Improve Requirements Understanding by Playing Serious Games

There are more things in heaven and earth, Horatio,
than are dreamt of in your (requirements) philosophy.
Hamlet act 1, scene 5

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Serious Games

- Games whose primary purpose is not entertainment

- Some parents of young children naturally create (serious) games

- Also used for skill training, management and strategic thinking, topic learning, coaching intercultural communication, supporting agile development, as well as physical rehabilitation and psychological therapy

- Used in defense, education, scientific exploration, health care, emergency management, city planning, and engineering

  -- based on Wikipedia definitions

- Term used as early as 1970
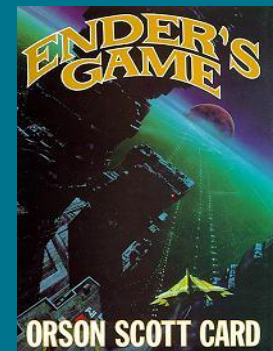
Uses of Serious Games

1. Help customers identify and prioritize their requirements
   Check out –
   - Product Box
   - Speed Boat
   - Buy a Feature
   - 20/20 Vision
   from Innovation Games

2. Help customers and developers communicate and cooperate
   Focus of this presentation

Cooperative Games

- A game is *cooperative,* if two or more players must work together to achieve their goals

- Cooperative games can structure the communication (e.g. contract bridge) and cooperation (e.g. soccer) between players on the same team

Levels of Understanding

- No

  Display atelectasis findings in red
  – collapse of all or part of a lung

- Superficial

  Report each black box warning that is missing

- Limited

  financial derivatives e.g., credit default swaps
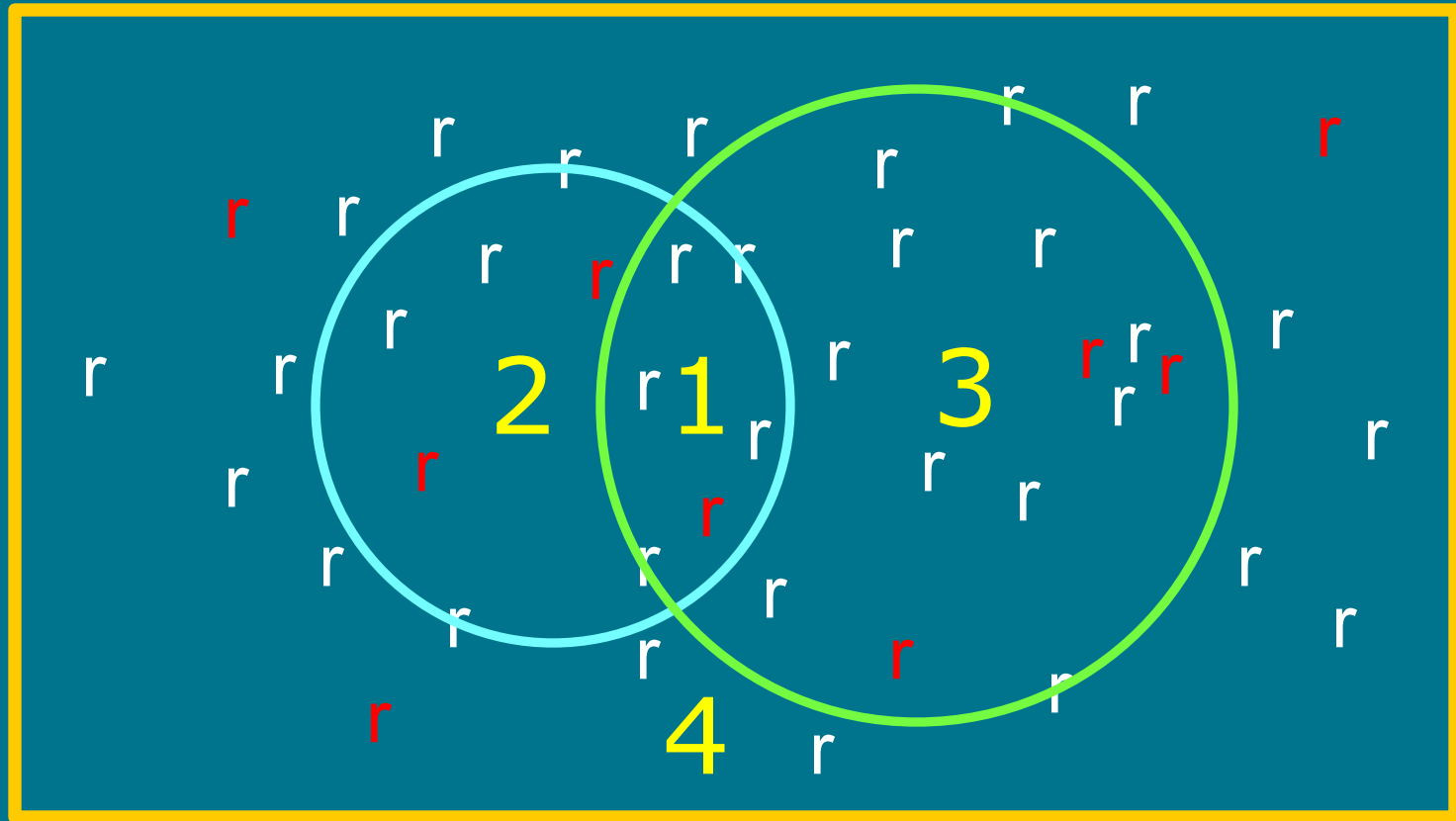 subprime mortgage backed securities

