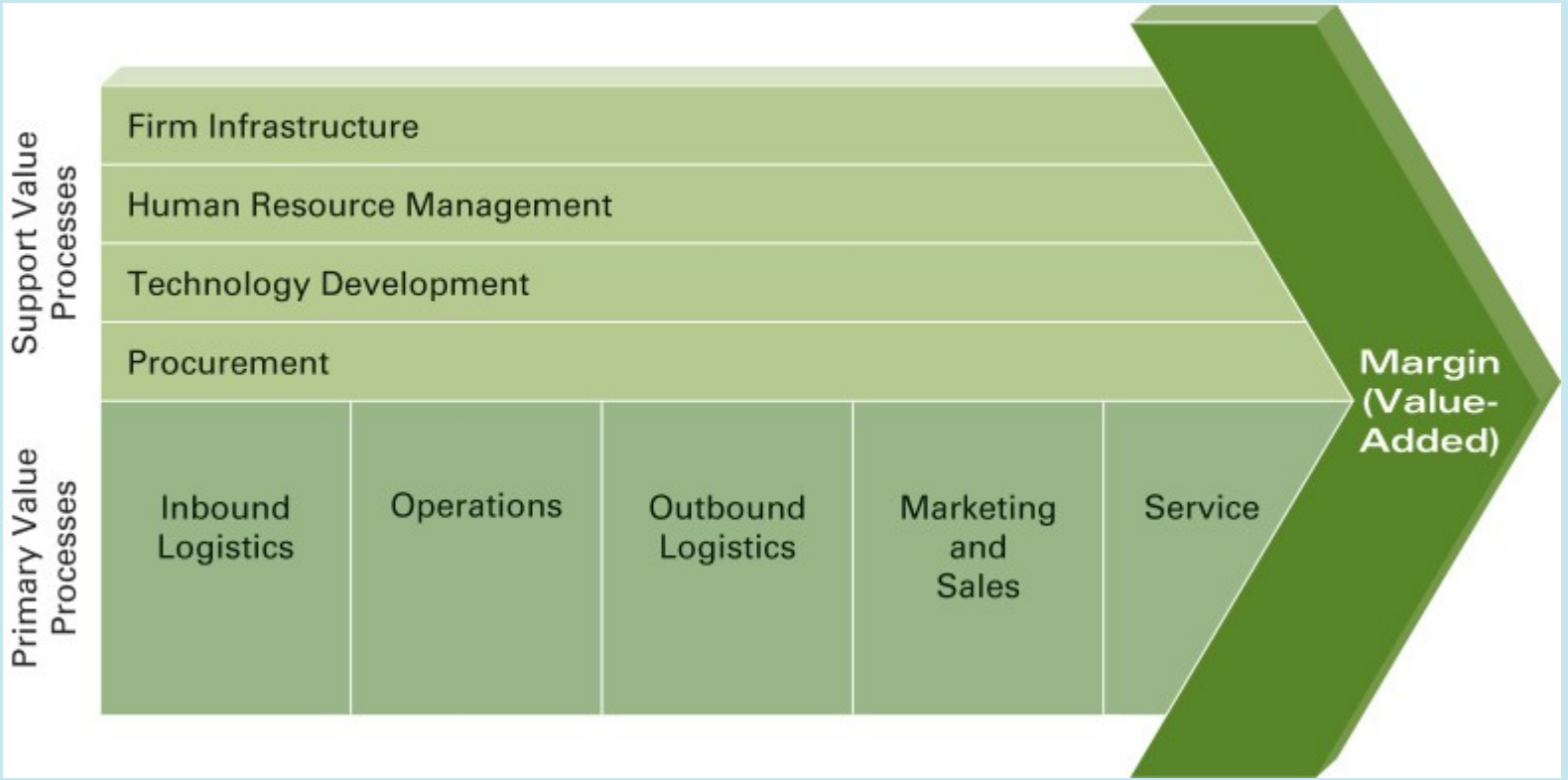
Porter, Top Line/Bottom Line, RGT

- Run = overall cost leadership = bottom line
- Grow = focus and differentiation = top line
- Transform = (new) differentiation = top line (when the focus is innovation)

