# The E-R Model

EXAMPLES

EXAMPLE # 1

The organizer's of the EXAM 2011 international multi-conference need to keep track of a large collection of workshops associated with the event. Initial requirements analysis brings out the following information about what needs to be recorded.

- ❖ Each workshop has a name, and happens on a particular date | or dates, as some workshops last more than one day.

- ❖ There are several participants, each of which may sign up to one or more workshops.

- ❖ For each participant, it is important to record their name, email address, and the workshops which they wish to attend.

- ❖ There are a number of meeting rooms at the conference venue, each of a fixed capacity. Meeting rooms are identified by a door and room number.

- ❖ Every workshop needs an allocated meeting room; where a workshop lasts for two days, it will use the same room on both days.

- ❖ Each workshop must have an identified organizer among the conference participants.

- ❖ No participant may register for two workshops on the same day.

- ❖ Every participant must register for at least one workshop.
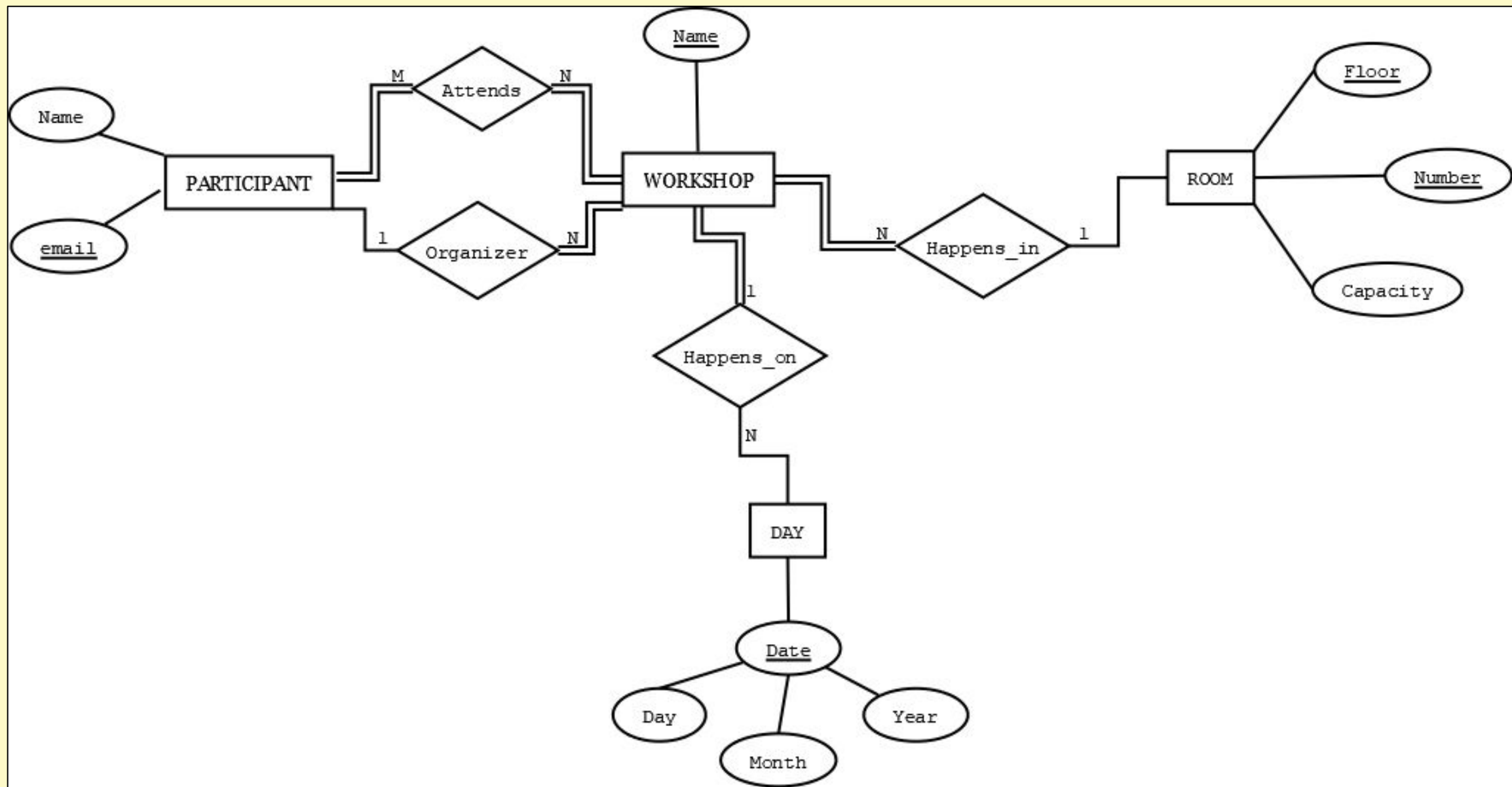
EXAMPLE # 2

- A salesperson may manage many other salespeople. A salesperson is managed by only one salespeople.

