Designing Business Simulation Games using STELLA/iThink and isee NetSim

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12:00 PM - 1:00 PM EDT

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Intended Audience:

System Designers and HR managers who want to gain an appreciation of how tools such as iThink can be used to quickly build effective simulation games for learning and development and the key iThink techniques/functions which must be utilised to achieve this.

Overview:

The webinar will start by giving some context on the rapidly growing market for business simulation games, game-based learning, gamification and informal learning. We will then quickly review a couple of examples of what an iThink business simulation game actually looks like. We will then conclude by reviewing the key aspects of iThink which must be mastered to build simulation games.
Outline Agenda

- INTRODUCTIONS (2 MINS)
- THE CONTEXT AND RATIONALE FOR SIMULATION GAMES: (10 MINS)
- EXAMPLE SIMULATION GAMES (10 MINS)
- USING ITHINK TO BUILD SIMULATION GAMES (15 MINS)
- WRAP UP (3 MINS)
- QUESTIONS/DISCUSSION (15 MINS)
- SELECTED BIBLIOGRAPHY

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Teams in Nature

In nature, all designs come with a guarantee because anything that exists in nature only survives because it has been refined through millions of years of evolution. Survival only of the fittest.

Biomimicry, learning from nature's design patterns, is now a respected technique used by many of today's innovators for product design in industries ranging from aerospace and fashion to pharma and IT. A new branch of biomimicry, known as organizational biomimicry, is also fast emerging as researchers try to find patterns in nature that will help organizations in their quest to design successful teams.

What we're discovering is that there are three massive differences between bioteams and our human teams.

1. Communication/ In human teams, communication is complex, infrequent and two-way. Within bioteams, communication is simple, frequent and one-way. Think of ants. They communicate chemically by laying pheromone trails. These messages are not replied to but simply alert the receiver that there is an opportunity (food) or a threat (predator). The message contains no information about what to do about this threat or opportunity — that’s totally up to the receiver. Surprisingly, this style of fast, simple communication enables an ant colony to react amazingly quickly. In contrast, consider the often-glacial speed of human teams when they have to respond to something unexpected.

2. Leadership/ We humans have teams led by an individual and sometimes supported by a hierarchy. Bioteams are led collectively by different members depending on the needs at the time. Migrating snow geese, for example, constantly rotate the main navigation role among different birds. We don’t fully understand why the geese rotate this role, but there are a number of theories. One theory is that the other birds benefit from the slipstream effect of the lead bird. Another contends that each bird only knows a fragment of the route and they are, in effect, navigating collectively. This style of collective leadership means the success of the geese is not dependent on one key member getting everything right.

3. Scalability/ Human teams tend to be small, with rigid boundaries. On the other hand, bioteams can be very small or have millions of members — it all depends on what the team is for. In human teams, members join at the start and membership is frozen. Bioteams constantly flex their size to suit the job at hand. Ants clearly form teams of different sizes depending on the task. Where the task requires muscle, a large team is assembled where all members do the same thing at the same time — brute force. Where a task requires precise coordination, a small team is assembled where members do different things at the same time — division of labor.

Imagine how more effective our teams would be if we could easily pull in virtual team members as and when required.

As humans, we have to start asking the right question, the real question. It’s not: Do bioteams work? Instead: Are their designs applicable to our teams? Worth noting before that question is answered: In nature, bad designs are simply not around.

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Ken Thompson specializes in high-performing teams and business simulation, allowing teams to test different models virtually before adopting them into an organization. He has published two books, Bioteams and The Networked Enterprise. His blog is bioteams.com.