VALUE-CHAIN ANALYSIS

- ***Value-chain analysis*** – systematic approach to assessing and improving the value of business processes
- ***Value chain*** – chain or series of business processes, each of which adds value to your organization's products or services
- ***Business process*** – standardized set of activities that accomplishes a specific task
- Two types of processes: Primary and Support

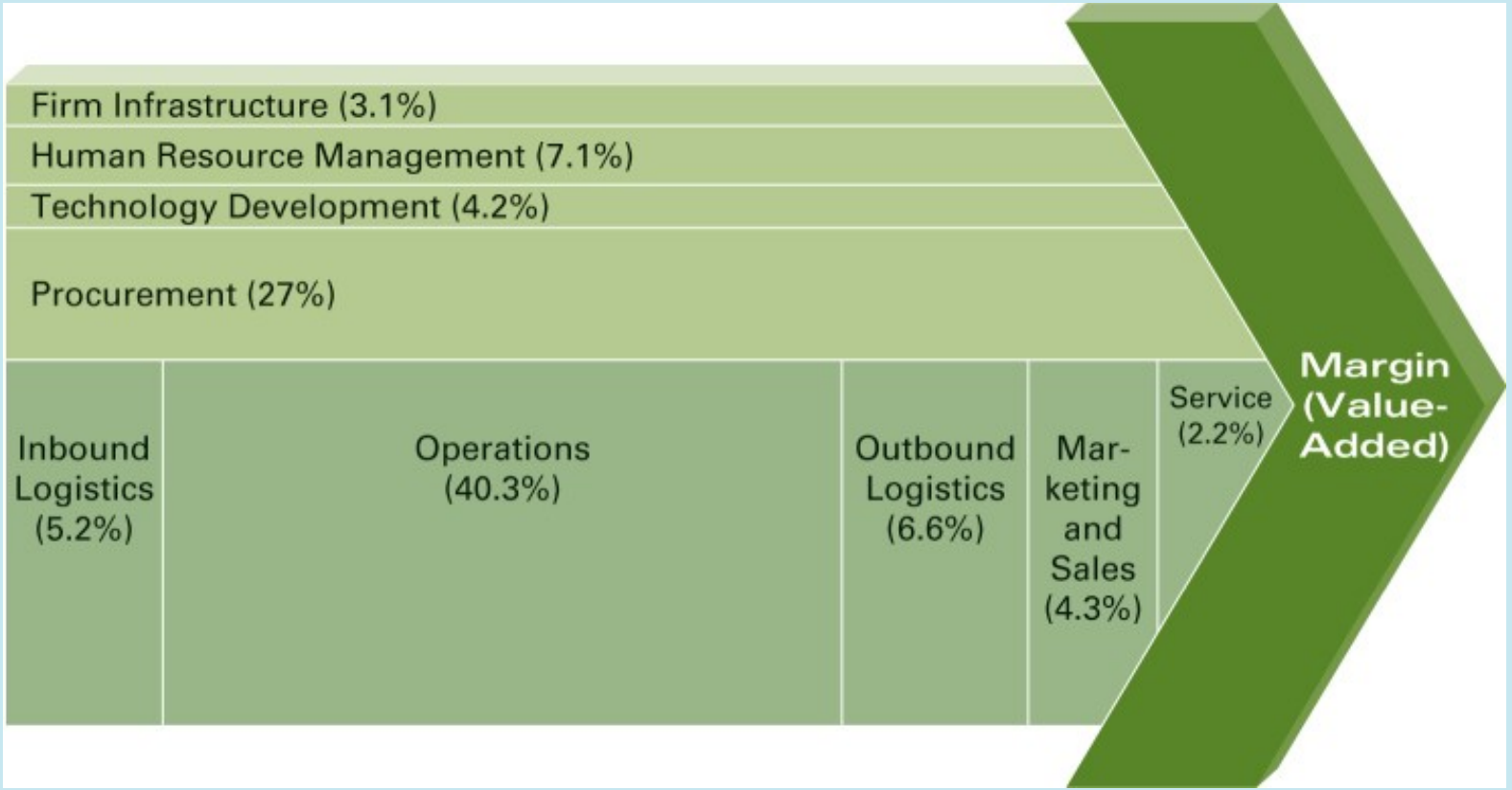
VALUE-CHAIN ANALYSIS



