Uncertainty in Open System View of Business IS – A multistage decision process, which is a continuous individual information origination in the presence of uncertainty

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LECTURE # 21
Uncertainty in
Open System View of Business IS –
A multistage decision process, which is a continuous individual information origination in the presence of uncertainty

OVERVIEW-1

- Uncertainty in a collective decision making
- Traditional Business Process Model with "application" emphasis and system non-integration and characterized by uncertainty and its Information Integrity Implications
- Open System View of Business Process
- Uncertainty in a business process IS view
- Uncertainty type at information control level 6 –1

OVERVIEW - 2

- Open System view of Business IS- A Multistage Decision Process : Towards Individual Information Originating & Processing Situation
- Business IS- A Multistage Decision Process : Towards Individual Information Originating & Processing Situation
- Business Process IS View Model describing a generic business process as integral to an information & control system for a business environment characterized by uncertainty and its Information Integrity Implications.

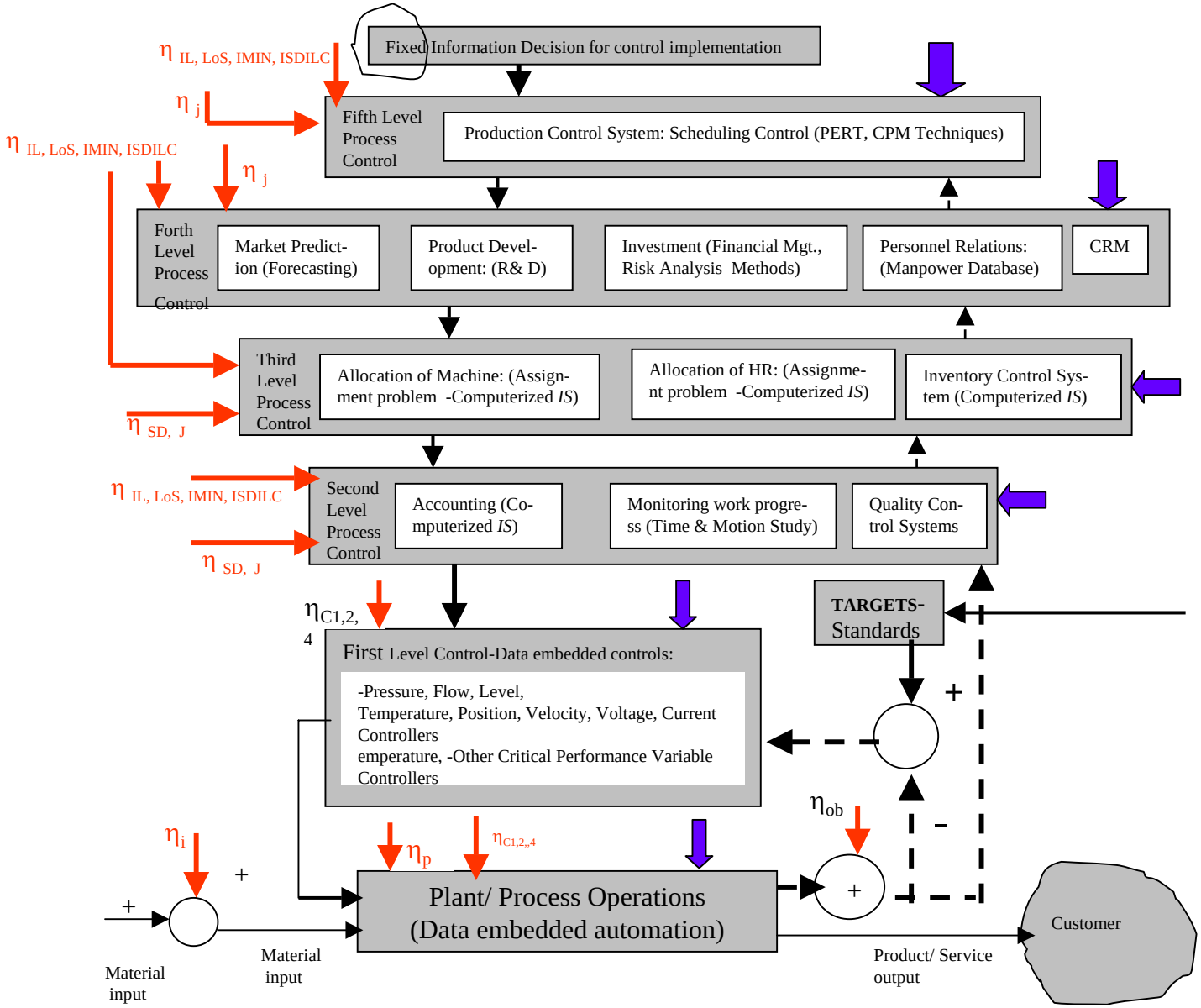
OVERVIEW-3

- We all at all times are at the sharp end of operation - Systems View of Errors in IS for a given operator/user/process
- Open system View of Business IS – A Multiple Stage Decision process: Towards Individual Information Originating & Processing Situation

UNCERTAINTY IN A COLLECTIVE DECISION MAKING

- In Lecture # 17, business process IS view processing a fixed information decision for control implementation – a case of collective decision-making - was discussed for its uncertainty implications, which were at:
  - Plant Operation Level,
  - At Physical Variable Control Level, i.e., at 1st Level Control, and
  - At Process Control Levels 2-5.

  (Ref.: Figure in the next Slide.)



Legend:
-Change (C1)
-Complexity (C2)
-Communication (C 3)
-Conversion (C 4)
-Corruption (C 5)

Figure (-): Traditional Business Process Model with "application" emphasis and system non-integration and characterized by uncertainty and its Information Integrity Implications.

OPEN SYSTEM VIEW OF BUSINESS PROCESS

- However, with the technological reality of data-driven technology keyed to the flow of information across the enterprise wide supply chain, as discussed in Lecture # 16, what is emerging is an open system system view of business IS view.

  Reference: See figure given in the next slide.