- A salesperson can be an agent for many customers. A customer is managed by one salespeople.

- A customer can place many orders. An order can be placed by one customer.

- An order lists many inventory items. An inventory item may be listed on many orders.

- An inventory item is assembled from many parts. A part may be assembled into many inventory items.

- Many employees assemble an inventory item from many parts.

- A supplier supplies many parts. A part may be supplied by many suppliers.
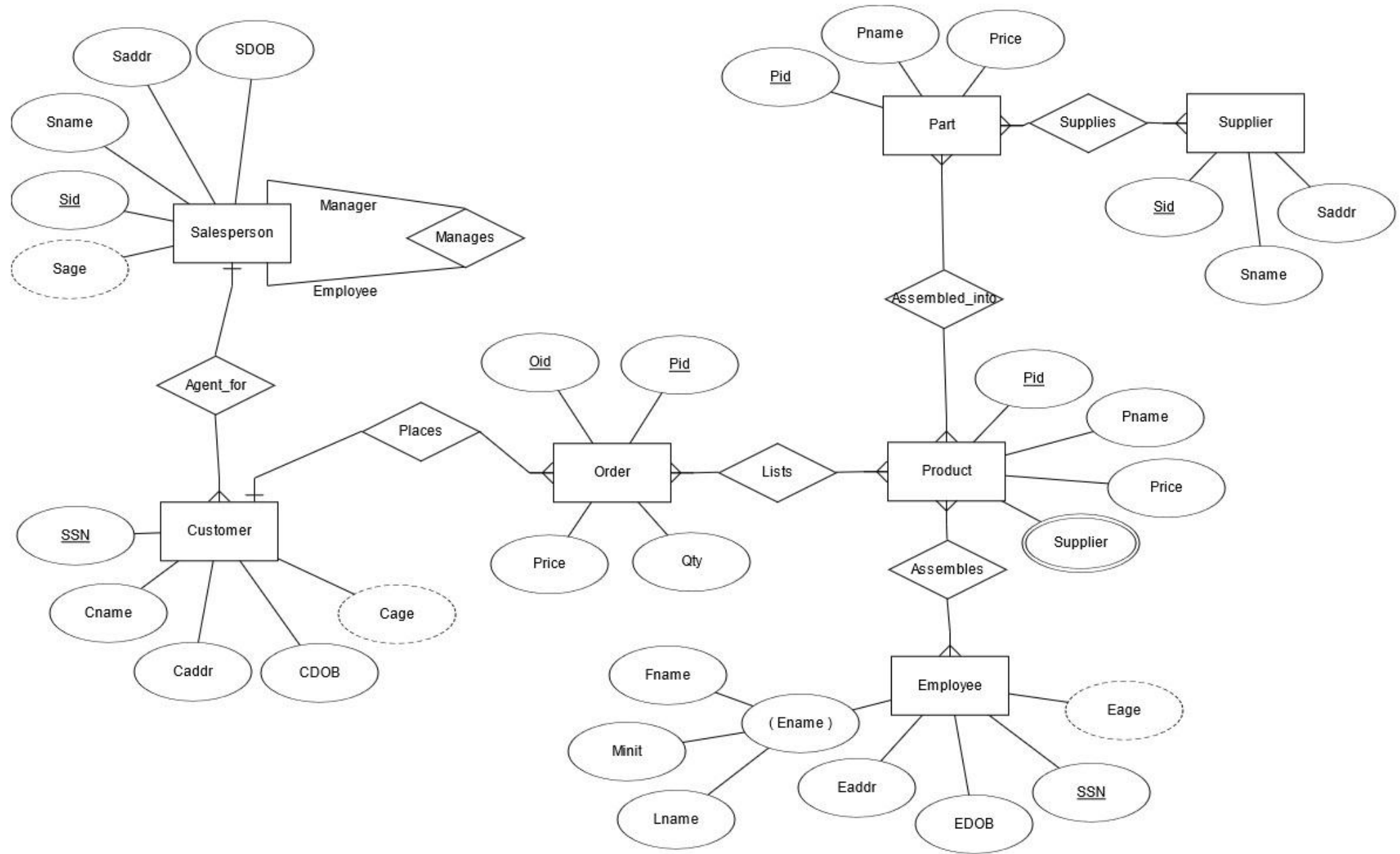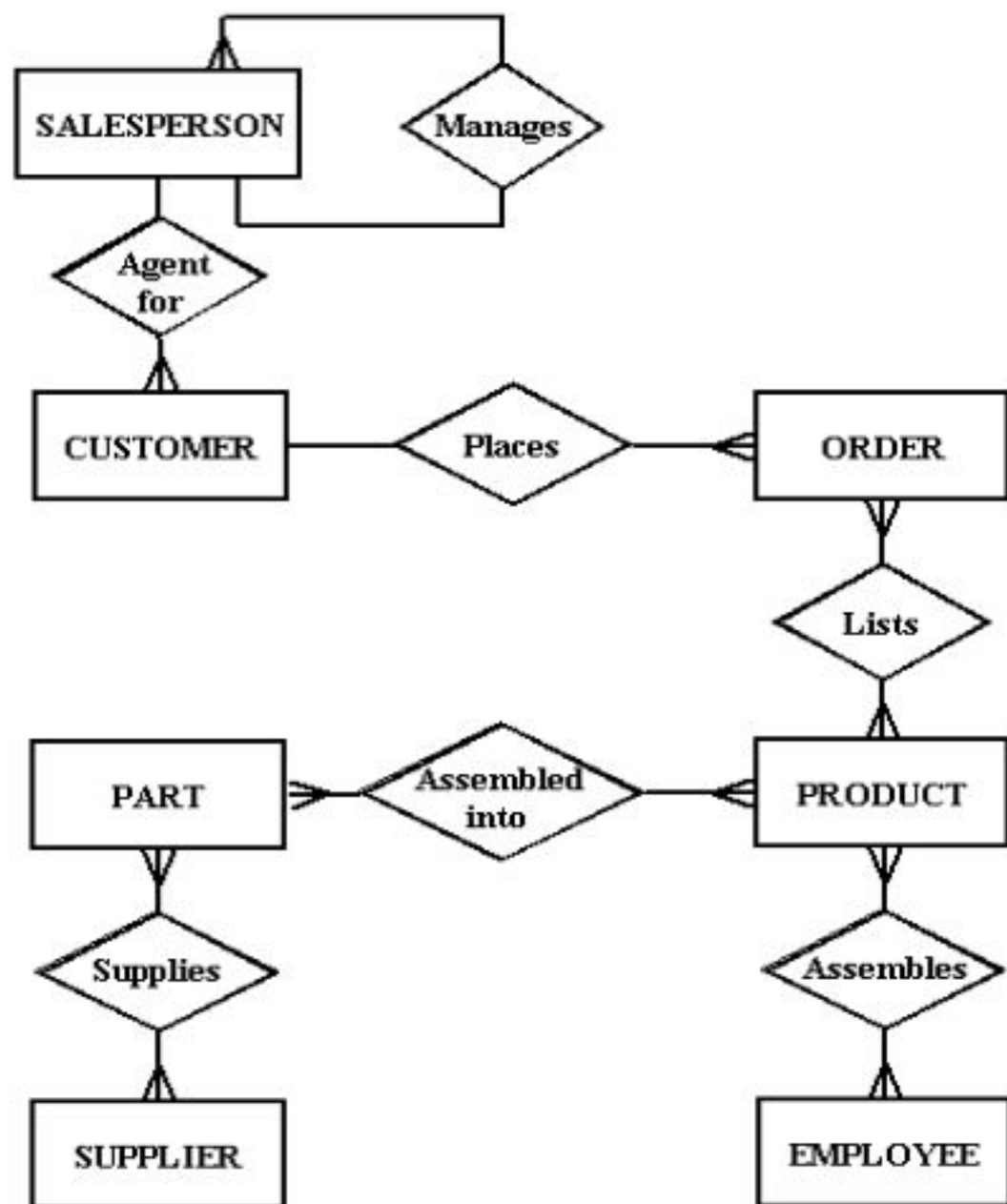
EXAMPLE # 3

