



Week 4: Chapter 4

Organizational Impacts of Knowledge Management



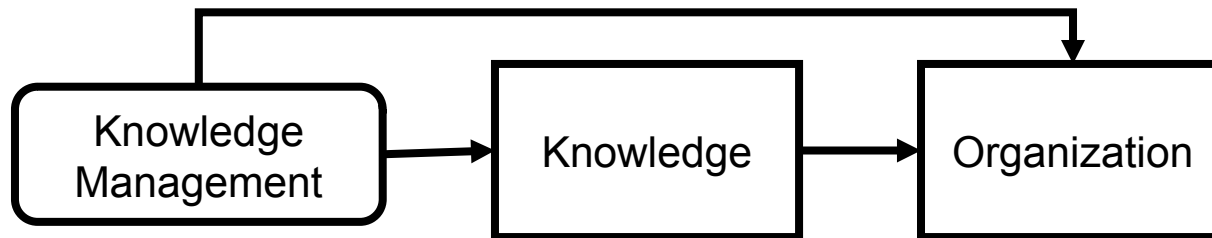
Chapter Objectives

- Understand the impacts knowledge management has on organizations and organizational performance at several **levels**
 - ◆ People
 - ◆ Processes
 - ◆ Products
 - ◆ Overall performance



How Knowledge Management Impacts Organizations?

- Create/use knowledge and improve the organizations performance



- People
- Processes
- Products
- Overall performance

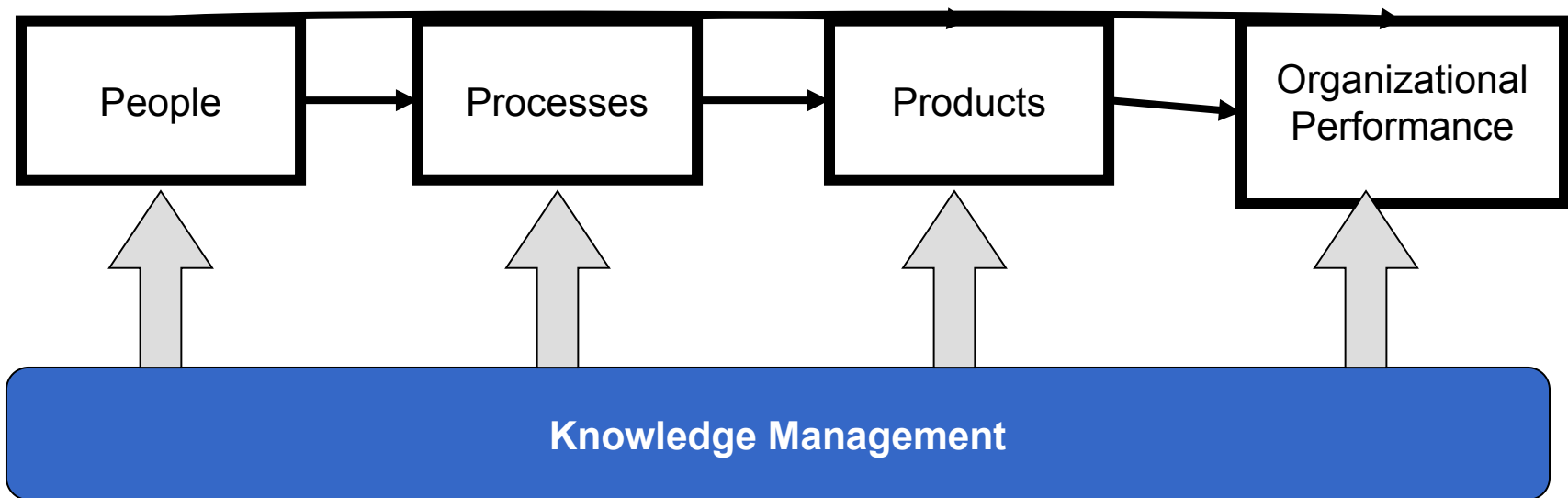


Why US Firms adopt KM?

- Retaining expertise of **employees**
- Enhancing **customers'** satisfaction with the company's products
- Increasing **profits** or revenues.