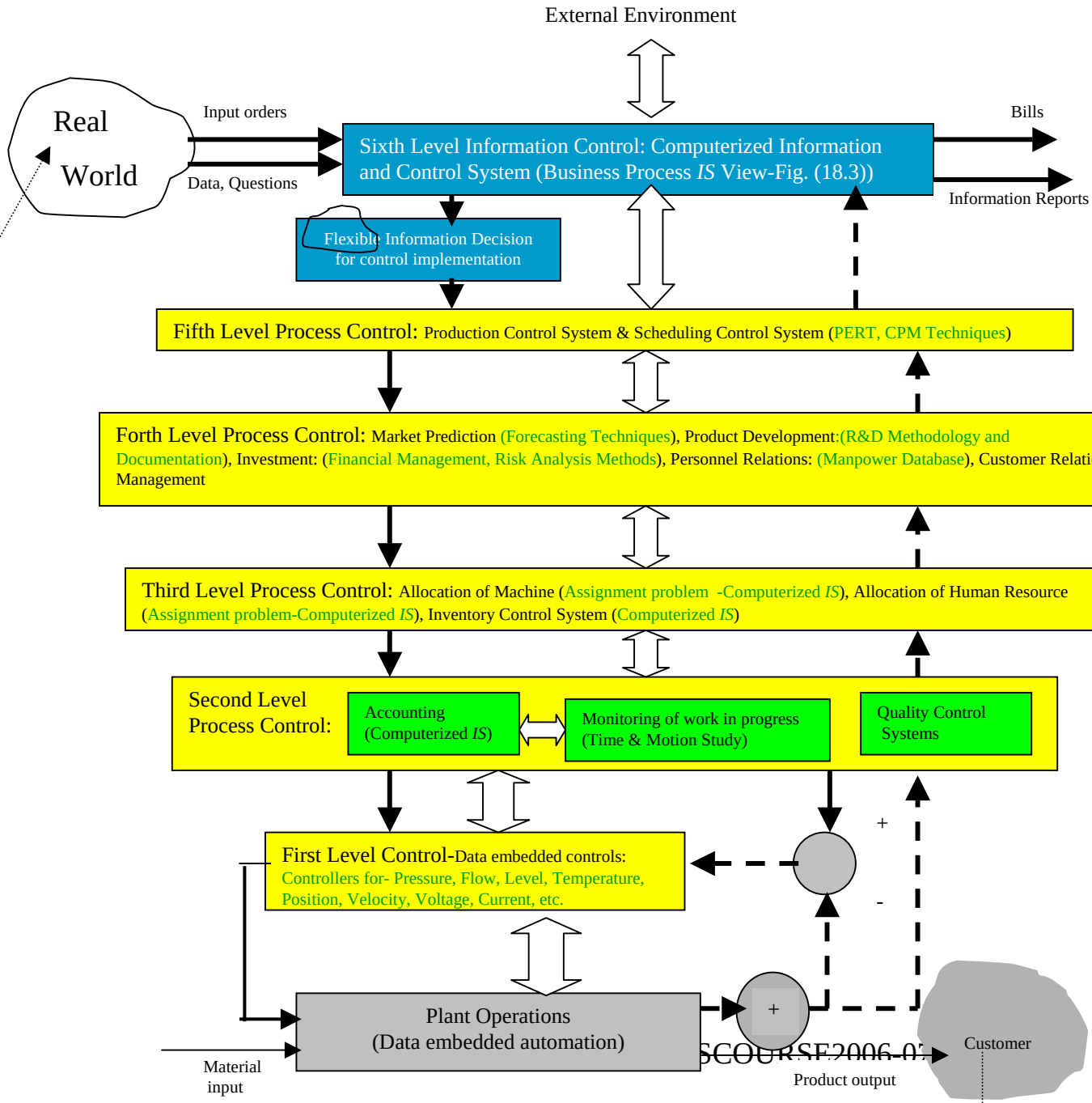


Figure: Modeling a business process, with a controls interpretation, as integral to a close loop information and control system

- **This brings in the question of uncertainty in the open system view of the business process, which is a business process IS view