

# TRUSTLAND GAME, A PROPOSAL TO ESTABLISH TRUST

Laura Marcela Londoño  
Institución Universitaria Esumer  
laura.londono@esumer.edu.co

Miguel David Rojas  
Universidad Nacional de Colombia  
mdrojas@unal.edu.co

María Elena Valencia  
Universidad Luis Amigó  
maria.valenciaco@amigo.edu.co

## ABSTRACT

*Trust is fundamental in relationships diary established between people and organizations and is a determining factor in success and results in long term relationships. This articles describes the design and implementation of the virtual game TrustLand, as an educational tool which allows to determine trust of participants in different scenarios and situations of everyday life, by making investment decisions. The developed game presents virtual environments, through which players are encouraged to participate and interact in situations where trust is necessary to obtain good results.*

## INTRODUCTION

According to (Salgado, 2004), Kramer 1999 defined trust as the expectation, assumption or belief in a person, comprising the intention of accept vulnerability, based on positive expectations of the intention, motives and possible actions of others. On the other hand, (Zapata & Rojas, 2010) defined trust as a multi-dimensional concept that reflect several subjective relations, including human behavior, however each discipline propose a different perspective and definition of trust, not always consistent between them.

Trust is a concept that had a great evolve, from being a personal belief, to be consider as an important factor in everyday relationships, within and outside organizations. Some of the definitions of trust are:

There are multiple definitions of the concept of trust, but it always involves beliefs and relationships between two persons who interact, in order to achieve an individual or common goal. The concept has some characteristics that take part in the moment of establish trust relationships, such as:

It has an element of risk associated with the uncertain in the response of person's and their intentions, Kramer 1999 (Gilson, 2003).

Is a way of motivate cooperative actions and the achieve of

common goals, share values and reciprocate (Al-Mutairi et al., 2008) between involved parts.

Make decisions in a risky and uncertain situation, in some circumstances even not taking into account that risk (Al-Mutairi et al., 2008).

Trust decisions are often made based in common characteristics such as family relations or friendship (Al-Mutairi et al., 2008).

According to Ciriolo (2007) and Glaeser et al., (2000) trust is a predictor factor of economic success.

Trust relationships involve different actors such as persons, groups of persons, organizations and even machines. There are some models and levels of trust, based on involved actors and their evolve over time (Zapata & Rojas, 2010):

Trust model proposed by Schoorman, Mayer, & Davis, (2007) argues that relationships based on trust are risky and the amount of trust is an indicator of the amount of risk a person willing to take; those relationships involve two actors, one, who takes the risk, and other, who determines the outcome of the relationships and of the risk taken by the first actor.

In trust relationships can be identified two different actors (Zapata & Rojas, 2010), first, the person who trust something, and second, the person who received the trust, as shown in exhibit 3.

Once accepted the trust relationship, actors accept the risky situation and try to deal with it, facing the lack of information and uncertain inherent to the condition (Al-Mutairi et al., 2008), furthermore, fronting additional circumstances that may arise, since a same person can get confidence in a particular situation, but not in others, depending on different circumstances (Al-Mutairi et al., 2008), on the experience with actors or similar situations; additionally, Ciriolo (2007) argues that reciprocity in trust relationships can take place even when the trustee returns less than the expected for trustor, and in situations in which there is not reciprocity in relationships, trust on the involved actor can be completely lost.

There are two proposals of games that focus on evaluate trust relationships, first, the proposal of Berg et al. (1995) in

## EXHIBIT 1 DEFINITIONS OF TRUST

AUTHOR	DEFINITION
(Fukuyama, 1996)	Is the expectation that arises within a community of regular behavior, honest and cooperative, based on common rules, shared by all members of that community.
(Concha & Solikova, 2000)	A generalized expectation of a person, which can count on the word of another.
(Goudge & Gilson, 2005)	Trust is understand as a judgment on a risk situation, in which a person will act according to the best interests of others, or at least do not harm.
(Ciriolo, 2007)	Trust is the component of social capital that exerted the most significant effect on governance.
(Al-Mutairi, Hipel, & Kamel, 2008)	Trust is a prerequisite of cooperation, which is the result of success actions of cooperation. Consist on mitigate fear of being betrayed or not to be reciprocated.
(Zapata & Rojas, 2010)	Trust as a multidimensional concept that reflects several subjective relationships, including human behavior.
(Rojas, 2011)	Trust is define as the willingness of a person or group, to be vulnerable against other person, assumed benevolent, reliable, competent, honest and open.

