Evaluating Work System Performance

Indriani Noor Hapsari, ST, MT
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References:

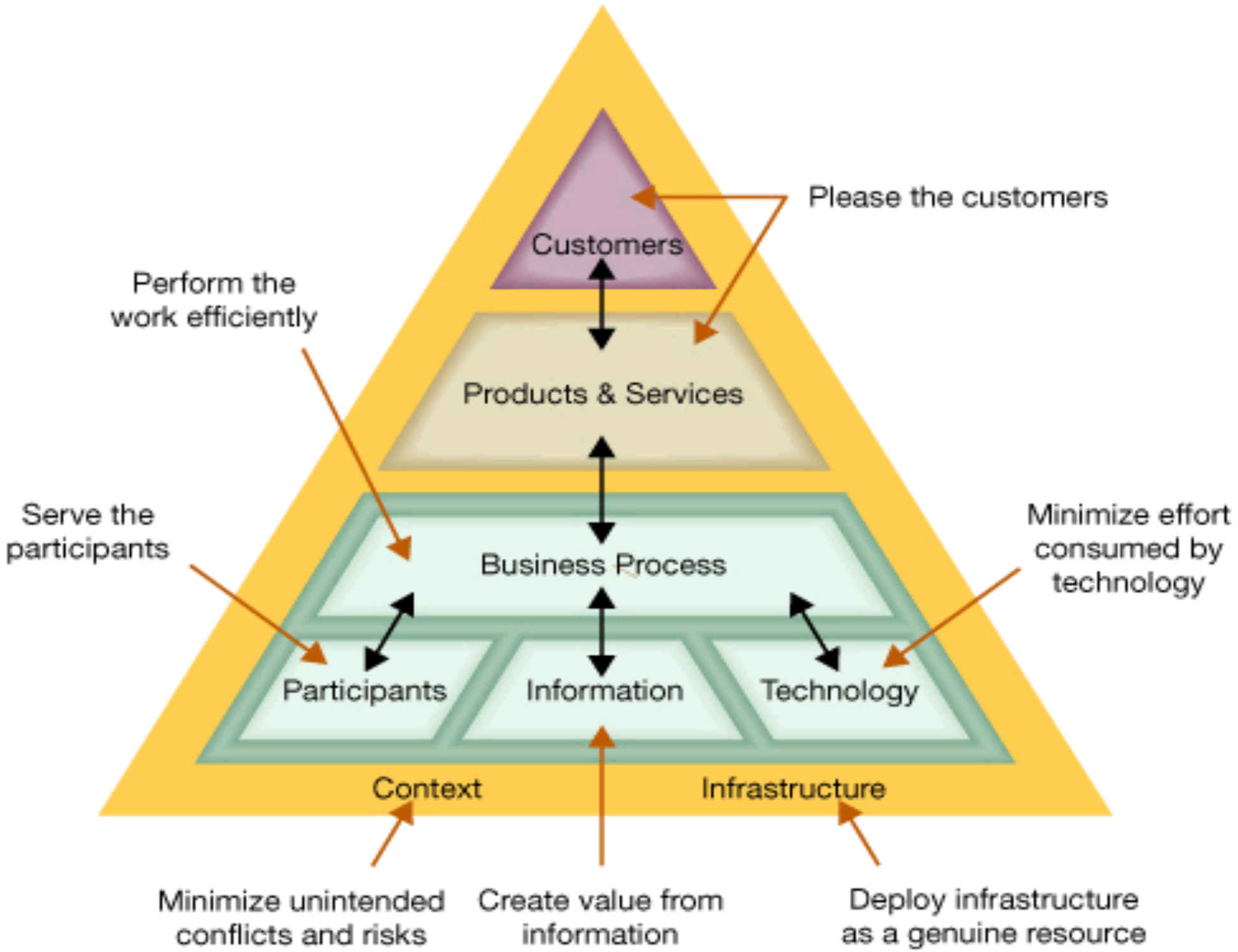
1. Alter, Steven. 2002. Information Systems: Foundation of eBusiness. Prentice Hall.