and which is characterized by the requirement of processing *flexible* information decision for maximizing informational work for competitive advantage in the presence of complex and changing environment.**

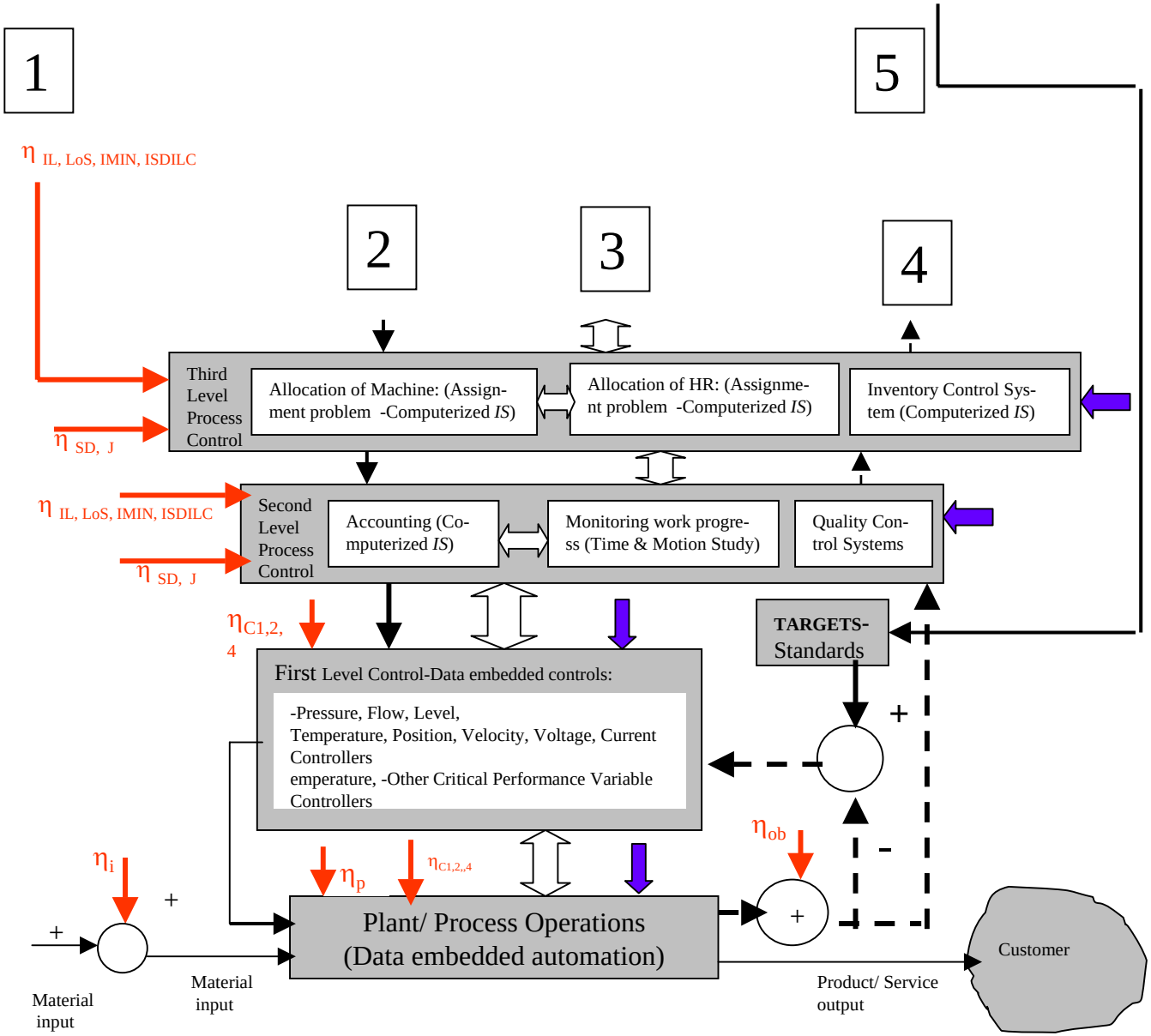
Uncertainty type at information control level 6 -1