Dimensions of Organizational Impacts of KM





Impact on People

- KM can facilitate employee **learning**
 - ♦ From each other or external sources
 - ♦ Help organization to be constantly growing and changing
- KM also causes employees to become more **flexible**, and enhances their **job satisfaction**
 - ♦ because of their enhanced ability to learn about solutions to business problems



Impact on Employee Learning

- This can be accomplished through
 - ◆ Externalization
 - eg, writing a report on lessons learned from a project...
 - ◆ Internalization
 - eg, when employees preparing for a later project read it
 - ◆ Socialization
 - eg, through joint activities such as meetings or informal chats
 - ◆ Communities of practice
 - ie (recall), an organic and self-organized group of individuals who are dispersed geographically or organizationally, but *communicate regularly to discuss issues of mutual interest*



Xerox case study: Communities of Practice (1)

- Focus area: management of technology infrastructure
- Membership: large group of IT professionals
 - ◆ Provided leading-edge solutions
 - ◆ Addressed unstructured problems
 - ◆ Stayed in touch with latest developments



Xerox case study: Communities of Practice (2)

- Unusual: Top management deliberately established this COP
 - ◆ Typically COPs are voluntarily formed by individuals
 - ◆ This kind of COP is sometimes called a “strategic community” [Storck& Hill 2000]
- About 2/3 of the COP’s value resulted from face-to-face networking at the group’s meetings
- Helped Xerox in its global services push



Xerox case study: Communities of Practice (3)

- “It is about understanding **where knowledge is** and **how it is found**. By working with human elements of this, there are real things you can do to **help people** embrace the technology and incorporate it into the workflow.”
[Jim Joyce, Xerox executive, quoted in Moore 2001]



Xerox case study: Communities of Practice (4)

- “At the core of Xerox’s heritage of innovation is a deep understanding of how **people**, **processes** and **technology** interact with each other in the creation of great work.
- As a result, our practical, results-oriented, knowledge management solutions can help **businesses streamline work processes**, enable **better customer service** and **grow revenue**.”
[Business Wire 2002]



Impact on Employee Adaptability (1)

- Employees are likely to adapt when they **interact** (learn from) with each other
- They are more likely to **accept change** when they are aware of ongoing and **potential future changes** (no surprises)
- They are more **prepared** to respond to change (exposed to latest ideas & development)



Impact on Employee Adaptability (2)

- **Case study:** Buckman Laboratories
 - ◆ Privately owned US specialty chemicals firm (1,300 employees)
 - ◆ Named “Most Admired Knowledge Enterprise” by Business Wire [2000]
 - ◆ According to Chairman Bob Buckman:
 - Company’s KM efforts were intended to continually **expose its employees to new ideas** and enable them to **learn** from these ideas



Impact on Employee Adaptability (3)

- **Case study:** Buckman Laboratories (cont'd)
 - ◆ Employees were **prepared for change** as a result of being in touch with the latest ideas and developments –and consequently, **embraced** change instead of fearing it
 - ◆ **Increased employee adaptability** enabled the company to become **a very fast changing organization** around the **needs of its customers**



Impact on Employee Job Satisfaction (1)

- Recent study found that in organizations having more employees **sharing** knowledge with one another, **turnover** rates were **reduced**, thereby positively affecting **revenue and profit** [Bontis2003].
- Employees feel better because of their knowledge **acquisition** and **skill** enhancement
- Employees' **market value** is enhanced relative to other organizations' employees