Learning Objectives

Students will have an understanding of

- Principles of work system framework
- Balanced View of a System
- Common pitfalls of analysis on work system elements
- Measuring work system performance

Work System Principles



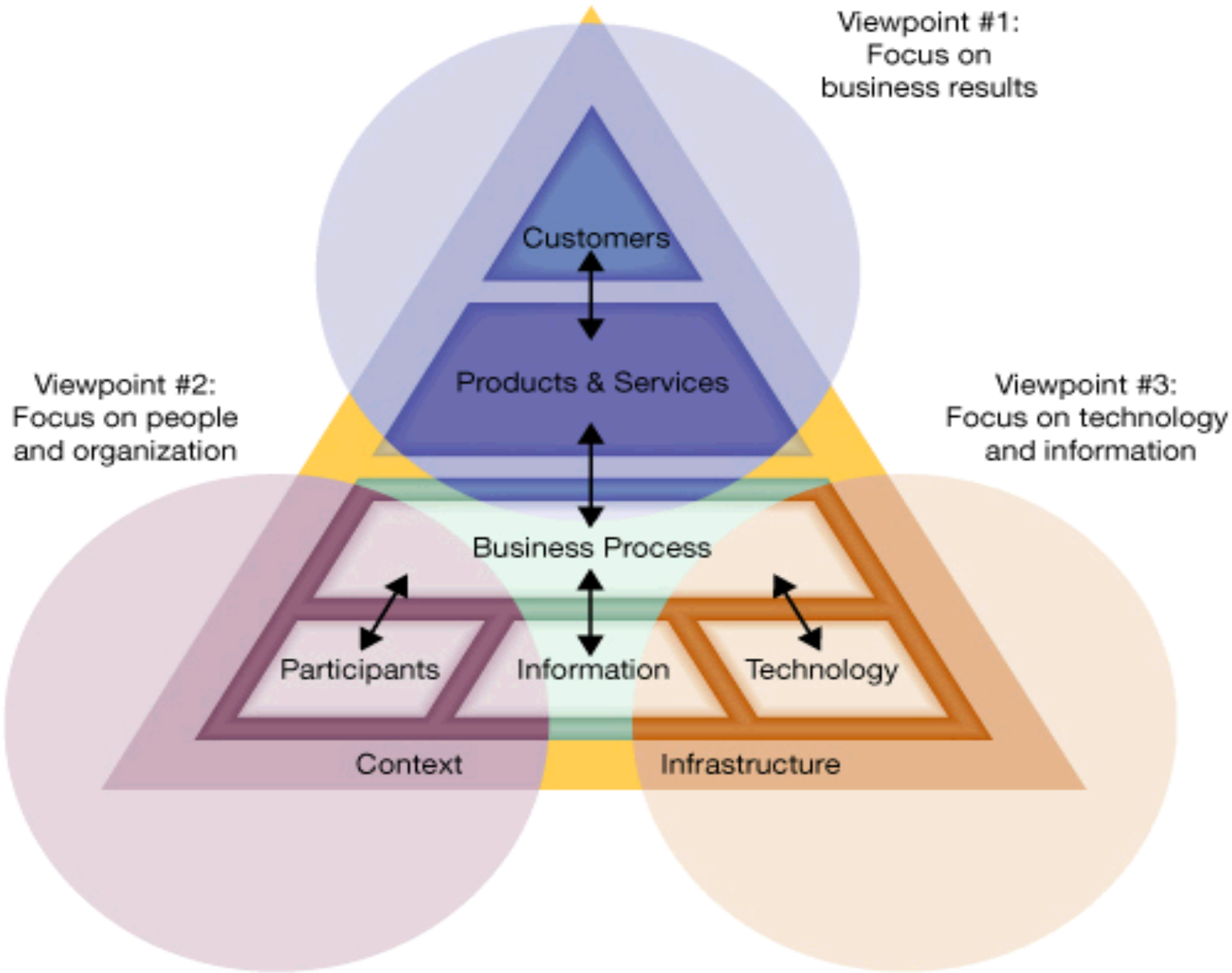
Work System Principles

- Please the customers (customers, products & services)
- Perform the work efficiently (business processes)
- Serve the participants
- Create Value from information

Work System Principles

- Minimize effort consumed by technology
- Deploy infrastructure as a genuine resource
- Minimize unintended impacts and conflicts (context)

Need for
a Balanced View of a System



Need for a Balanced View of a System

- **Focus on Business Results** – Emphasize the customer's satisfaction with whatever is being produced along with concern for the efficiency of the business process.
- **Focus on People and Organization** – Emphasize the work environment, job satisfaction, and whether the organization is operating smoothly.
- **Focus on technology and organization** – Emphasize the processing of information in databases, transmission of information, and whether the technology is operating efficiently and effectively.