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The Global Gamification market is forecast to grow rapidly at a CAGR of more than 99 percent over the period 2012-2016. [1]

Other Analysts forecast the Gamification market to grow from $421.3 million in 2013 to $5.50 billion by 2018, at a CAGR of 67.2%. [2]

86 percent of respondents in a recent major UK survey plan to invest in e-learning in the short-term and 14 percent in games and simulations. [3]

By the end of 2014, 70% of large companies will have some application of gamification at work within their organizations. [4]

Whilst e-learning remains huge it is static however interest in simulation games for learning has increased from 14% to 31% from 2013 to 2014 [3]

References
1. TechNavio
4. Gartner Research

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Games can stimulate all 5 learning modes

1. Behaviourism
   - stimulus response

2. Cognitivism
   - knowledge flow

3. Constructivism
   - Mental models

4. Experientialism
   - learning by doing

5. Social Learning
   - conversations

The Context And Rationale For Simulation Games

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Games can combine powerful learning disciplines

Informal & Social Learning

Game Based Learning

Business Simulation Models

Game-Based Learning / Gamification
Makes people engage more, learn/retain more and change behaviour better.

Business Simulations
Are more effective than case studies, best if using real data, improve learning and require skilled facilitation.

Informal Learning
Accounts for 70-95% of all learning. Formal Learning is only 5-30% effective.

REFERENCES
3. Traci Sitzmann, University of Colorado, video game players study (2010)
5. Kenworthy & Wong, Management Simulator & Game Study (2005)
6. Andrew Feinstein, Food Service Industry Simulation Study (2009)
7. Samuel Certo, “The Role of the Experiential Exercise Instructor” (1976)

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10 Essential Ingredients of Business Simulation Game Design

1. Defining your Game World
2. Making your Game World Dynamic
3. Creating Pleasing Look and Feel
4. Simplifying Player Decision-making
5. In-Game Player communications 1 - Enabling Game Strategy
6. In-Game Player communications 2 - Creating Engagement
7. In-Game Player communications 3 - Creating Excitement & Tension
8. Managing Game Complexity 1 - Object Complexity
9. Managing Game Complexity 2 - Dynamic Complexity
10. Web-based Deployment
EXAMPLE SIMULATION GAMES

An iThink Business Simulation Game

Compete

Market Share

Over 4 periods you are a key member of the global executive team of a global brand managing a product portfolio across multiple markets.

- **Audience:** Managers & Executives
- **Length:** Full-day
- **Typical Group Size:** 12-20

Core Skill Areas

1. Understanding different product life stages and optimising their return in different markets
2. Appreciating the different mechanisms for developing market share and organisational health/resilience
3. Managing key manufacturing levers to balance supply and demand
4. Anticipating and responding well to negative and positive market changes and internal issues
High Performing Teams

This simulation is for leaders at all levels who need to learn how to quickly build high-performing teams which have strong relationships and excellent team practices.

Over a simulated 9 weeks you must turn the ten colleagues whom you now lead into a high-performing team.

- **Audience:** Managers & Executives
- **Typical Group Size:** 12-20
- **Length:** Half-day

Core Skill Areas

1. The different activities needed to develop effective team meetings, alignment, communications and members
2. Interventions for the team versus interventions with individuals
3. Reacting well to unexpected changes in the team and its team members
1. Defining your Game World
Using excel to set and manage game parameters effectively

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Microsoft Excel

ISEE iThink

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2. Making your Game World Dynamic
Time-based graphical variables

Microsoft Excel

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ISEE iThink

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3. Creating Pleasing Look and Feel
The use of images, text and buttons

Text as Image

Invisible button placed on top of image

Graphical Buttons

Image background

Image on a button
4. Simplifying Player Decision-making

Sliders and on-off button combos
5. In-Game Player communications 1: Enabling Game Strategy Dashboards, Indicators and Traffic Lights
6. In-Game Player communications 2: Creating Engagement Message Posting and Responses

**Team Update 1 (Start Phase 1)**

Ken Kent (your boss) has had to temporarily take over another department from a senior colleague who has been involved in a minor car accident.

Ken has asked if you could help out by picking up some of his responsibilities but not at the expense of your team project.

You already have a fairly busy day job on top of your commitments to build up the performance of your team. This just makes everything a bit harder as your meetings with your team members will be more time-pressured than you would like and may not be quite as effective as they might have been.

**In-Simulation Quiz Questions**

Q1: In a change management programme what is considered to be best practice in terms of where you should focus your initial efforts?