- Deep

  [understanding all fundamental entities, activities
  relationships, and consequences]

- Relatively Complete

  [deep understanding of all requirements needed to develop]

Deep Understanding of Requirements
at project beginning

Most reqts work implicitly assumes all activity is in area 3, with developers who understand the application domain

Six RU Games

Area 1: Bridge Bidding Conversations

Area 2: 10/20 Questions

Area 3: Jigsaw Puzzling – when developers understand
 application domain

Area 4: Scavenger Hunt 1/2 – when developers understand
 application domain

Areas 3 & 4: Enculturation – when developers do not understand
 application domain

Areas 3 & 4: Decoding – when developers must change a system,
 but do not understand its history or internal organization

Each is a serious game with the same goal –
 to help developers acquire a sufficiently deep
 understanding of customer and user needs,
 via effective communication and cooperation,
 and the feasibility of meeting those needs

Areas 3 & 4. Enculturation

- **Enculturation** is a preparation process (game?) by which a person (developer) learns to understand a culture and learns values and behaviors appropriate or necessary in that culture.

- Expect lots of mistakes during this game.

- Successful enculturation results in competence in the language (nouns, verbs, and adjectives), values and rituals of the culture.

-- based on Wikipedia definitions

Remember Avitar

What You Need To Know To Know

To understand:

"Report each black box warning that is missing"

you must understand FDA rules for:

(1)   info in a package insert for a prescription drug

(2)   info from a package insert that must be in a risk summary in a prescription drug ad

(3)   number of times a risk summary must appear in an ad

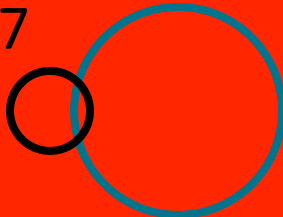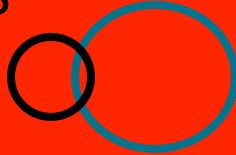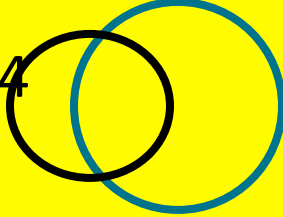(4)   use of synonyms, hypernyms, and hyponyms in an ad
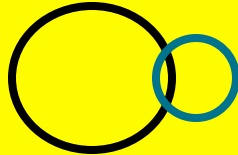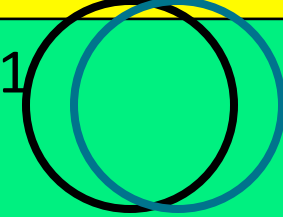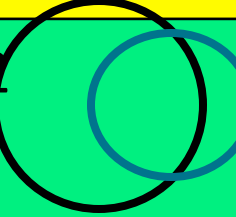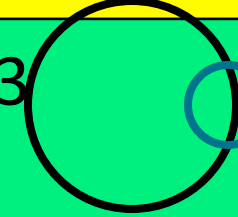
Areas 3 & 4. Decoding
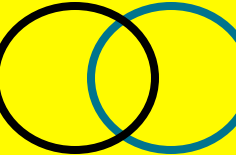
- Played when system changes are required, but developers are unfamiliar with the system's history or internal organization

- A serious, but not cooperative, game of exploring and mapping to determine if required changes are feasible.

- May be coached, when a developer is available, who has a deep understanding of the system, but is not on the project

Which Serious RU Games Should You Play?

1. Determine customer and user needs

2. Envision a system with capabilities and features

3. Use RU Ouija Board to choose appropriate games for discovering and communicating requirements

RU Ouija Board
Answers the question: Which serious RU games?

	Deep Customer Understanding	Limited Customer Understanding	Superficial Customer Understanding
Superficial Developer Understanding	7	8	9
Limited Developer Understanding	4	5	6
Deep Developer Understanding	1	2	3

RU Ouija Answer Sheet

Cell	D U	C U	Primary Games
1	D	D	BB Conversations (with conventions)
2	D	L	20 Questions, BB Conversations
3	D	S	20 Questions
4	L	D	10 Questions, BB Conversations, Jigsaw Puzzling, Coached Enculturation, Decoding
5	L	L	10 Questions, BB Conversations, Jigsaw Puzzling, Scavenger Hunt 1/2, Coached Enculturation, Decoding
6	L	S	10 Questions, Scavenger Hunt 1/2, Decoding
7	S	D	Jigsaw Puzzling, Coached Enculturation, Decoding
8	S	L	Jigsaw Puzzling, Scavenger Hunt 1/2, Coached Enculturation, Decoding
9	S	S	Scavenger Hunt 1/2, Decoding

System Mapping Possibilities

1. Whole system into one cell of RU Ouija board

2. Each capability or feature into its own cell

3. Partial capabilities or features into a cell

The more complex the mapping, the greater its value because mapping enables customers and developers to understand the diverse forms and occurrences of cooperation needed to be successful in discovering and communicating requirements.

Scope of RU Cooperative Games

- Described in the context of customer-developer communication

- Equally useful in customer-customer and developer-developer communication about requirements

- Goal is still "to enable receivers to do their jobs"

- Specific games used for customer-developer communication may be different from those used in the other two domains

Playing Games Reduces Risk

- Games have roles, goals, rules, and strategies

- Using a gaming framework allows project members to understand and focus on their communication and cooperation responsibilities

- Playing appropriate games improves project outcomes

Games are serious business

Downloadable Papers

The companion papers:

1. **Visualize and Manage Developer Understanding**
2. **Improve Requirements Understanding by Playing Serious Games**

can be downloaded from – **www.ManageDevKnow.com**