Need for
a Balanced View of a System

- Each of the three viewpoints is essential, but an excessive emphasis on any of them may lead to problems

- The importance of the ongoing collaboration between business and IT professionals.

- IT professionals may tend to look at the third viewpoint. It is important that business professionals make sure the first two perspectives are not lost.

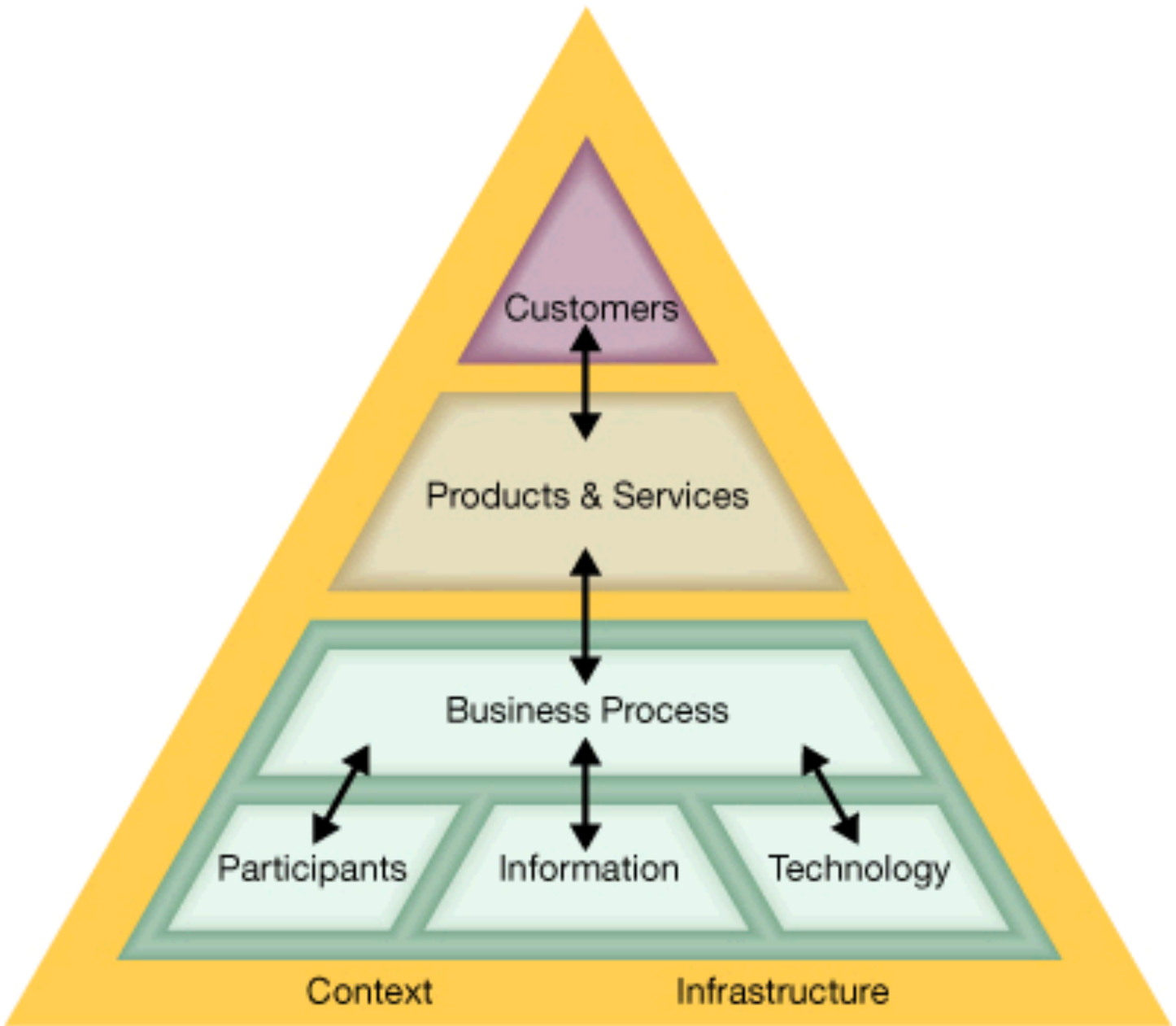
Caution: Excessive Emphasis On…

- **Business Results** can lead to superficial analysis of organizational and technical capabilities and wishful thinking of the power of technology.

