Waukesha Foundry

Metal Casting Process Simulation

Data Flow Diagram

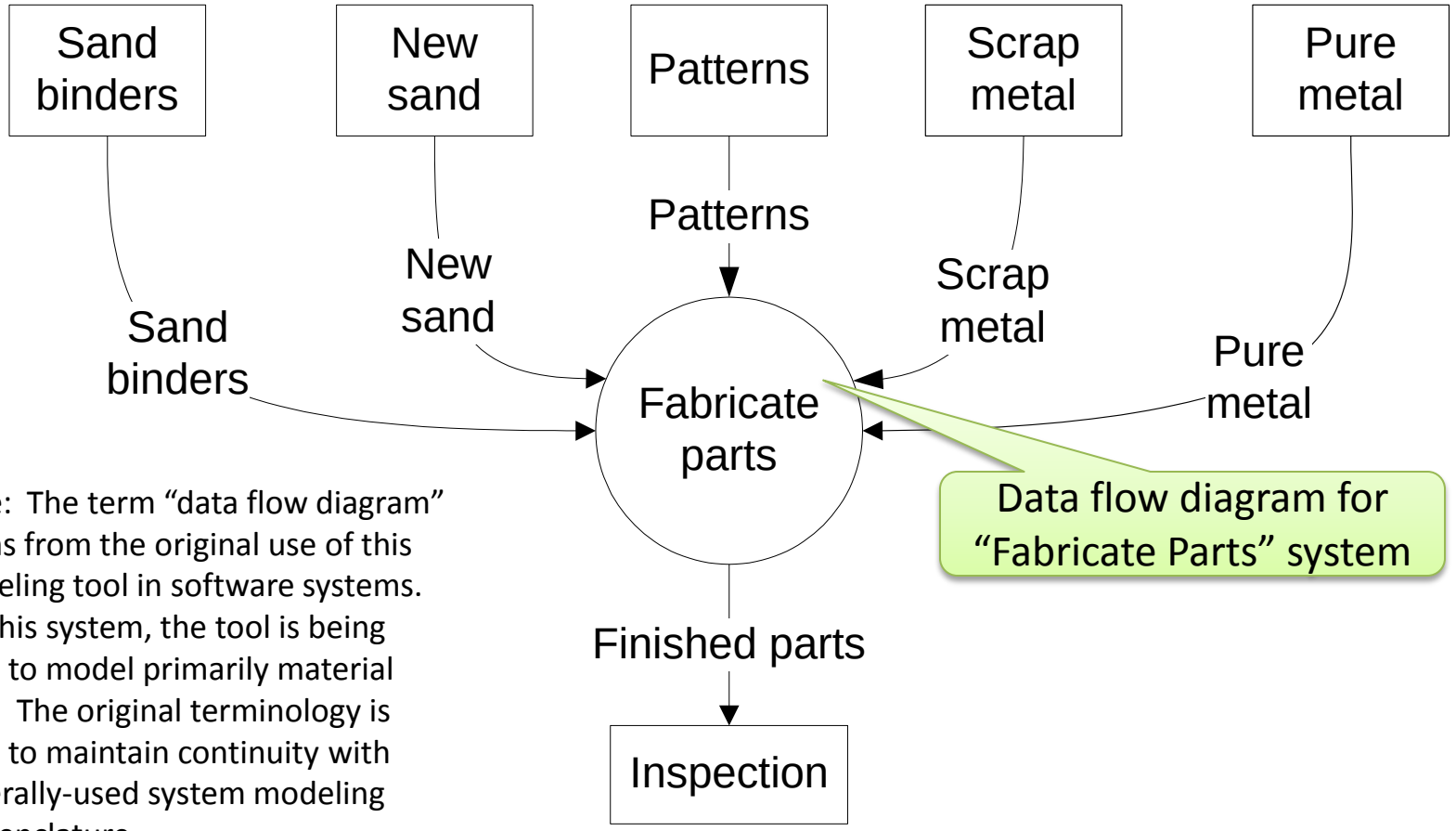
Mark Polczynski, PhD
Marquette University
mark.polczynski@marquette.edu

