

SPACE (Strategic Planning, Architecture, Controls & Education)

Gamification Overview

SPACE (Strategic Planning, Architecture/Acquisition, Controls, and Education) is a computer aided planning, engineering and management environment. Gamification, as shown in Figure 1, is a key component of SPACE that supports the Patterns, the Planners and Specialized Initiatives and Tools of SPACE.

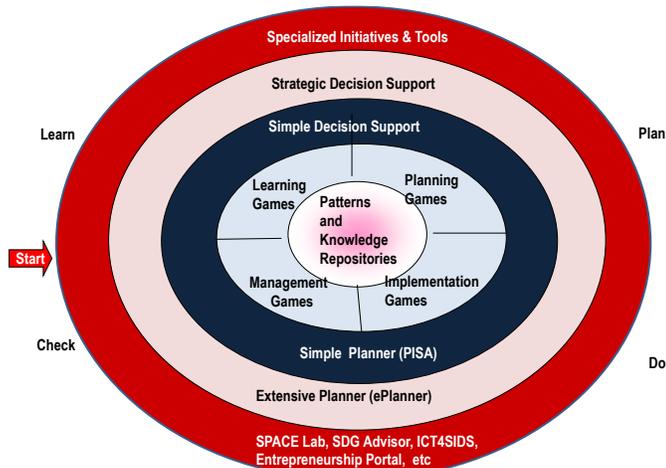


Figure 1: Conceptual View of SPACE

Gamification is the use of game design techniques to solve real life problems and engage audiences. It typically involves applying game design thinking to non-game situations and make them more fun and engaging. The basic premise of gamification is that adding game features to regular processes such as studying a procedures manual gets the players involved in the process so that they repeat it over and over again to win. The end result is that the players learn a great deal about the process. Consider, for example, the idea of training a nurse on how to take blood pressure by playing a game where the nurse competes against a machine to take blood pressure. This exercise is much better than having the nurse read the procedures manual and then taking a test. See Exhibit1 for a short tutorial on Gamification.

Games and Simulations in SPACE support decisions in strategic analysis, mobile services planning, security planning, interagency integrations and health exchanges, application migration versus integration tradeoffs, risks and failure management, and quality assurance. SPACE games are of two type:

- Simple Games that are designed to support the Learn-Plan-Do-Check Cycle
- Composite Games that combine multiple games with SPACE Advisors

Figure 2 shows the following business games at the time of this writing that support the Learn-Plan-Do-Check cycle:

Learning Games

- Cost-Benefit Analysis
- Security Analysis Game

Planning Games

- Global ICT Planning Game
- Mobility Planning Game

Enterprise Architecture and Integration Games

- Enterprise Integration Game
- B2B Integration Game
- Legacy Dilemma Game

Project Management Games

- Failure Control Game
- Project Patterns Game
- Governance (COBIT, ITIL) Games
- Project Management Games

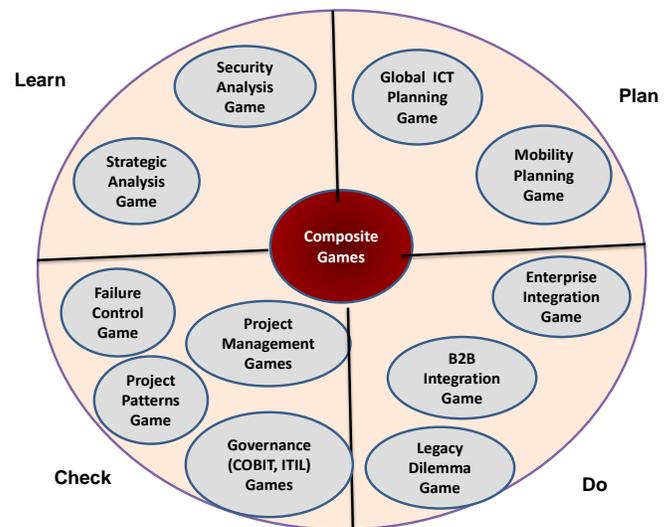


Figure 2: SPACE Games at a Glance

Exhibit1: Gamification– A Short Tutorial

Gamification is in fact a popular “nudging” tactic to encourage specific behaviors, and increase motivation and engagement. For example, a well known gamification initiatives is the Musical Stairs at the Odenplan sub-way in Stockholm, Sweden [Bates 2009]. Each step of the staircase in the subway was setup to play a musical note when it was stepped on. At the end of the campaign, the results showed that 66% more people used the musical stairs over the escalator. This is a

good example of gamification, and is used commonly by companies to illustrate benefits of gamification. Besides being used for marketing, gamification is now being implemented in many educational programs to make learning more fun. The main objective is to narrow the gap between knowledge and actual practice.

Gamification can lead to behavior modification, increased loyalty and increase of knowledge. The common gaming models used in gamification are that they are played between opponents or between an expert and a learner with the goal of winning, scoring points, having fun, and/or learning to do better. AI and psychology are used heavily to keep the players engaged. Specifically, the following approaches are used to engage the users in a learning process by using gamification:

- Scores
- Bonus points
- Competition
- Community Collaboration
- Ownership

The main limitation of gamification is that its *image* is fun and not work. Thus many government agencies do not allow government employees to use gamification because government employees should not have fun at taxpayer's expense! In addition, some games use too much graphics but the content itself is shallow. For example, some business gamifications use fancy graphics that are built on top of simple Excel spreadsheets.

Gamification developers need a platform with features such as the following: flow and control, decision making, animation, sound, and others (e.g., collaboration). The following possible approaches can be used:

- Simple games can be developed by using Powerpoint, HTML5, or simple tools such as Twine (<http://twinery.org/>)
- Serious games can be developed by using C# and Unity3D, and many specialized platforms.

The following websites have good examples of gamifications: www.gamification.org, www.gamification.co and www.badgeville.com