- **People and Organization** can generate too much concern on how people are getting along and not enough on business results and whether technology and information are adequate.

- **Technology and Information** can sometimes generate technology solutions to minor problems and have little impact on business results or internal operations.

Common Systems Analysis Pitfalls Related to Elements of the Work System Framework



Common Pitfalls – Work System Elements

- Customer
  - ignore customer and the fact that the customer should evaluate the product.
  - Treating managers as customers even though they don't use the product directly.
- Product
  - forget that the purpose is to produce a product or service for a customer.
  - Forget that the product of a work system is often not the product of the organization.

Common Pitfalls – Work System Elements

- Business Process
  - Define process so narrowly that improvement is of little consequence.
  - Define process to widely that it is too complex.
  - Confuse business process measures(consistency and productivity) with product measures (cost to the customer and quality perceived by customer).
  - Think of business process as theory and ignore its support by participants, information, and technology
- Participants
  - ignore incentives and other pressures
  - focus on users rather than participants.

Common Pitfalls – Work System Elements

- Information
  - assume better information generates better results.
  - Ignoring the importance of “soft” information not captured by formal systems.
- Technology
  - Believing that the technology is the system.
  - assume better technology generates better results.
  - Focus on the technology without thinking about whether it makes a difference in the work system.

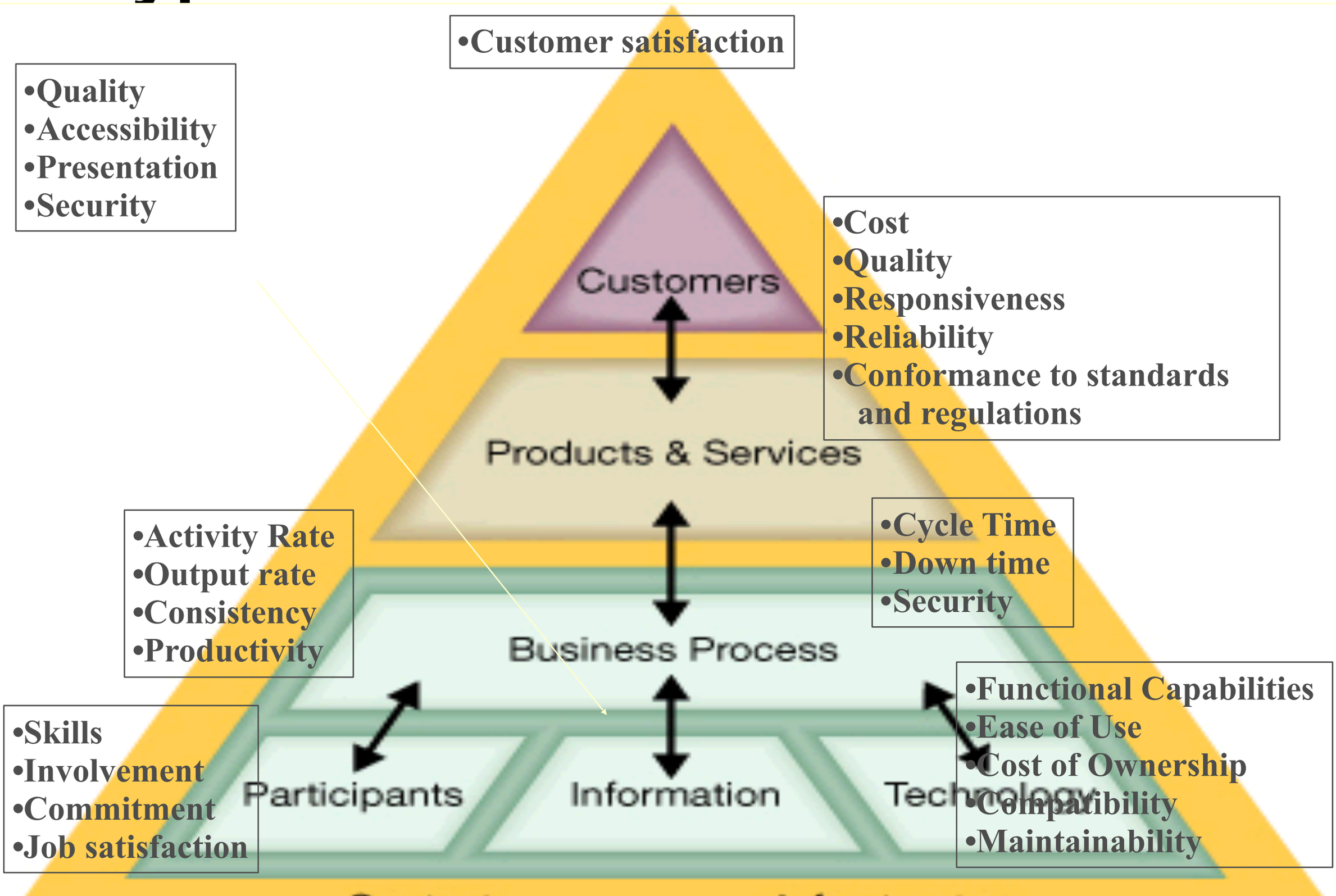
Common Pitfalls – Work System Elements

- Context
  - Ignoring context issue such as organizational culture and politics, organizational policies, the competitive environment, and government and industry standards and regulations.
  - Ignoring non-participant stakeholders.
- Infrastructure
  - Ignoring possible failures in technical infrastructure (what happens when the Internet is down?)
  - Ignoring the need for human infrastructure to keep the work system in operation (Who does on-going training of new staff).

Measuring Work System Performance

- System *architecture* = the system's main components, how they are linked, and how they operate together
- System *performance* = how well the system, its components, and its products operate

Typical Performance Variables



- Some important issues to keep in mind:
  - Separately evaluate the performance of different elements, because improvements in one area may not be beneficial in others
  - *More is not always better*
    - For some performance variables (e.g., customer satisfaction) more *is* better