- While automating (optimizing) production process with the help of five control levels put in operation in isolation as in the collective decision making process (Figure [-]), what has not been possible is to optimize design continually, i.e. in *on-line* fashion.
- Providing of this facility is the basis for production line delivering mass-customized products for continually changing business environment (product innovation included) with emphasis on integration maximization across the supply chain.
- The technological reality of the sixth level information control makes this possible.

Open System view of Business IS- A Multistage Decision Process : Towards Individual Information Originating & Processing Situation

Business IS- A Multistage Decision Process : Towards Individual Information Originating & Processing Situation

- Open system Business IS View certainly has all those uncertainties as under the traditional business model.
- Additionally, it has uncertainty due to:
  - Failures of embedded systems resulting in complex errors, starting small and coming with delay
  - Uncertainty due to system interfaces
  - Uncertainty due to complexity



Legend:

Vertical interface between levels

Horizontal interface between application

Figure (B): Business Process IS View Model describing a generic business process as integral to an information & control system for a business environment characterized by uncertainty and its Information Integrity Implications.

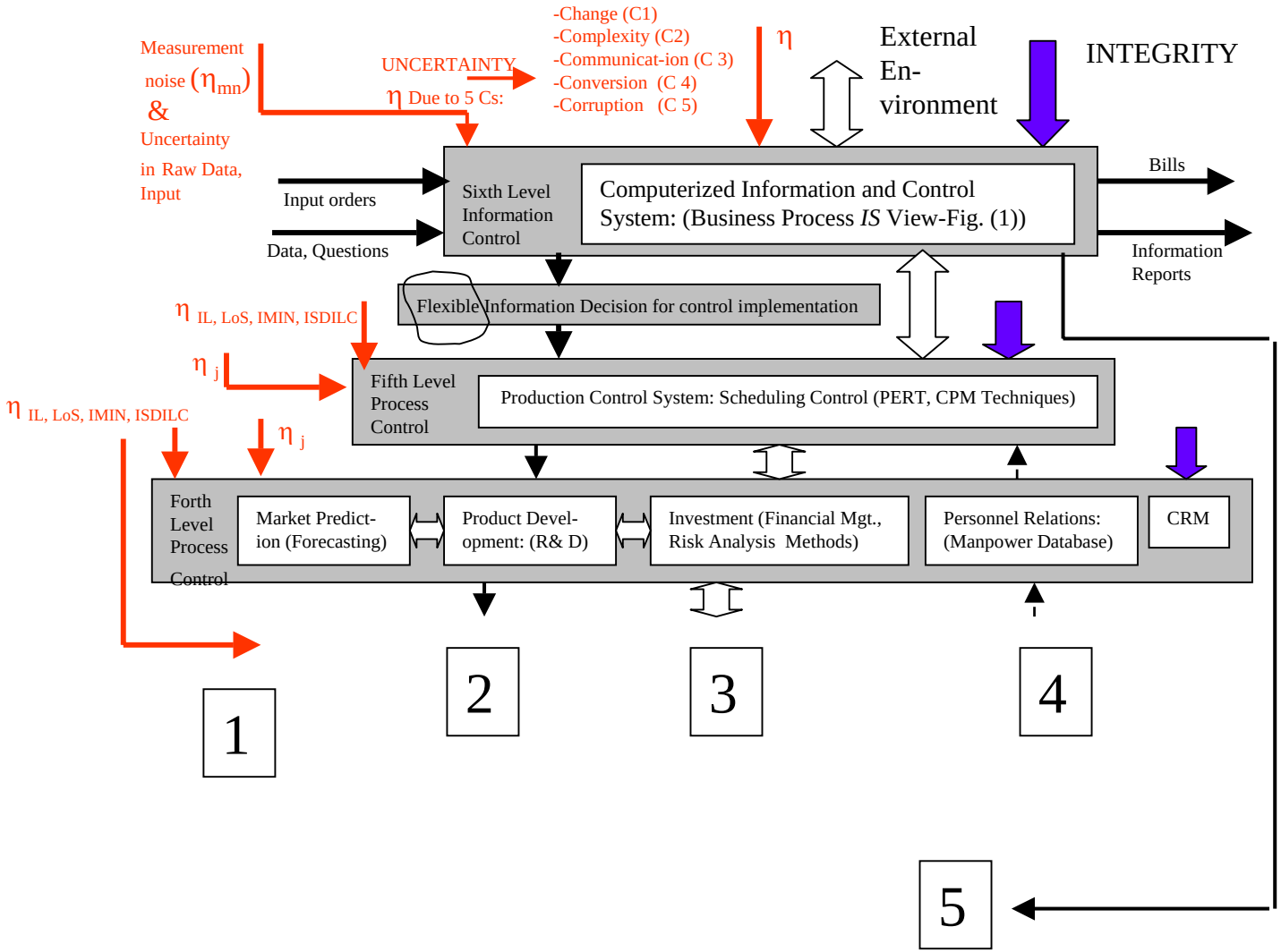


Figure (A): Business Process IS View Model describing a generic business process as integral to an information & control system for a business environment characterized by uncertainty and its Information Integrity Implications.