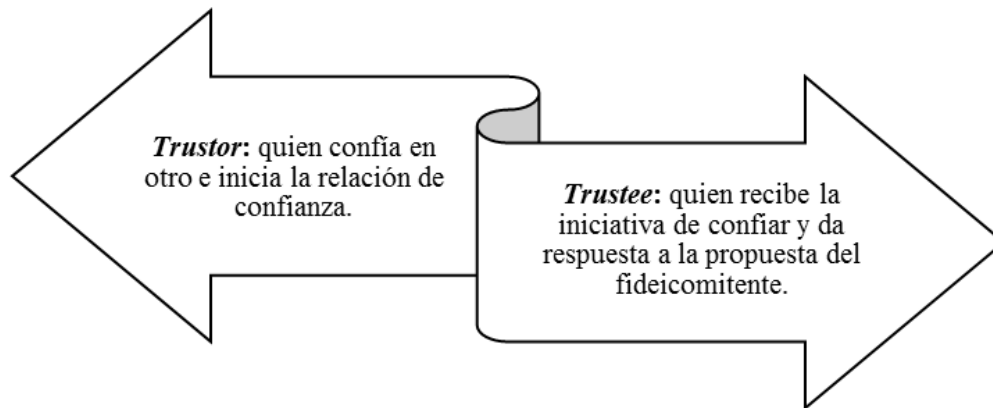
## EXHIBIT 2 TRUST RELATIONSHIPS

<b>Person - Person Trust</b>	<ul style="list-style-type: none"> <li>•Humans who search a relationship that benefit both parties.</li> </ul>
<b>Person - Organization Trust</b>	<ul style="list-style-type: none"> <li>•When a person is part of an organization or institution, or when a person comes to an organization to adquire a product or use a service.</li> </ul>
<b>Organization - Organization Trust</b>	<ul style="list-style-type: none"> <li>•When two or more institutions initiate a process of relationships, such as strategic alliances, an agreement, or a bussines relationship.</li> </ul>
<b>Human - Machine Trust</b>	<ul style="list-style-type: none"> <li>•When technology is the mean to build relationships based on trust.</li> </ul>

Prepared from (Rojas, 2011).

### EXHIBIT 3

#### ACTORS INVOLVE IN TRUST RELATIONSHIPS



Prepared from (Zapata & Rojas, 2010).

### EXHIBIT 4

#### PLATFORM TO STAR TRUSTLAND GAME

The screenshot shows a login interface for the CINCO platform. At the top left is an orange logo of a hand with fingers spread, with a pi symbol ( $\pi$ ) below it. To the right of the logo, the text reads: **CINCO**  
Centro de Investigación  
& Consultoría  
Organizacional. Below this, there is a label 'Usuario' above a text input field containing 'Juan Rodríguez'. Underneath that is the label 'Ingrese ip del Server' above another text input field containing '190.0.34.50'. At the bottom is a blue button with the text 'Aceptar'.

which trust between two people is evaluated, and second, the expanded trust game, proposed by Zapata, Rojas, & Gómez (2014), in which through investments, participants have to trust in some scenarios of quotidian life such as people, government and banks. Additionally, there are similar experiments and application that have been made in other countries, based on the proposal of Berg et al. (1995), to identify influence factors in trust between persons and social capital (Chiara, Gandelman, Piani, & Viejo, 2008), to measure trust (Glaeser, Laibson, Scheinkman, & Soutter, 2000) and to identify characteristics such as discrimination (Fershtman & Gneezy, 2001). According to Ciriolo (2007), there are other applications of the game proposed by Berg, focused on ethics and racial differences, beliefs, intentions, social differences, communication and culture.

However, these proposals can be expanded to evaluate trends in trust relationships and characteristics involved when people trust in different scenarios and personal or work situations, at individual, group and organizational levels.