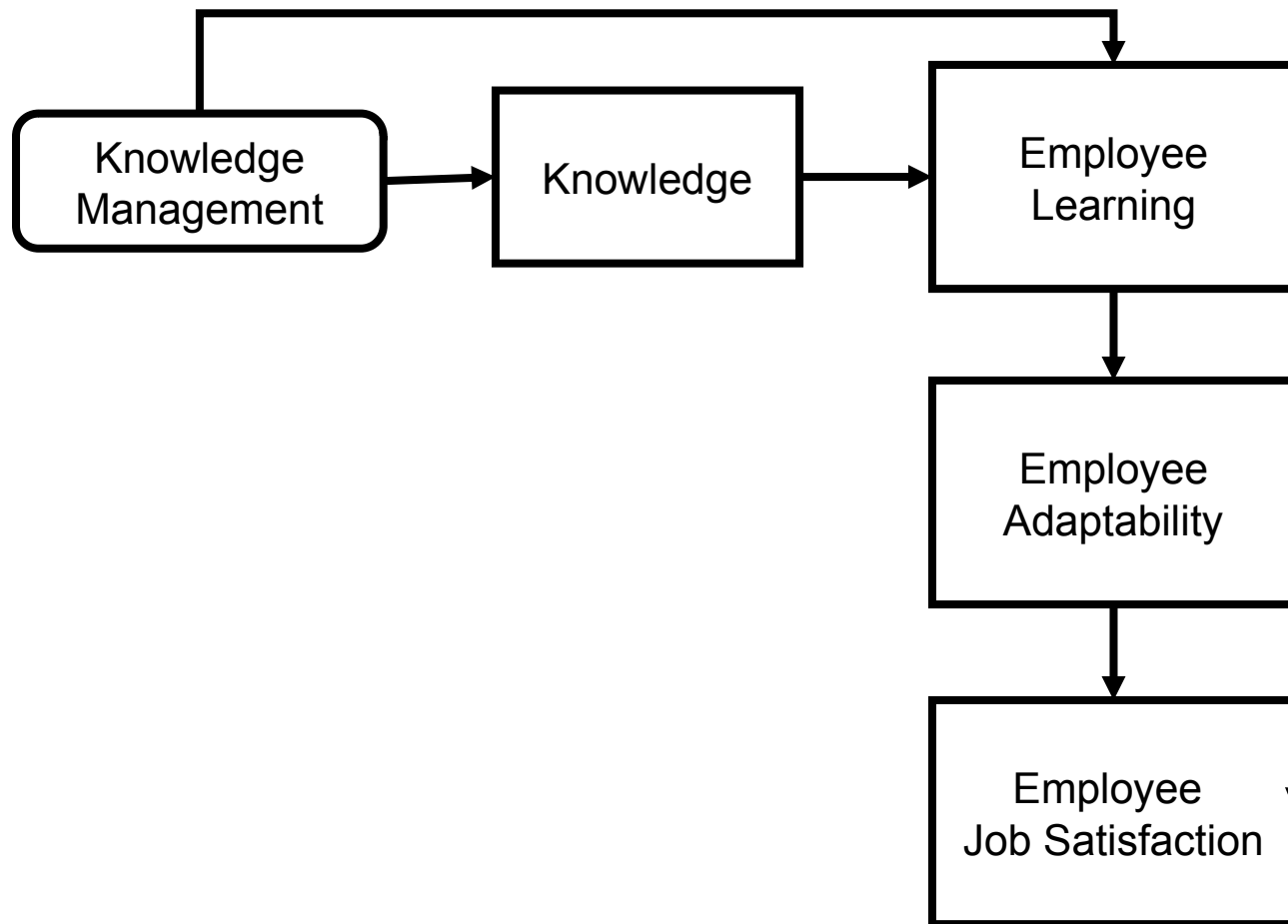


Impact on Employee Job Satisfaction (2)

- KM also provides employees with **solutions to problems** they face in case those same problems have been encountered earlier, and effectively addressed
- Providing **tried-and-tested solutions** (e.g., via the direction mechanism) amplifies employees' effectiveness in performing their jobs
- Also helps keep employees motivated
 - ♦ Employees **facing problems** in performing their job rapidly become **demotivated**