Answer Options:
1. Just your most Influential Opponents
2. Just your most Influential Supporters
3. Mostly Influential Opponents but also any very Influential Supporters
4. Mostly Influential Supporters but also any very Influential Opponents

**Change Management Game**

Select Your Answer to Question

1 2 3 4

Your Answers to Questions

You Selected

Question 1 2
Question 2 2
Question 3 2

**END QUARTER 3 : GAME OVER **

THE 9 MONTHS HAVE NOW PASSED AND THE SIMULATION IS NOW OVER. YOU SHOULD CAREFULLY NOTE THE NUMBER OF EXECUTIVE GREEN LIGHTS AND THE TOTAL ADOPTION PERCENTAGE SCORES YOU HAVE ACHIEVED

**第三季结束: 模拟游戏结束**

模拟游戏中已过了9个月了！请仔细记下以下两个数据：1）已接受（绿灯呈现）的高级经理者的数目； 2）总体接受度（%）
7. In-Game Player communications 3: Creating Excitement/Tension Off-sim Props

**BREAKING NEWS**: Chinese Yuan loses 10% against Sterling & Dollar

*The Chinese market is suffering from economic difficulties domestically and internationally.*

*The Chinese Yuan has been weakening* against the Euro, Dollar and Sterling as a result.

*Yuan Now trading 10% down* compared with this time last year.

Further details from [Financial Times](ft.com/globaleconomy) and [The New York Times](nytimes.com/business)

Ref: E2-P2
8. Managing Game Complexity 1: Object Complexity

**ithink Arrays**

**COMMERCIAL ACUMEN SIMULATION**

**YOUR PRODUCTS**
- Range Rover
- Jaguar XF

**Organizational Priorities this Period**
- Corporate Brand
- Material Cost Reduction
- Engineering Quality

**Organizational KPIs**
- Corporate Brand
- Material Costs
- Engineering Quality

**CO₂ Emissions**
- Range Rover
- Jaguar XF

**Market Emissions**
- CO₂ Fleet Max: 199.9
- CO₂ Last Period: 199.9
- Last CO₂ Fine: £23.87
- Cum CO₂ Fine: £0.00

**Exchange Rates**
- Exchange Rate: 1.00
- Rate Movement: 0.00
- Currency Gain: £0.00

**Required Inputs**
- VM_Dem_Factor
- SEGMENT_SHARE_%
- D_SEGMENT_SIZE
- NET_PROJ_M_REV_IMPACT%

**Operators**
- +, -, *, /, ^, ( )

**Equation**

\[ X^2 \text{ BASE_UNITS Sold} = \]

\[ D \text{ SEGMENT SIZE}[P, M] \]
\[ \times \frac{\text{SEGMENT SHARE} \%[P, M]}{100} \]
\[ \times \frac{100 + \text{NET_PROJ_M_REV_IMPACT} \%[M]}{100} \]
\[ \times \text{VM_Dem_Factor} \]

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10 Essential Ingredients of Business Simulation Game Design..... & iThink

10 Web-based Deployment
Netsim and ISEE SDK

Ithink (desktop)  Netsim (browser)

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Good Books on Game Design

“Game Frame: Using Games as a Strategy for Success” by Arron Dignan
“War gaming for Leaders” by Herman, Frost and Kurz
“A Theory of Fun for Game Design” by Ralph Koster
“Reality is Broken” by Jane McGonigal
“The Art of Game Design” by Jesse Schell
“Uncertainty in Games” by Greg Costikyan

Good Books on User Interface/Dashboard Design

“The Execution Premium” by Robert Kaplan and David Norton
“Balanced Scorecards and Operational Dashboards” by Ron Person
“Information Dashboard Design” by Stephen Few
“Information is Beautiful” by David McCandless
“Don't Make Me Think!” by Steve Krug

Good Books on Game Mathematics/Complexity Management

“Managing Information and Statistics“ by Roland and Francis Bee
“How to Measure Anything” by Douglas Hubbard
“Guesstimation: Solving the World's Problems on the Back of a Cocktail Napkin” by Lawrence Weinstein and John Adam