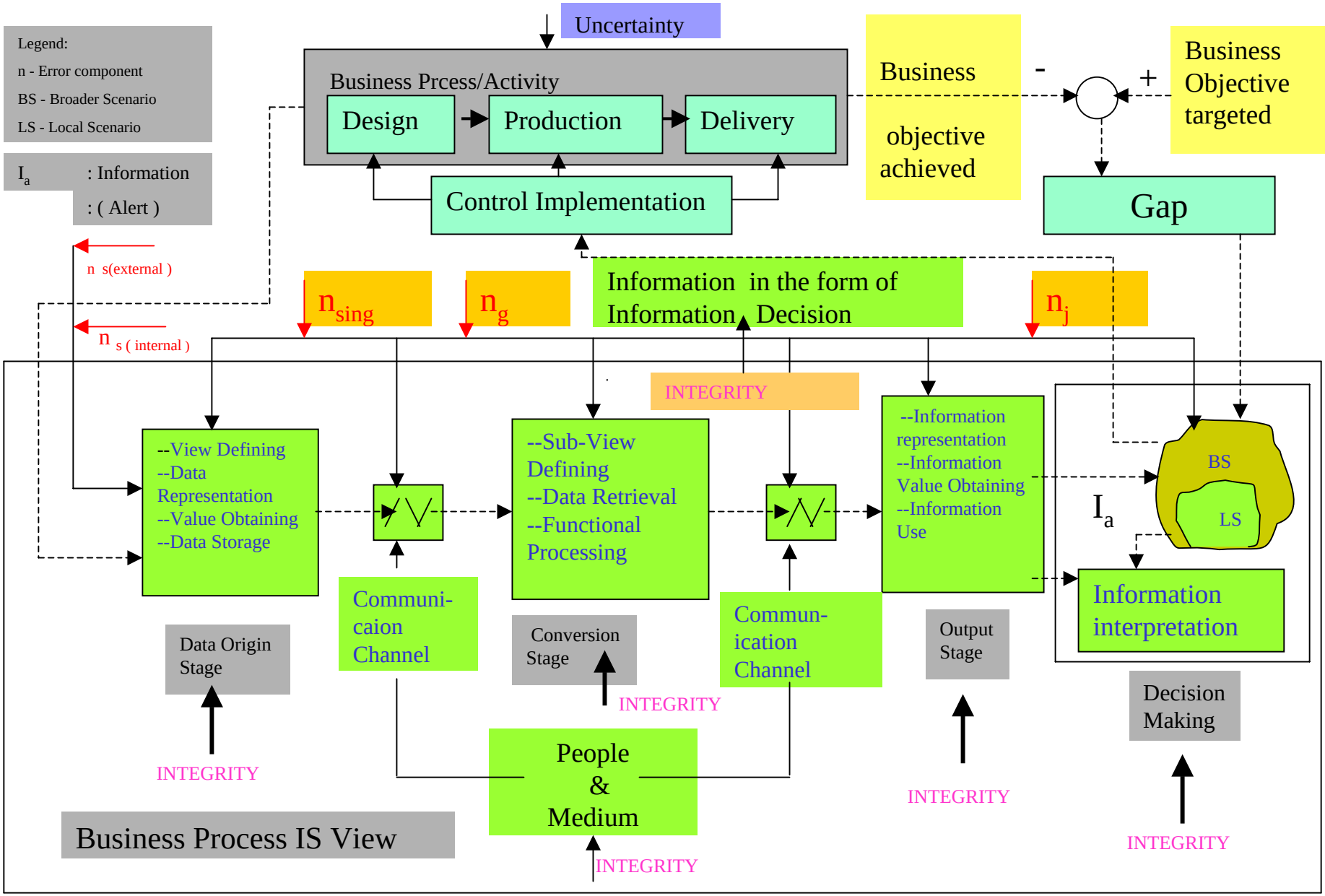


Figure (3) : Systems View of a Business Process IS View incorporating Error components and presenting emergent Information integrity implications for a Business Process/ Activity