How KM Impacts People



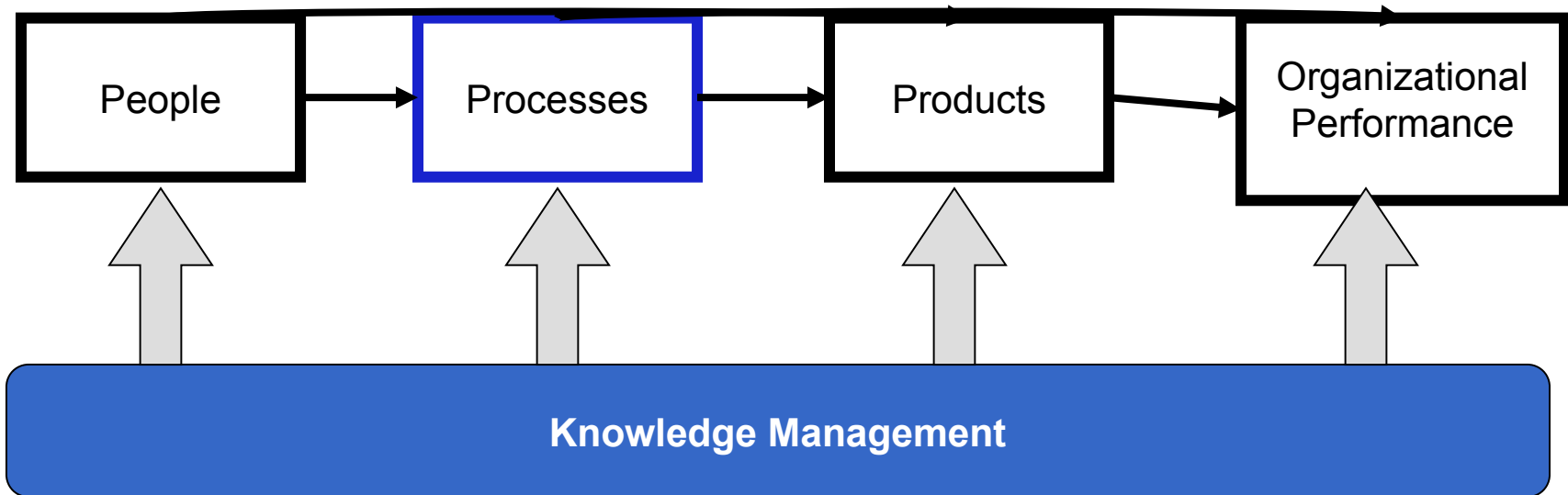


Group discussion

- **(20 minutes) Identify the possible ways in which KM (or the lack thereof) in your organization (it could be your academic institution or your workplace) affects your learning and job satisfaction.**
- **(10 minutes) writing**
- **(10 minutes) presentation**



Dimensions of Organizational Impacts of KM





Impact on Processes

- KM enables improvements in **organizational processes** (not KM processes) such as marketing, manufacturing, accounting, engineering, and public relations
- These impacts on processes can be seen along three (interrelated) major dimensions
 - ◆ Effectiveness
 - ◆ Efficiency
 - ◆ Degree of innovation of the processes



Effectiveness, Efficiency and Innovation

- **Effectiveness** is performing the **most suitable processes** and making the **best possible decisions**
- **Efficiency** is performing the processes **quickly** and in a **low-cost** fashion.
- **Innovation** is performing the processes in a **creative** and **novel fashion**, that improves **effectiveness** and **efficiency**—or at least marketability.



Impact on Processes: Effectiveness (1)

- KM can enable organizations to become more effective by helping them to **select** and **perform** the most **appropriate** processes
- **Case study:** Ford and Firestone [Stewart 2000]
 - ◆ Firms *did* possess the necessary information to warn them about the **mismatch** of Ford Explorer and Firestone tires
 - ◆ However, the information **was not integrated** across the two companies –so neither company had the “full picture”
 - ◆ Ironically, Ford *did* actually have a good KM process, but it was not used to manage the knowledge relating to the Ford Explorer and Firestone tires
 - ◆ Results:
 - significant **loss of lives** for customers
 - unprecedented **legal liability**



Impact on Processes: Effectiveness (2)

- KM enables organizations to quickly **adapt** their processes according to the **current circumstances**, thereby maintaining process **effectiveness in changing times**
 - ♦ On the other hand, organizations lacking in KM find it difficult to maintain process effectiveness when faced with **turnover of experienced and new employees**.
- **Case study**: Reorganization of a large firm's engineering department in 1996
 - ♦ Achieved a 75% reduction of workforce (**downsizing**)
 - ♦ An external vendor absorbed many of the displaced engineers
 - ♦ Company failed to institutionalize any KM mechanisms to capture knowledge of department employees
 - ♦ Subsequently, a 2-month review of results showed key quality indicators not met



Impact on Processes: Effectiveness (3)

Case study: KM at Tearfund

- Large UK-based relief and development agency
- Regularly responds to natural and humanitarian disasters
 - ♦ Floods, hurricanes, typhoons, famine, displacement, ...
- Recognizes that **learning** for successes and failures during responses to disasters in general improves responses to later ones
- Has **identified, consolidated, and utilized lessons learned** in response to floods in Bangladesh, the Orissa Cyclone in India, the Balkan crisis, ...