## DESCRIPTION OF VIRTUAL TRUSTLAND GAME

TrustLand is a proposed virtual game which objective is to maximize profit from an initial capital, making investments decisions in each option and scenario of the game. The purpose of the game is to teach and measure trust relationships in individual and organizational environments; participants have to recognize the importance of trust in relationships and how it influence daily decision making process.

The virtual game TrustLand has 12 different scenarios such as bank, supermarket, university, church, park, music band,

among others, with 3 different situations each one, and participants have to decide how much money they will invest, depending on the proposed situation. The game should be played individually and scenarios will be shown to participants in a city, where they have to select each option and make investments; the city is going to evolve according to the investment decisions.

To start the game participants must enter in the web page of Grupo CINCO, (<http://www.unalmed.edu.co/cinco>) then select the link “Juegos”, “Ingresar” and finally select game TrustLand. That link will take participants to an environment in which they have to register with their names and an Internet Protocol (IP) given by the game’s coordinator, as shown in exhibit 4.

Once all participants have entered to game platform, it initiates. First, a character of the city appears, he is responsible for welcoming the participants and provide general information about the game, such as the objective, rules and an initial capital to play with (\$ 100.000), participants have to press OK button, to make sure they read and understand the provided information, as shown in exhibit 5.

After completing the introductory part of the game, participants can see an empty lot, with 12 icons representing the scenarios where they must make investment decisions. Similarly, the game presents the capital available at any point of the investments decisions, as shown in exhibit 6.

Each icon represents a different game scenario, which should be selected by participants in the desired order. After selecting one scenario a situation will arise (There are 3 situations in each scenario), and participant have to determine whether or not to invest, and amount of money (See exhibit 7). To invest, players must type in the given space the amount of

## EXHIBIT 5 INTRODUCTION TO TRUSTLAND GAME



money of the available the want to spend, and press the button “invertir” to complete the transaction.

Immediately after participant made their investments, the game takes them to another environment in which the answer to the scenario is shown and the amount of money won or lost, according to the invested (See exhibit 8). Additionally, participants see their total capital accumulated at the end of each investment situation.

If participants has not invest after the lapse of one (1) minute, the system will automatically assigns an investment of \$ 10.000.

The game randomly shows a situation to be presented once participants choose an investment scenario. After making the investment decisions and get the result, players must select a new scenario to invest, without the possibility of selecting the same scenario two continuous times. Once participants select all possible scenarios, all of them are reactivated to present the next situation and similarly scenarios will be reactivated again to present the third situation. This is with the aim of participants cannot consecutively select the same scenario and make all the available investments.

Each time participants invest in a situation, the empty lot will turn into a city, if they decide not to invest in a scenario, it will remain the same, as shown in exhibit 9.

Investments performed by participants in the game scenarios, will be immediate reflected in the improvement of the city; if players invest on a specific scenario, it will improve the appearance; however if participants do not invest, the scenario will remain the same. Scenarios has up to three (3) possibilities for improvement, corresponding to three situations available for

each scenario in the game. In exhibit 10 the scenes of the city are shown, starting with level (0) the empty lot and improving each scenario when players invest on them.

Through the game and randomly, will appear some stars that serve as bonus, participants must gather them and at the end of the game they provide the amount of \$ 1.000 for each selected star, in order to make the game to be more dynamic, and verify that participants pay attention to the selected scenarios, as stars will appear in some scenarios and if they are not selected, stars will disappear and lost the opportunity. A total of six (6) stars will appeared during the entire game.

Decisions made by each participant in each scenario and situation, will be registered in an administrator interface of the game, which is shown in exhibit 11. In the table, (E) is the scenario selected by participants and (S) are the situations randomly appeared of scenarios, then results are shown as: (I) realized investments, (B) benefits obtained in each scenario and (C) accumulated capital at the end of each scenario.

Once all game scenarios are completed, the administrator can download the games results and copy them directly to excel, in order to analyze and determine factors that influence investment decisions. Finally, participants fill out a survey of the game, with the objective of determine compliance of the purpose of the game. An example of the way results of each participants are shown in administrator can be seen in exhibit 12.