Simulation Modeling Process Map

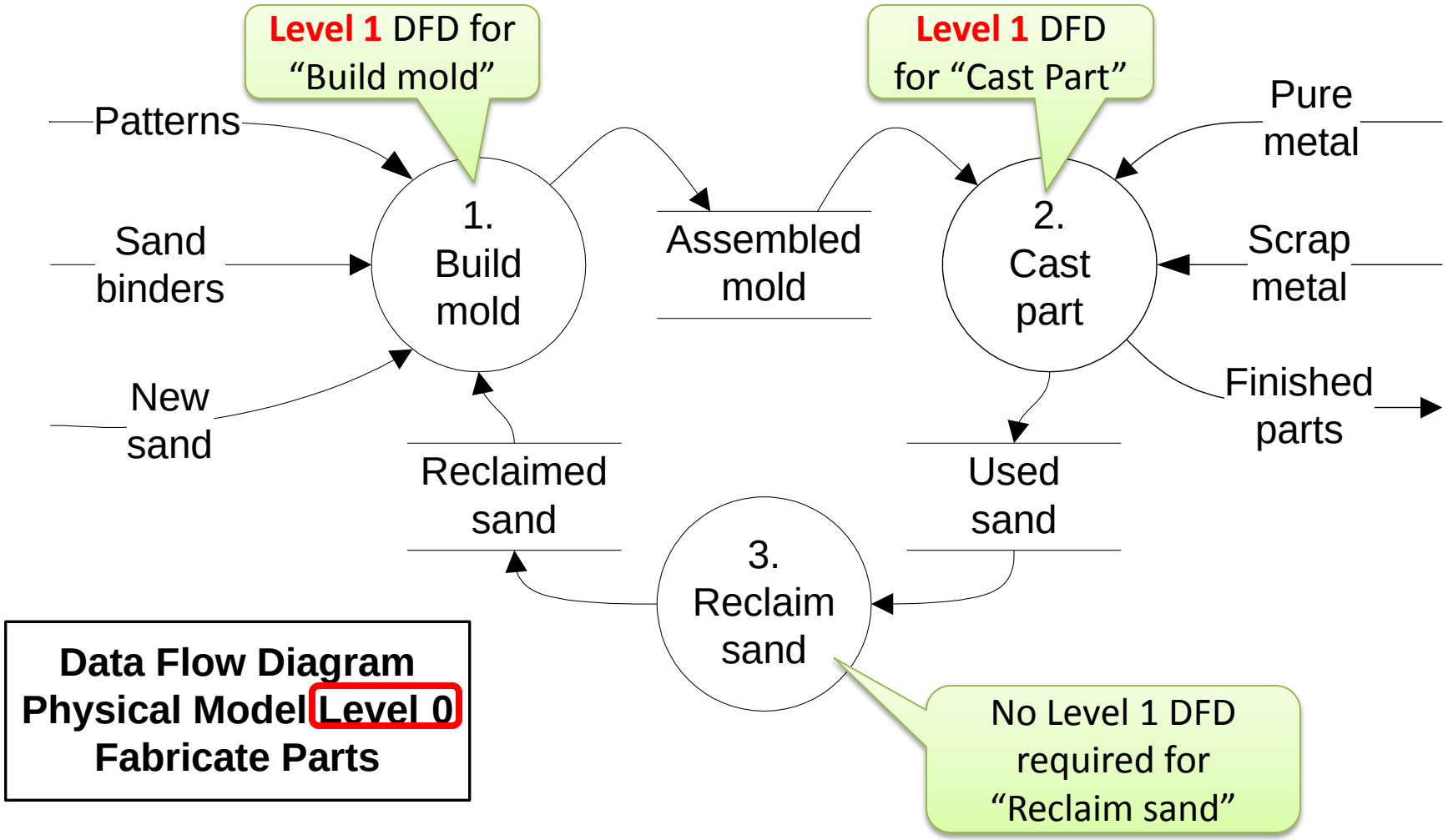
1. Project Overview: Project goal and general approach.
2. System Description: Text narrative derived from initial interviews.
3. Context Diagram: Scope and boundaries of model.
4. **Data Flow Diagram: Movement of data and materials.**
5. State Transition Diagrams: Transitions between system wait states.
6. Entity Relationship Diagram: Interactions between system elements.
7. Process Flow Diagrams: Decisions controlling system behavior.
8. Causal Loop Diagram: System cause and effect relationships.
9. IBIS Analysis: Description of “fuzzy” decisions.
10. Simulation Model: Patient movement and resource utilization.