Impact on Processes: Effectiveness (4)

Case study: KM at Tearfund (cont'd)

- 2 main components in KM efforts:
 - ♦ Utilize **learning opportunities** that arise during and after any major activity
 - Involve key participants to perform **after-action reviews** describing lessons learned
 - They participate in a structured, facilitated process to **identify key lessons learned**, and retrieve them again when next required
 - ♦ Create COPs to connect people with similar roles, issues, challenges, and knowledge needs
 - Enables Tearfund employees to **share knowledge** with 350 partner organizations, both UK-based and overseas



Impact on Processes: Effectiveness (5)

Case study: KM at Tearfund (con't)

- Has been consciously learning **different disaster responses**
- Example:
 - ♦ Tearfund modified its processes so that someone would be in the field no later than 48 hours after a disaster
 - ♦ Tearfund identified 300 specific and actionable recommendations
- **Success** depends on not simply identifying the lessons, but actually **implementing them** on the next occasion.
- Outcome: a more **proactive** and integrated response to disasters, providing help to the beneficiaries more effectively



Discussion (1)

- **Explain why poor KM *reduces* the effectiveness of organizational processes.**
- **Give an Example from either your organization or an organization you have dealt with**

(Recall) Effectiveness is performing the most suitable processes and making the best possible decisions.

- Poor KM can result in **mistakes** by the organization because they risk **repeating** past mistakes or not foreseeing otherwise obvious problems.
- Organizations lacking in KM find it difficult to maintain process **effectiveness** when faced with turnover of experienced and new employees.



Discussion (2)

- In contrast, a good knowledge management system can enable organizations to become more effective by helping them to select and perform the most appropriate processes.
- Effective KM enables the organization's members to collect information needed to monitor external events.
- This results in fewer surprises for the leaders of the organization, and consequently reduces the need to modify plans and settle for less effective approaches.
- Further, KM enables organizations to quickly adapt their processes according to the current circumstances, thereby maintaining process effectiveness in changing times.



Impact on Processes: Efficiency (1)

- Managing knowledge effectively can also enable organizations to be more **productive** and **efficient**
- **Case studies:**
 - ♦ Toyota
 - ♦ BP



Impact on Processes: Efficiency (2)

Case study: Toyota [Dyer & Nobeoka2000]

- Toyota's ability to effectively create and manage **network-level knowledge sharing** processes helps explain the relative productivity advantages of both Toyota and its suppliers
- Reasons: Toyota's network had solved 3 fundamental dilemmas with regard to **knowledge sharing**, by devising methods to:
 - ♦ **Motivate members** to participate and openly share valuable knowledge (while preventing undesirable spillovers to competitors)
 - ♦ **Prevent free riders** (i.e., individuals who learn from others without helping others to learn)
 - ♦ **Reduce the costs** associated with finding and **accessing** different types of valuable **knowledge**



Impact on Processes: Efficiency (3)

Case study: BP [Echikson2001]

- A BP exploration **geologist** located off the coast of Norway **discovered** a more efficient way of **locating oil** on the Atlantic seabed in 1999
 - ♦ Involved a change in the position of the drill heads to **better aim the equipment** and thereby **decrease** the number of **misses**
- The geologist **posted** a **description** of the new process on BP's **intranet** for all employees' benefit
- **Within 24 hours**, another BP engineer working on a well near Trinidad found the posting and emailed the Norwegian employee for additional details
- After a **quick email** exchange, the Trinidad team successfully **saved 5 days** of drilling –amounting to **US\$600,000**
- **Use of KM** via internet saved BP **US\$300M in 2001 alone**, while also enhancing innovativeness.



Impact on Processes: Innovation (1)

- Organizations can increasingly rely on **knowledge shared** across individuals to produce **innovative solutions** to problems as well as to develop more innovative organizational processes
- “The power of intellectual capital is the ability to breed ideas that ignite value” [JP Morgan Chase annual report, quoted by Stewart 2001]