    - For others, such as consistency, rapid delivery, etc., more *is often not* better

- Efficiency vs. effectiveness
  - **EFFICIENCY** involves **doing things the right way**
    - An internal view
    - Focus on *how well resources are being used to produce the outputs*
    - Ex.: productivity, cycle time, etc.
  - **EFFECTIVENESS** involves **doing the right things**
    - An external view
    - Focus on *improving customer satisfaction*
    - Ex.: cost, quality, responsiveness, etc.

Performance Variables

- Performance variables can be described or measured at different levels of clarity.
- Quality experts are adamant that careful performance measurement is essential for process improvement.
- Note differences between vague description and measurements.

Comparing Vague Descriptions, Measurements, and Interpretations

ACCURACY OF INFORMATION

Vague description: The information doesn't seem very accurate.
Measurement: 97.5% of the readings are correct within 5%.
Interpretation: This is (or is not) accurate enough, given the way the information will be used.

SKILLS OF PARTICIPATION

Vague description: The sales people are very experienced.
Measurement: Every salesperson has 5 or more years of experience; 60% have more than 10 years.
Interpretation: This system is (or is not) appropriate for such experienced people.

CYCLE TIME OF BUSINESS PROCESS

Vague description: This business process seems to take a long time.
Measurement: The three major steps take an average of 1.3 days each, but the waiting time between the steps is around 5 days.
Interpretation: This is (or is not) better than the average for this industry, but we can (or cannot) improve by eliminating some of the waiting time.

QUALITY OF THE WORK SYSTEM OUPUT

Vague description: We produce top quality frozen food, but our customer's aren't enthusiastic.
Measurement:65% of our customers rate it average or good even though our factory defect rate is only.003%
Interpretation: Our manufacturing process does (or doesn't) seem O.K., but we do (or don't) need to improve customer satisfaction.

Important Point

- Improvements in a work system can often be found by looking at relationships between ***architecture*** and ***performance*** issues.
- ***Customer satisfaction*** is largely determined by ***product performance (effectiveness)***.
- ***Product performance*** is often determined by a combination of ***product architecture*** and the internal ***work system performance***(efficiency).

- Note: ***efficiency*** vs. ***effectiveness***

Five Perspectives for Understanding a Work System

ARCHITECTURE

•What are the components of the system that performs the work and who uses the work product?
•How are the components linked?
•How do the components operate together?

PERFORMANCE

•How well do the components operate individually?
•How well does the system operate? (How well is the work performed?)
•How well should the system operate?

