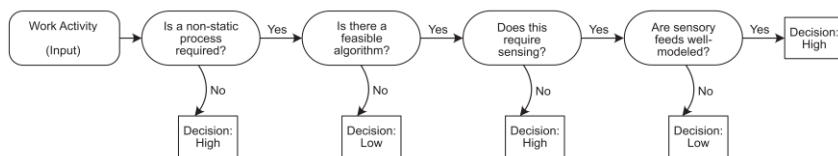


Objectives

- **CREATE** a “matchmaking” process that considers **work activities, human capabilities, robot augmentations, productivity, and economic factors.**
- **IMPROVE** productivity, health and safety, while maximizing human labor resources
- **TRANSFORM** employment across industries through human-robot collaboration
- **GAIN** insight into how the next generation of robot systems should be designed for and applied to manufacturing

Task Analysis

- Study existing manufacturing jobs that show potential for robot collaboration
- Classify capability of robot to perform specific types of activities
- Quantify human tolerances for strain



Example

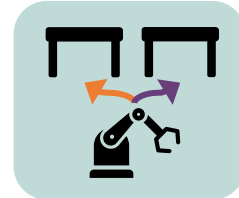


* Assembly Videos Courtesy of Ford Motor Company

Optimization and Job Allocation



Assign tasks to human and/or robots



Assign robots to certain workstations

- Physical workload
- Mental workload
- Human tolerances
- Human and robot abilities
- Cycle time and productivity
- Human labor and automation costs

Design and Systems

- Support the integration of effective human-robot collaboration through new systems
- Assist existing robot programmers in generating safe, clear, and efficient collaborative programs