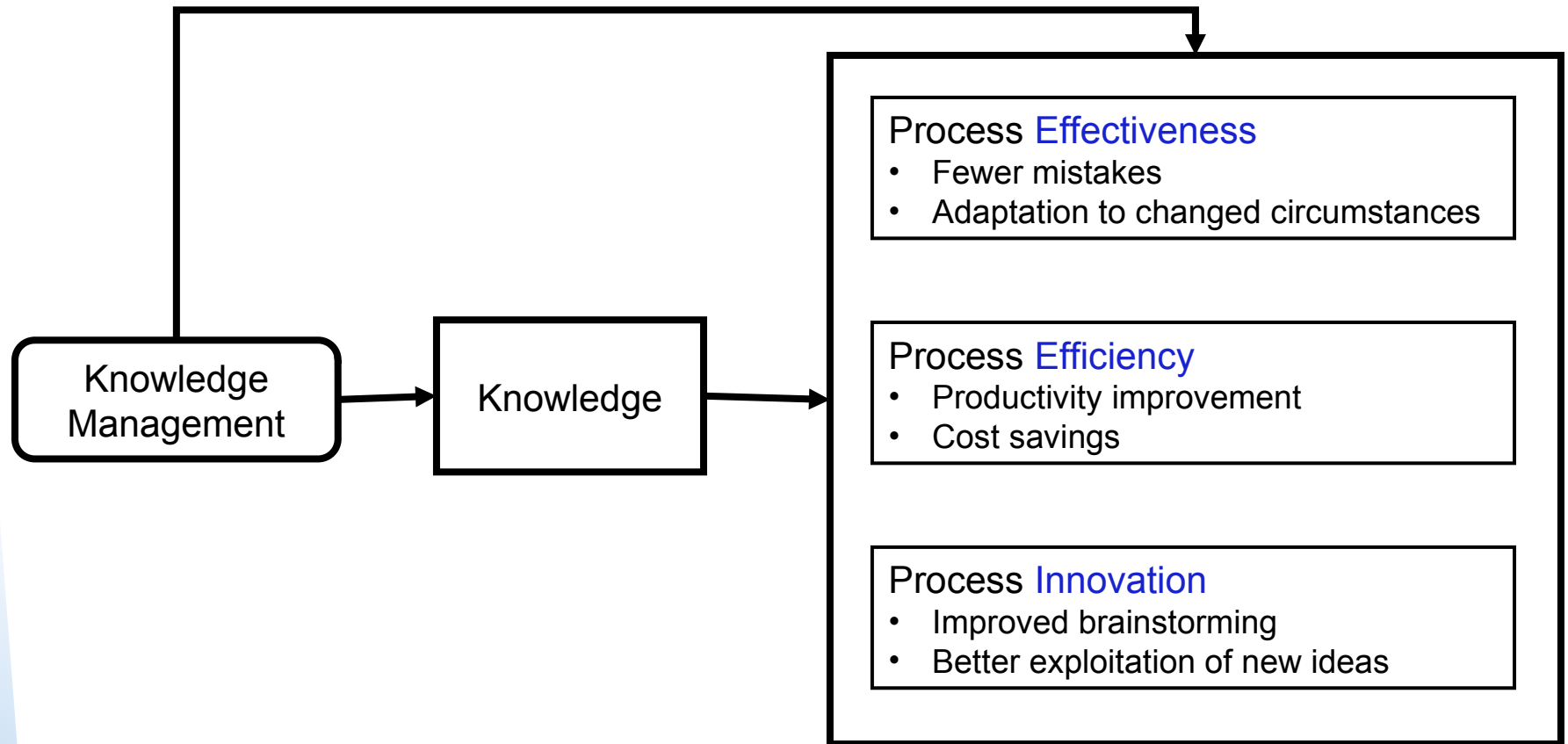
Impact on Processes: Innovation (2)

Case study:

- Buckman Laboratories (see earlier) linked its R&D personnel and technical specialists to its field-based marketing, sales, and technical support staffs
- Ensured that **new products were developed with customers' needs in mind**, and that customers' needs were quickly and accurately communicated to the product development group [Zack 1999]