INFRASTRUCTURE

•What technical and human infrastructure does the work rely on?
•In what ways does infrastructure present opportunities or obstacles?

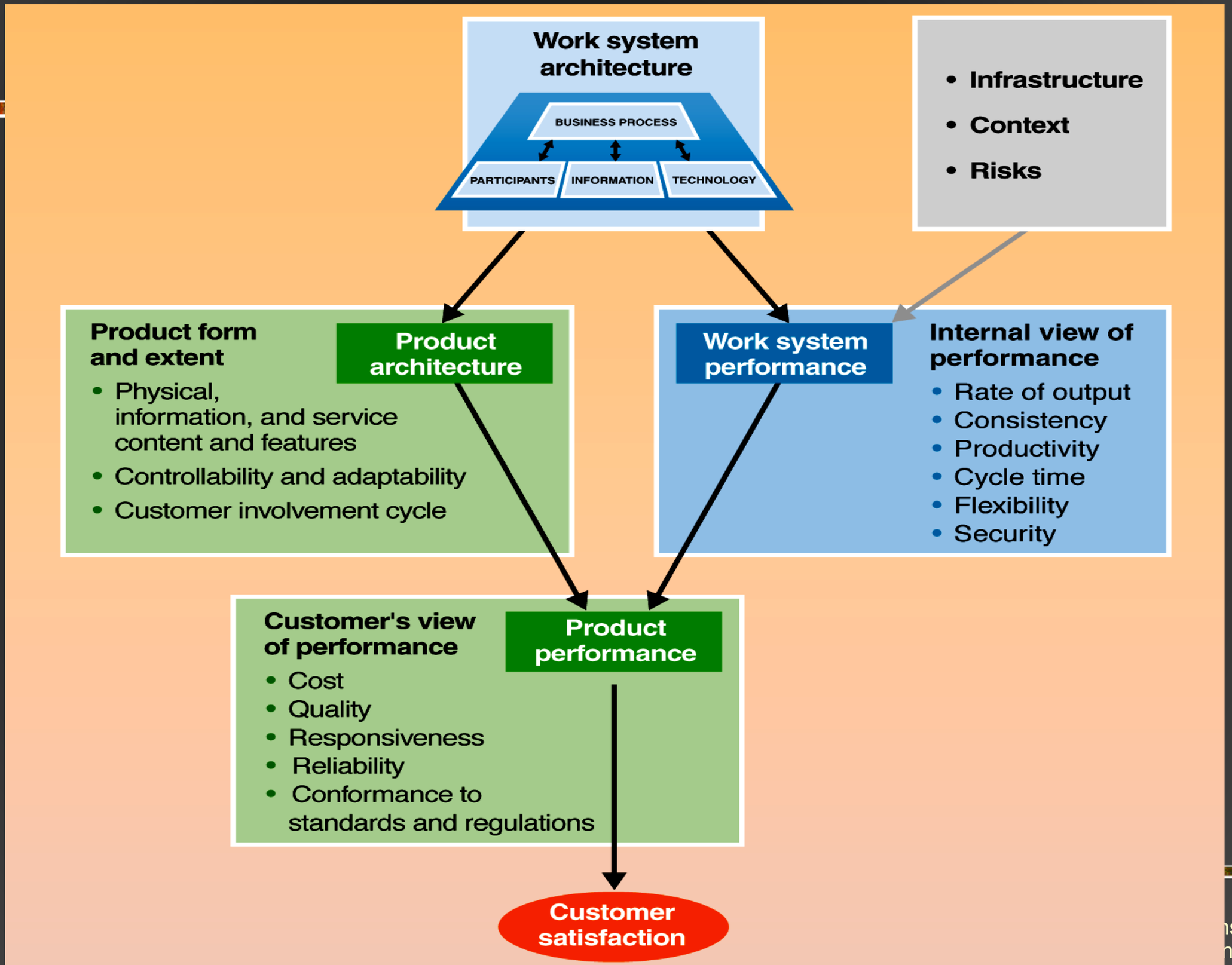
CONTEXT

•What are the impacts of the organizational and technical context?
•In what ways does the context present opportunities or obstacles?

RISKS

•What foreseeable things can prevent the work from happening,
can make the work inefficient, or can cause defects in the work product?
•What are the likely responses to these problems?

From work system architecture to customer satisfaction



Thank You