Virtual game TrustLand are an initial propose, tested with members of the Research Group CINCO, of Universidad Nacional de Colombia, with the aim of verify the proper operation of the game. The next stage for the game would be to apply

### Exhibit 6 Start of TrustLand Game





**EXHIBIT 7**  
**EXAMPLE OF SITUATIONS OF TRUSTLAND GAME**



**EXHIBIT 8**  
**EXAMPLE OF RESPONSE TO SITUATIONS OF TRUSTLAND GAME**



**EXHIBIT 9**  
**ADVANCEMENT OF THE CITY THROUGH INVESTMENTS.**



**EXHIBIT 10**  
**SCENES OF THE CITY OF TRUSTLAND GAME**



**Level 2**



**Level 3**





it in different groups, to obtain and analyze results and finally determine patterns of behavior and trust factor present in decision making processes.

REFERENCES

Al-Mutairi, M. S., Hipel, K. W., & Kamel, M. S. (2008). Trust and cooperation from a fuzzy perspective. *Mathematics and Computers in Simulation*, 76, 430-446.

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, Reciprocity, and Social History. *Games and Economic Behavior*, (10), 122-142.

Chiara, J., Gandelman, N., Piani, G., & Viejo, C. (2008). *Confianza, reciprocidad y aversión del riesgo en Uruguay: Evidencia de juegos experimentales*. Uruguay: Universidad de ORT.

Ciriolo, E. (2007). Inequity aversion and trustees' reciprocity in the trust game. *European Journal of Political Economy*, 23(4), 1007-1024.

Concha, J. R., & Solikova, A. (2000). Relaciones a largo plazo entre compradores y proveedores: la importancia de la tecnología en el desarrollo de la confianza. *Estudios gerenciales*, 76, 1-100.

Fershtman, C., & Gneezy, U. (2001). Discrimination in a Segmented Society: An Experimental Approach. *Quarterly Journal of Economics*, 116(1), 351-377.

Fukuyama, F. (1996). *Confianza*. México: Editorial Atlántida.

Gilson, L. (2003). Trust and the development of health care as a social institution. *Social Science & Medicine*, (56), 1453-1468.

Glaeser, E., Laibson, D., Scheinkman, J., & Soutter, C. (2000). Measuring trust. *The Quarterly Journal of Economics*, 811-846.

Goudge, J., & Gilson, L. (2005). How can trust be investigated? Drawing lessons from past experience. *Social Science & Medicine*, (61), 1439-1451.

Rojas, M. D. (2011). *Definición de un modelo unificador del concepto de confianza mediante esquemas preconceptuales*. Universidad Nacional de Colombia, Medellín.

Rojas, M. D., & Marin, S. P. (2006). Aproximaciones a la medición de la confianza. *Dyna*, (150), 119-130.

Salgado, E. (2004). *La confianza en Colombia: Un estudio sobre la relación entre confianza y participación en asociaciones voluntarias*. Ediciones Uniandes.

Schoorman, F. D., Mayer, R., & Davis, J. H. (2007). An integrative model of organizational trust: past, present, and future. *Academy of Management Review*, 32(2), 344-454.

Zapata, C. M., & Rojas, M. D. (2010). Una revisión crítica al modelado de la confianza a nivel organizacional. *Estudios gerenciales*, 26(115), 193-208.

Zapata, C. M., Rojas, M. D., & Gómez, M. C. (2014). Juegos basados en experiencias como estrategia de aprendizaje organizacional: un caso de estudio. En *La ética organizacional y la ingeniería. Avances en ingeniería de la organización* (p. 250). Editorial Universidad Nacional de Colombia.

EXHIBIT 11  
TRUSTLAND GAME ADMINISTRATOR

Ronda	Jugador 1					Jugador 2				
	E	S	I	B	C	E	S	I	B	C
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

EXHIBIT 12  
EXAMPLE TRUSTLAND GAME RESULTS

Ronda	Jugador 1				
	E	S	I	B	C
1					
2	Banco	2	\$ 20.000	\$ 4.000	\$ 104.000
3	Puente	1	\$ 10.000	\$ -	\$ 94.000
4	Fábrica	2	\$ 20.000	\$ -	\$ 74.000
5	Supermerc	3	\$ 20.000	\$ 200	\$ 74.200
6	Granja	2	\$ 30.000	\$ 30.000	\$ 104.200
7					
8					