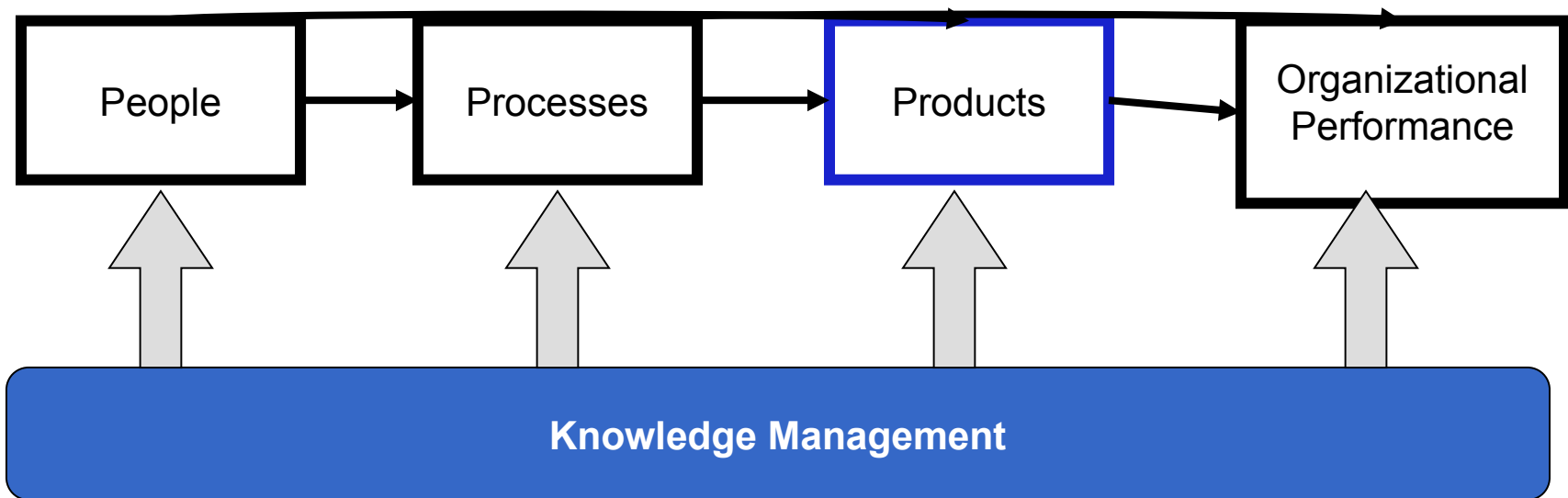


How KM Impacts Organizational Processes?





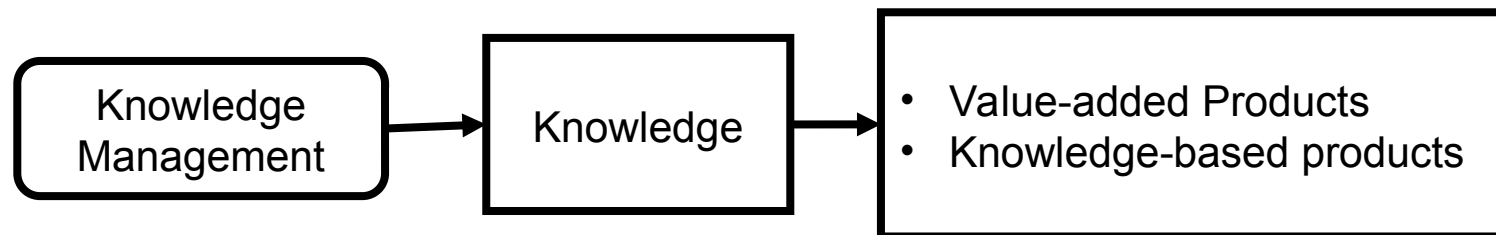
Dimensions of Organizational Impacts of KM





Impact on Products

- Impact on products can be
 - ♦ Value-added products
 - ♦ Knowledge based products





Impact on Value-Added Products

- KM processes can help organizations offer **new products** or **improved products** that provide **a significant additional value** as compared with earlier products

Case study: Ford

- **Best practices** replication process in manufacturing
- Every year, headquarters provides a task to managers, requiring them to come up with a 5%, 6%, or 7% improvement in key measures, eg:
 - ♦ throughput improvements
 - ♦ energy use
- When managers receive their task, they check the best practices database to seek knowledge **about prior successful efforts**
- Ford tracks the system in meticulous detail
- Estimates it saved the company US\$245M from 1996-97 [Anthes1998]
- In 4.5 years from 1996-2000, over 2,800 proven superior practices were shared across manufacturing operations
- Documented value of shared knowledge in 2000 was US\$1.25B (from US\$850M + another US\$400M of value anticipated from work in progress)



Impact on Value-Added Products (3)

Case study: Steelcase [Skyrme2000]

- Uses information obtained through video ethnography from its customers (the end users of office furniture) to understand how its products are used, and then to redesign the products to make them more attractive to customers.
 - *Ethnography = the branch of anthropology that deals with the scientific description of specific human cultures [American Heritage Dictionary of the English Language, 4th Edition, 2000]*

