Managing Risk

- Step 1: Risk Identification
  - Generate a list of possible risks through brainstorming, problem identification and risk profiling.
    - Macro risks first, then specific events
- Step 2: Risk Assessment
  - Scenario analysis for event probability and impact
  - Risk assessment matrix
  - Failure Mode and Effects Analysis (FMEA)
  - Probability analysis
    - Decision trees, NPV, and PERT
  - Semiquantitative scenario analysis

Partial Risk Profile for Product Development Project

Technical Requirements

Are the requirements stable?

Design

Does the design depend on pessimistic or optimistic assumptions?

Testing

Will testing equipment be available when needed?

Development

Is the development process supported by a compatible set of procedures, methods, and tools?

Schedule

Is the schedule dependent upon the completion of other projects?

Budget

How reliable are the cost estimates?

Quality

Are quality considerations built into the design?

Management

Do people know who has authority for what?

Work Environment

Do people work cooperatively across functional boundaries?

Staffing

Is staff inexperienced or understaffed?

Customer

Does the customer understand what it will take to complete the project?

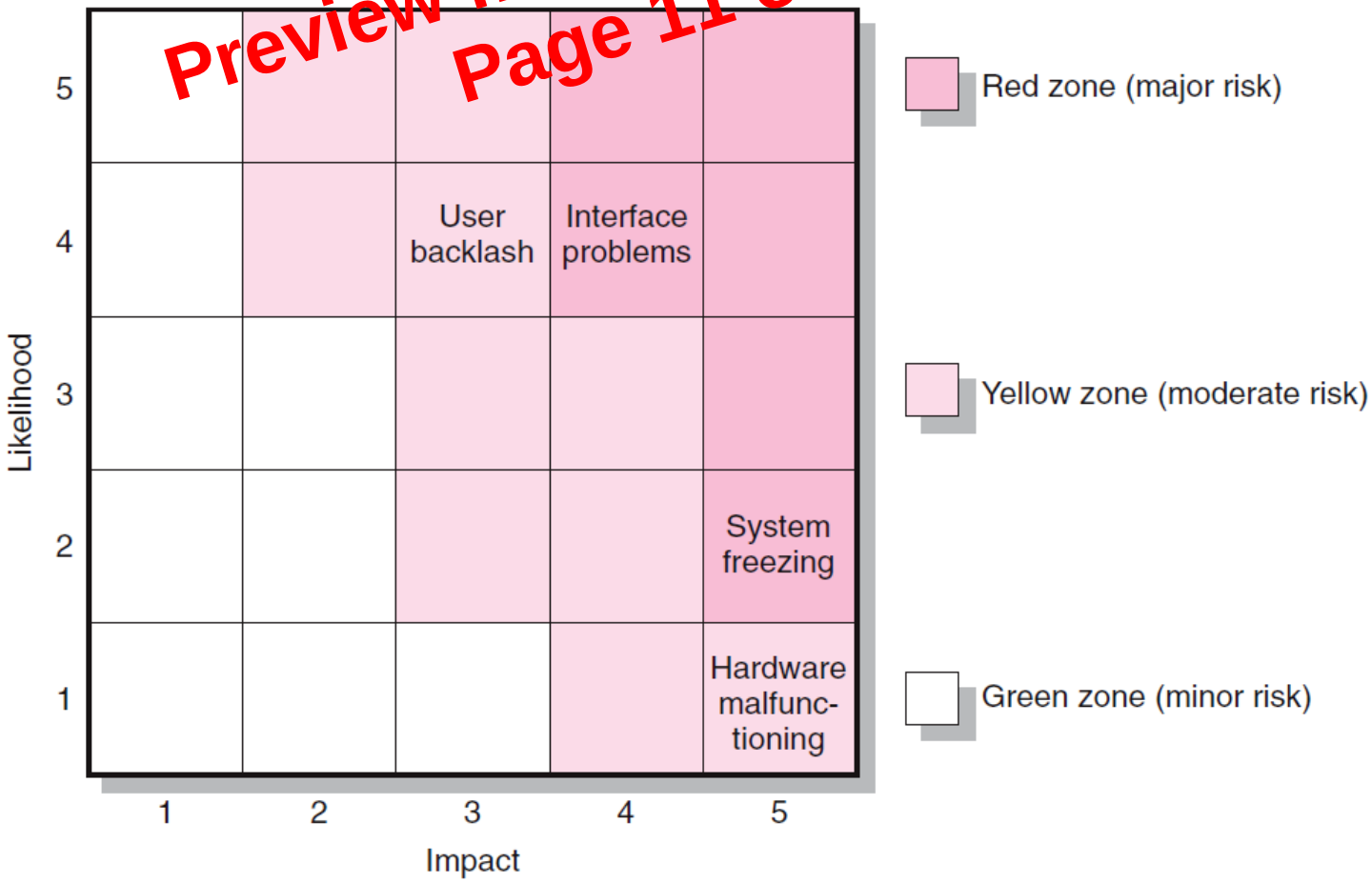
Contractors

Are there any ambiguities in contractor task definitions?

Risk Severity Matrix

Failure Mode and Effects Analysis (FMEA)

Impact × Probability × Detection = Risk Value



Unexpected Events That Negatively Impact Site Labor Productivity

(outside of the Construction Supervisor's control)

- Added work due to change orders.
- Changed job conditions (different weather, soil conditions, material lay-down areas).
- Incomplete drawings or specifications.
- Late project owner and designer decisions.

Unexpected Events That Result in Work Performed Under Adverse Conditions

- Overtime
- Learning curve
- Temperature, wind, humidity
- Start-stop-start-stop
- Double handling of material
- Morale problems