VALUE-CHAIN ANALYSIS

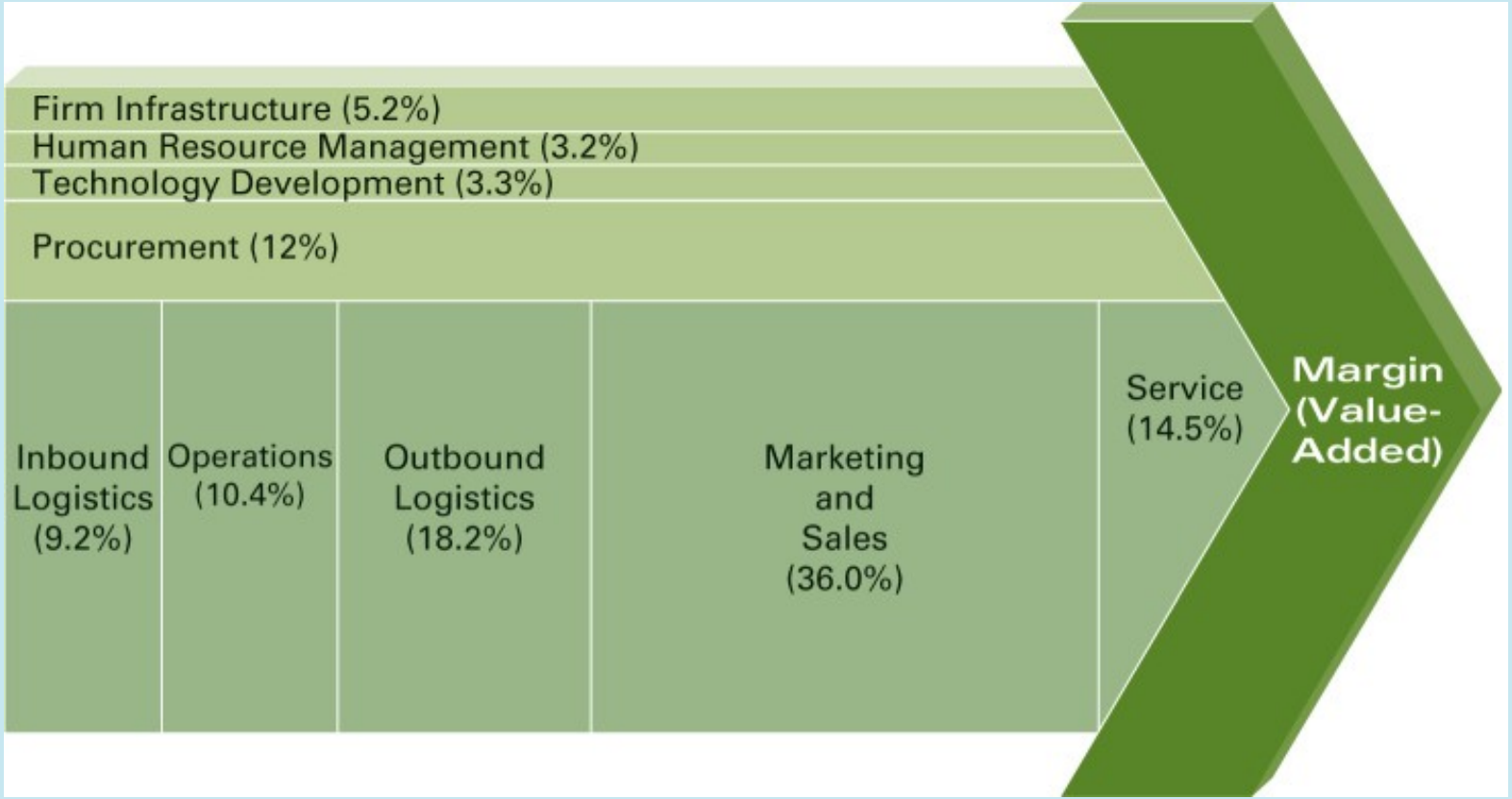
- ***Primary value process*** – takes in raw materials and makes, delivers, markets and sells, and services your products and services
- ***Support value process*** – supports the primary value processes
- Ask customers which processes add value and which processes reduce value
  - Focus IT appropriately

VALUE-CHAIN ANALYSIS



VALUE-ADDED PROCESSES

VALUE-CHAIN ANALYSIS



VALUE-REDUCING PROCESSES