UPS prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g, flight, truck), and a deliveryRoute. Please create an Entity Relationship diagram that captures this information about the UPS system. Be certain to indicate identifiers and cardinality constraints.
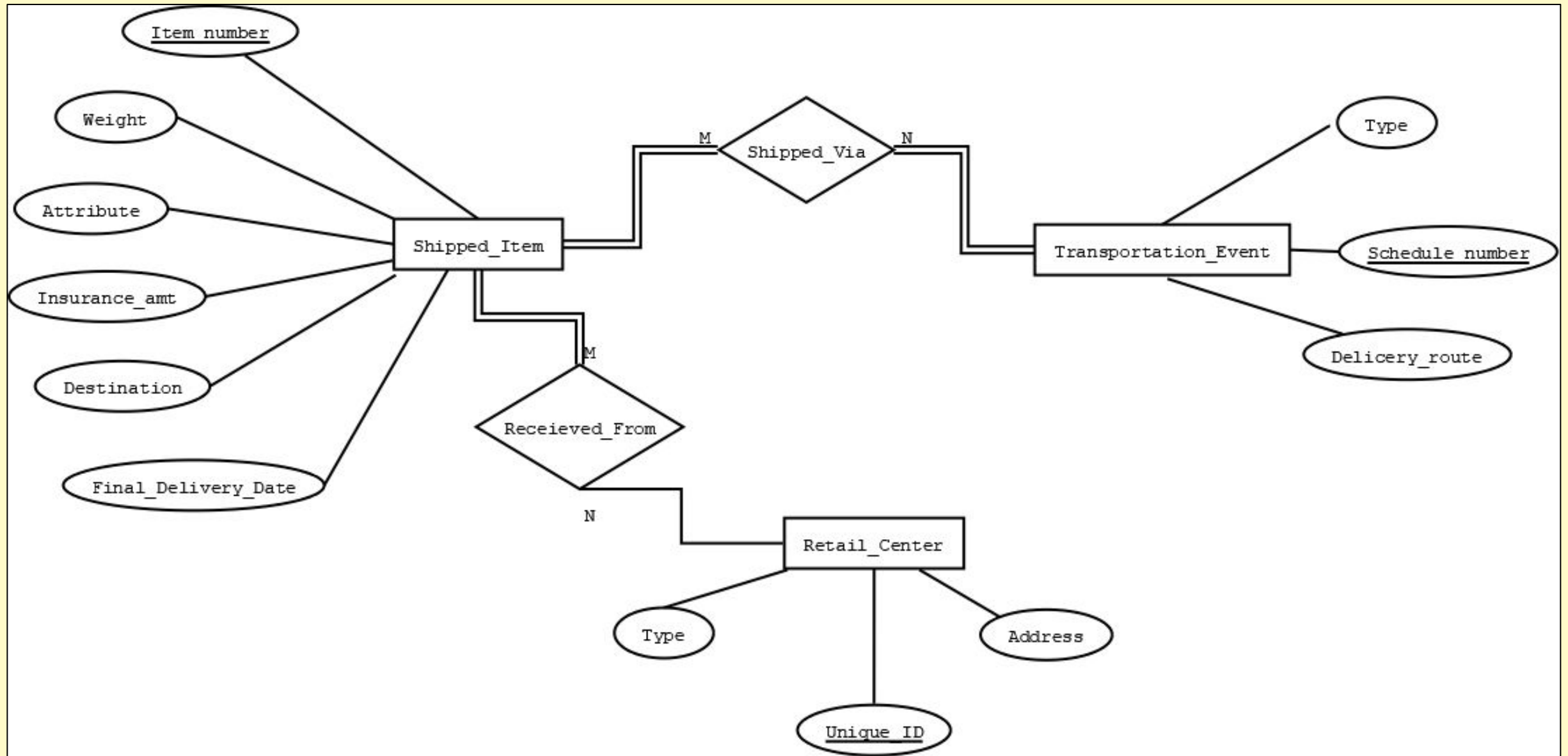
EXAMPLE #4

Requirements of the Company

◦ The company is organized into DEPARTMENTs. Each department has a name, number and an employee who *manages* the department. We keep track of the start date of the department manager.

◦ Each department *controls* a number of PROJECTs. Each project has a name, number and is located at a single location.

◦ We store each EMPLOYEE's social security number, address, salary, sex, and birthdate. Each employee *works for* one department but may *work on* several projects. We keep track of the number of hours per week that an employee currently works on each project. We also keep track of the *direct supervisor* of each employee.

◦ Each employee may *have* a number of DEPENDENTs. For each dependent, we keep track of their name, sex, birthdate, and relationship to employee.