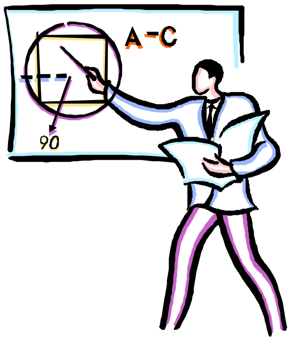
A Case Study: The International Film Video Store

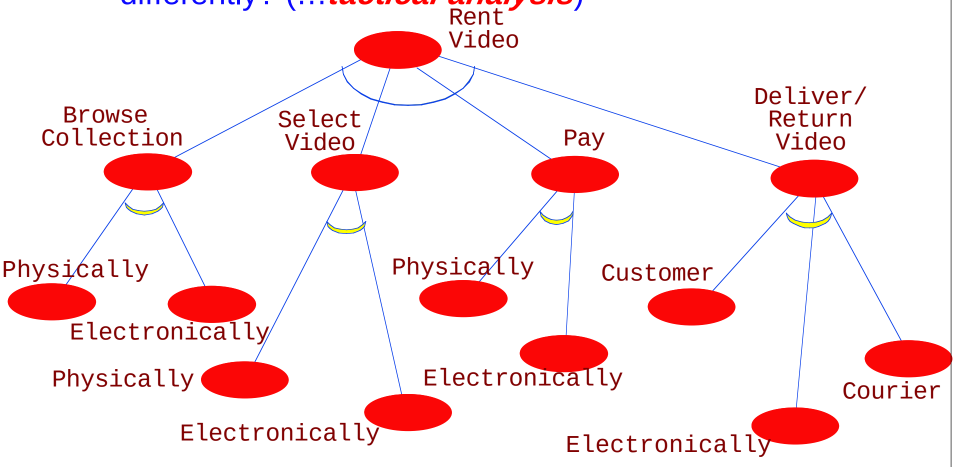


The International Film Video Store

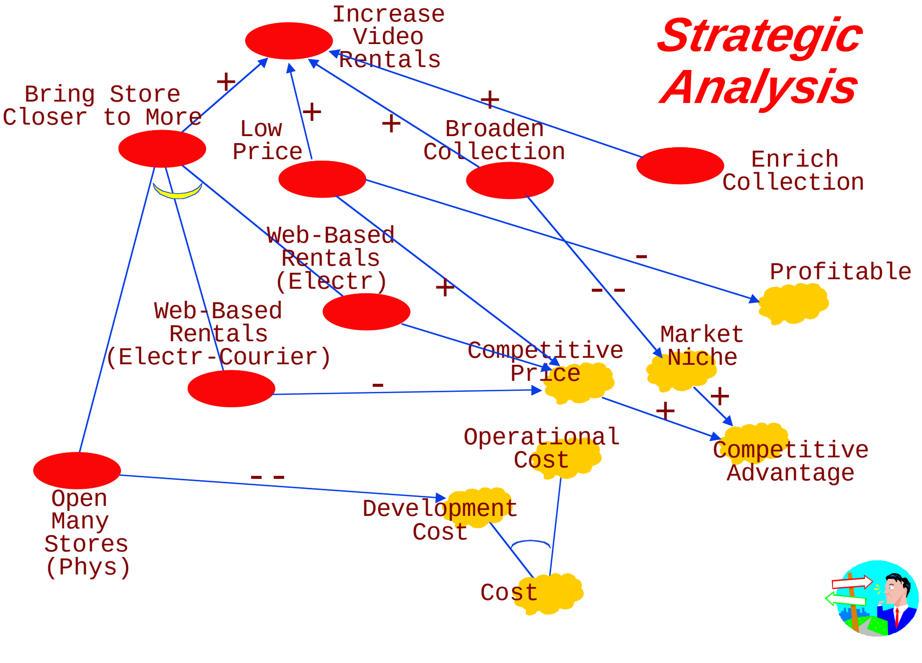
- This store was founded by a couple of friends who like international cinema. The store has been located near one of Toronto's repertoire theatres and has been in operation for four years.
- Unfortunately, the store is barely scrapping a living because of insufficient rentals, especially during the summer when the neighbouring repertoire theatre is closed.
- Problem: "Increase video rentals"

Where Do We Start?