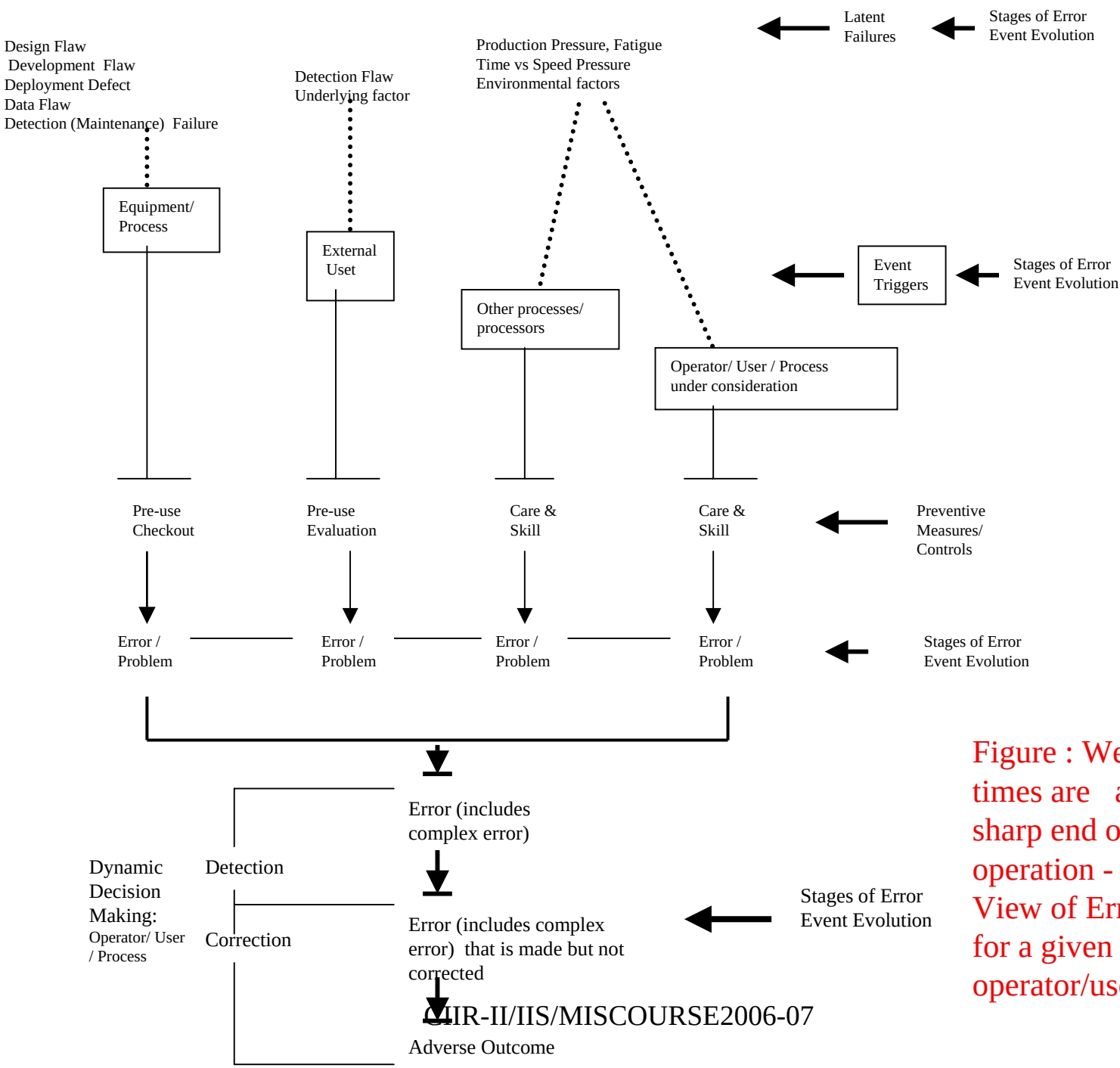


Figure : We all at all times are at the sharp end of operation - Systems View of Errors in IS for a given operator/user/process

Open system View of Business IS – A Multiple Stage Decision process: Towards Individual Information Originating & Processing Situation

- **Further,** the information and control system based model of a **business process is an open system spanning multiple stages**:
  - *defining* the business **goal set**;
  - *obtaining* **'many factors'** & **'multiple criteria'** characterizing the problem (task) complexity;
  - *recognizing* (deciding) on the problem **(operable goal setting)**;
  - *defining* planning & design **constraints and opportunity spaces**;
  - characterizing problem complexity--*culling out* **useful (relevant) information variables**;
  - *recognizing* **relationships (interdependencies) between culled out information variables**;
  - *developing* **state transition models defining dynamic behavior** of culled out state (information) variables; and
  - undertaking **customized planning & design for** *generating* **solution alternatives for evaluation and selection of flexible information decision.**

Open System View of Business IS – Towards a Continuous Individual Information Originating & Processing Situation characterized by uncertainty

* As with traditional “collective” decision process model, the “individual information originating and processing situation” also has uncertainty due to input noise, process parametric noise, and measurement.

- In addition it has uncertainty due to “application” emphasis, failures of embedded systems, and system complexity.
- Further, at each of its decision stages, these information originating and processing activities are affected by uncertainties due to the system environmental factors of 5“C”s.
- All this results in errors in information processed from stage to stage, leading to loss of Information Integrity in *IS* and in information therefrom.

THANK YOU