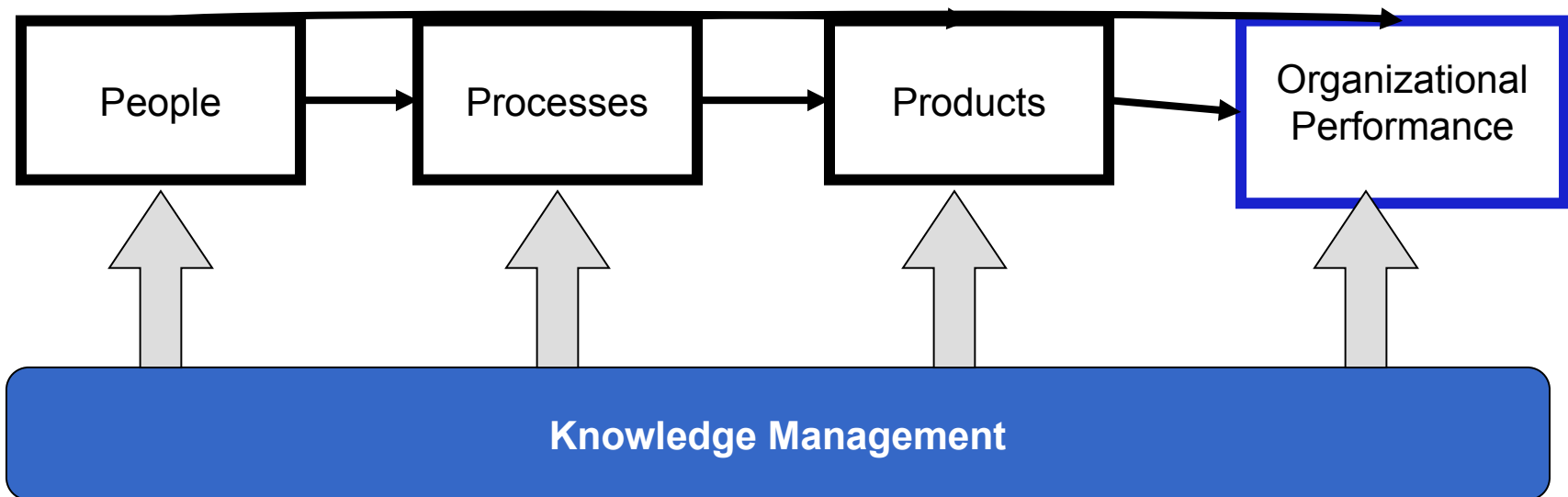


Impact on Knowledge-Based Products (1)

- KM can have a significant impact on products that are knowledge based, e.g.:
 - ♦ consulting
 - ♦ software development
 - ♦ ...
- **Case study:** Sun (and now Microsoft and many others)
 - ♦ Place solutions to customer problems in a **shareable knowledge base**
 - ♦ Let customers download software patches based on their answers to an automated “wizard” system that prompts customers with a series of questions aimed at diagnosing the customer needs



Dimensions of Organizational Impacts of KM





Impacts on Organizational Performance (1)

- Direct Impacts
 - ♦ Knowledge is used to create innovative products that generate revenue and profit
 - ♦ In theory, relatively straightforward to measure in terms of improvements in ROI (return on investment)
- Case study: British Telecom
 - ♦ BT Account Director indicated that his sales team generated about US\$1.5M in new business based on briefings from a new KM system [Compton 2001]



Impacts on Organizational Performance (2)

Case study: Chevron Corporation

- “Of all the initiatives we’ve undertaken at Chevron during the 1990s, few have been as important or as rewarding as our efforts to build **a learning organization by sharing and managing knowledge throughout our company**. In fact, I (see next bullet) believe this priority was one of the keys to **reducing our operating costs** by more than \$2B per year –from about \$9.5B to \$7.4B –over the last seven years.”
- [Kenneth T. Derr, Chairman & CEO, speaking to the *KM World Summit*, San Francisco, 11 Jan 1999]



Impacts on Organizational Performance (3)

- Indirect Impacts

- ◆ Use of KM to demonstrate **intellectual leadership** within the industry, which, in turn, might enhance customer loyalty
- ◆ Use of knowledge to gain an advantageous **negotiating position** with respect to competitors or partner organizations
- ◆ Unlike direct impact, cannot be directly associated with transactions and therefore **cannot be easily measured**



A Summary of Organizational Impacts of Knowledge Management

Levels of Impact	Impacted Aspects
People	Employee Learning Employee Adaptability Employee Job Satisfaction
Processes	Process Effectiveness Process Efficiency Process Innovativeness
Products	Value-added Products Knowledge-based Products
Organizational Performance	Direct Impacts Return on investment Indirect Impacts Economies of scale and scope Sustainable competitive advantage



Conclusions

- Explained the interrelated impacts of KM on organizations at several levels
 - ♦ People
 - ♦ Processes
 - ♦ Products
 - ♦ Overall performance
- The impact on one level might lead to synergistic impacts on another level as well



Chapter 4

Organizational Impacts of Knowledge Management