- How do video rentals happen? Could they happen differently? (…*tactical analysis*)



Strategic Analysis



What Are the Leading Alternatives?

- Electronic solution, no physical store -- higher development costs, lower operational costs;
- Electronic solution, courier service -- OK for users who rent in bulk;
- Broaden collection to include more foreign languages -- need selectors, suppliers;
- Deliver videos to N (e.g., 10) locations around Toronto; customers can pick up/drop off videos there

Choose an Alternative

- Suppose we decide to recommend the last alternative.
- This means that a customer chooses videos from a web-based system, these videos are delivered to the location closest to her, she returns the videos to that location, and they are sent back to the video store warehouse.

RSD: Describe Functional and Non-Functional Requirements

- Describe each functional requirements in English.
- Describe each non-functional requirement in English.
- Describe data to be managed by the system.
- Organize and number both functional and non-functional requirements so that they can be referred to later on.
- Trace each functional requirement.
- Indicate the strength of each requirement e.g., very strong --> must have, weak --> could skip if things fall behind.

RSD: NFRs

- Security and privacy.
- Reliability
- Performance -- throughput, response time
- …
- Relate each of these to the UML diagrams you include in appendices

RSD: System Interfaces, Data, I/O

- Specify in the RSD:
  - ✓Interface with courier DB: data exchanged;
  - ✓Interface with credit card co DB: data exchanged;
  - ✓Data to be managed by the system (customers, rental items, rentals,…)

Modeling in UML: Business Processes

- We start with the business processes to be supported by the system; use state diagrams or activity diagrams to model them:
  - ✓Rent-Deliver-Pickup-Return-ReturnToStore-Remind;
  - ✓Rent in detail (includes payment authorization with credit card company);
  - ✓Deliver once a day in detail (includes communication with courier database)
  - ✓Return to repository in detail (includes communication with courier database)
  - ✓Remind customer about overdue videos.

Use Cases

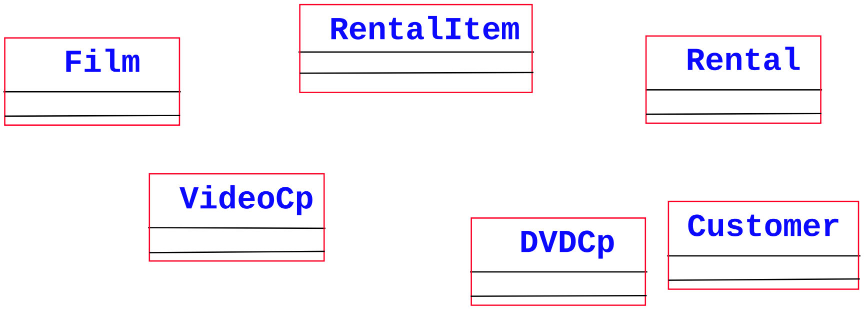
Use cases correspond roughly to the functional requirements of the system.

- Customer use cases: browse, select, choose, pay;
- Employee use cases:
  - ✓list of videos for each location (each day);
  - ✓list of videos from each location each day;
  - ✓remind customer electronically;
  - ✓charge delinquent customer.
- Manager use cases:
  - ✓Report at the end of each week;
  - ✓Report on dormant customers (once every 6months);
- Systems person use cases: start system; get report on failure,…

Documenting Use Cases

- Describe each use case in English, including the steps required, I/O,…
- Model each use case in terms of one or more sequence diagrams (normal case, exceptional cases.)

What Kinds of Objects Are We Talking About?



Use CL to model constraints, pre/post-conditions to specify Business rules, pre/post-conditions for operations.