You are here

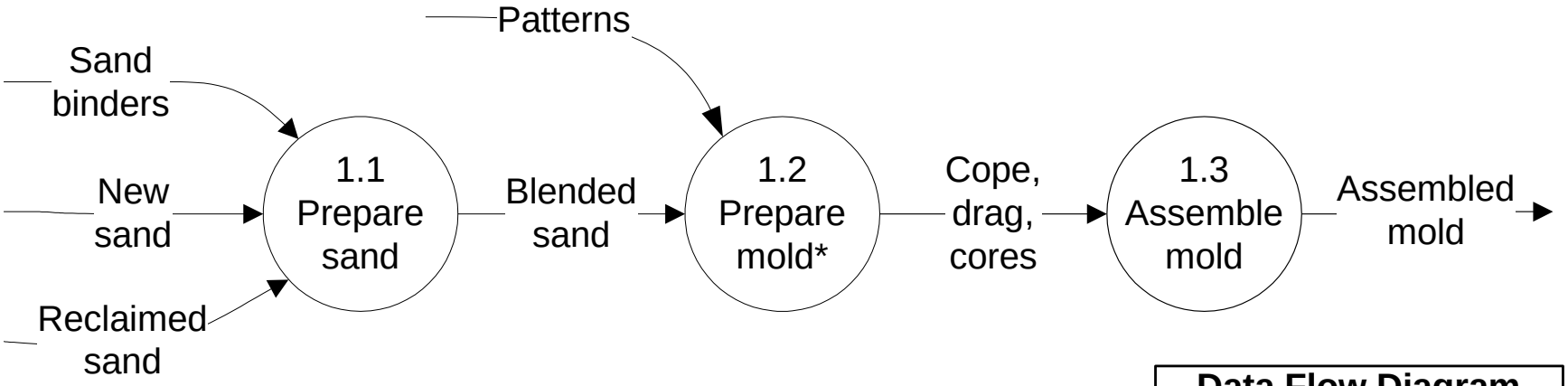
The data flow diagram (DFD) includes the major data and material flows and transformation processes that occur within the system being modeled. In essence, the DFD fits inside of the system scope identified in the model's context diagram.



Note: The term "data flow diagram" stems from the original use of this modeling tool in software systems. For this system, the tool is being used to model primarily material flow. The original terminology is used to maintain continuity with generally-used system modeling nomenclature.

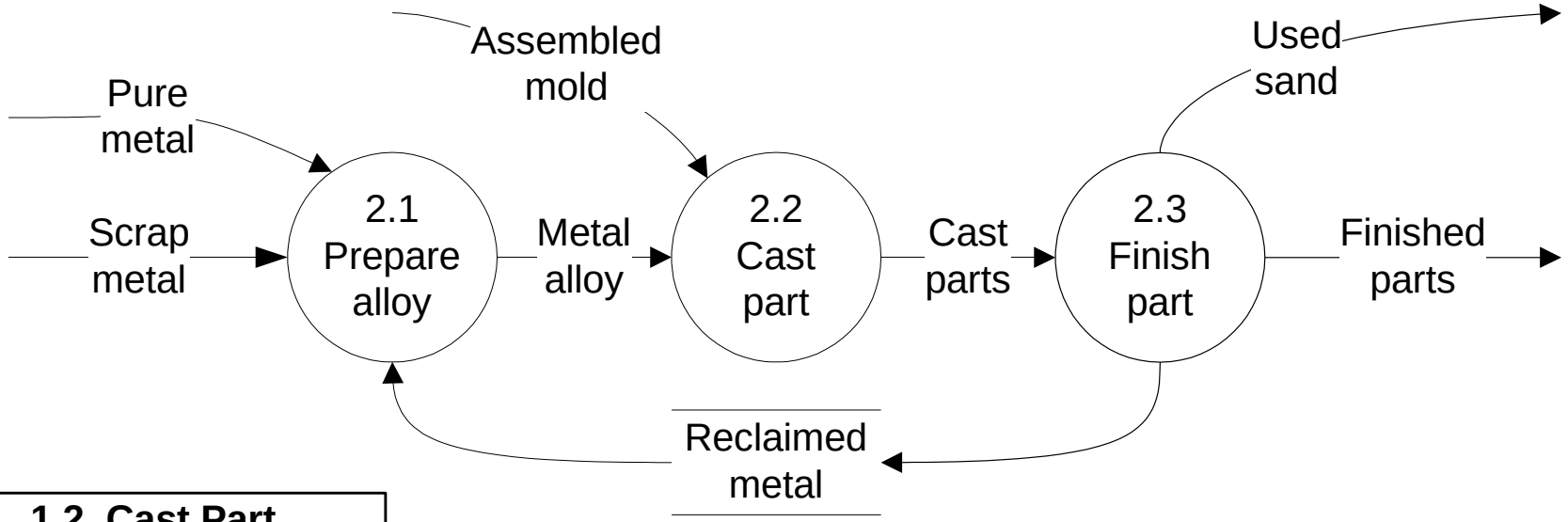


This DFD shows the implementation dependent material stores required for batch processing of castings. The DFD is constructed in two levels: Level 0 and Level 1.



Data Flow Diagram
Physical Mode Level 1
1.1 Build Mold

*Processes similar for cope, drag, and cores.



1.2 Cast Part
Data Flow Diagram
Physical Model Level 1