



**Applications of  
Stochastic Processes  
and Mathematical  
Statistics to Financial  
Economics and  
Social Sciences IV**

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# **Georgian American University (GAU)**

Applications of Stochastic Processes and Mathematical Statistics  
to Financial Economics and Social Sciences IV

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## **Conference Materials**

Business School

Business Research Scientific Center

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## SYMBOL

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response to the external situation and internal abilities. One formulates the behavioral strategy before realizes these signals, and before consciously understands the idea, thought or action. The time gap in perception can be described in the symbolic interactionist perspective. Symbol gets its power in interpretative situation, when there is a transition from the abstract to the real and back. A thing or phenomenon can become a symbol in interpretation. Thinking in images, metaphors and signs is realized in symbol when situation needs interpretation, and perception in slight difference with sensation is interpretative context. Symbolic perception is the space of imperative instinct and intention, as it expresses the inclination towards the object and main motivation for interpretation. In some sense, perception is filtered interpretation, which is, along with individual factors, significant foundation of behavior.

In social sciences there exists the idea of 'social transition' of the individual or group of people from one social state to another (from example from childhood into adulthood, from student into the employee etc.). In different societies there are special transition rituals, specifically initiations. In most of the initiations there is an indivisible principle – to go through the death and to transit into a new state. M. Eliade offered a bit different view, based not on the idea who one was and who one becomes, but on the process of initiation, what happens during: 1. age rituals – access to new knowledge, and 2. specialized initiations, where there is transformation of the human state (like to become a guru, master). Eliade states that learning the language of initiation means finding in the inevitable struggles of our own lives "certain types of real ordeals...the spiritual crises, the solitude and despair through which every human being must pass in order to attain to a responsible, genuine and creative life (Eliade, 2012, P.10). Organizational anthropology is not going far away from the content of these two processes: 1. when a person starts career, or moves to a new organization; and 2. when an employee is promoted, gets new post, like manager, team leader, vice president etc. Both are transition processes, constituting organizational initiation. In some organizations it aligned with a ritual, in others it is a part of orientation training programs.

Work experience behavioral patterns are realized in symbolic perception, as the moment of interpretation. It is the first day at work, or the first job, the new position, - this is the exact moment of symbolic interaction with the organization, as one experiences the moment of interpretation, transition of meanings and real social initiation experience. Symbol is the thread towards the Truth, and a prism of Universe cognition, as stated by K. Jaspers, Existence is comprehended in a symbol and by the symbol (Jaspers, 1991). This is the dual energy of symbolic perception. G. W. F. Hegel gives a dialectic interpretation of this phenomenon, as in symbols the truth because of the sensing element is yet vague and concealed, it is shown to the consciousness only in the form of a thought, its meaning is the thought itself (Hegel, 1970, P. 292). In the process of symbolic perception in organizational initiation, there happens the moment of realizing the action, idea, value. In symbolic tension it becomes real experience.

The study explores the symbolic perception of the work-related experience, asking respondents to describe their 'organizational initiation' in the fairy-tale form. The study is not completed yet, it needs some additional data and validation (see the Survey Form following).

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Surve

7. What are the most important values you hold if you would be the main hero in your fairy-tale story? \*

8. What was your position / job you associated this fairy-tale with? \*

Thank you for your imagination and creative impact!

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The answers varied in their imagination and context interpretation, as well reflected the nature of the socialization and perception experience respondents have or had in their orientation period in the workplace. In the first question about the hero, about 80% of respondents underlined the courage and at the same time freight of the main hero, as well as openness and readiness for learning. About 20% chose as the main hero a strong figure (associated with the Leader in the organization), e.g. Father or Beast (from 'Beauty and the Beast' tale), describing the hero as strong, rich, successful and protecting. These are the examples how respondent see themselves in their symbolic perception of work-related experience:

The second question included other characters of the fairy-tale story with their behavioural patterns and styles description. Respondents demonstrated the reverse in this question, i.e. those who have as the main hero someone not confident enough yet, choose as other characters confident and ready-



Questions six and seven were related to the morale and values of the fairy-tale stories. These two mostly copied each other, so the answers were in parallel, demonstrating the values and attitudes important for the respondents in the workplace, e.g. strength, unity, to be oneself and to accept oneself, follow your goals, stability, calmness, kindness, to become not a hero, but the other character in the fairy-tale story (to reverse). In the answers there are underlined the following significant values in symbolic perception of the work-related experience:

- fearless, family, skills
- to be the person you are
- stability and calmness
- kindness above all and being humble
- kindness, self-respect, do the job
- be totally like Belle
- core values, don't compromise on important things
- respectful toward others
- never judge people by appearances, be flexible
- strength, unity, to be oneself
- to accept oneself, follow your goals

In symbolic perception of work-related experience, transition process is reflected by the challenges happening with the hero, and the ways other characters of the story help him/her to win in the end. It is very close to the social initiation process, where there is a real or metaphoric challenge the person should go through, to win over oneself and over the situational factors. Moreover, with the values it is shown the motivation frame for the



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Performance management is the continuing process of communication between managers and employees, with the mutual goal of accomplishing the strategic goals of the company. It is the foundation for employee performance and engagement in any organization that wants its employees to reach their maximum potential and boost their productivity and success. The process- often combining both oral and written components, is happening throughout the year and usually results in an annual performance evaluation. This entire communication process involves defining clear specific expectations, setting objectives, establishing goals, providing ongoing feedback and examining results. Next generation performance management isn't about setting annual goals, but rather personalized goals for employees, changing as dynamically as the business does. This not only fits with the dynamic changes in the business environment but also gives employees real-time feedback on how they are performing, letting them self-correct as well as giving them a sense of accomplishment.

Overseeing performance and providing feedback is not an isolated event, focused in an annual performance review. It is an ongoing process that takes place throughout the year. The Performance Management process is a [cycle](#), with discussions varying year-to-year based on changing objectives.

The cycle includes Planning, Checking-In, and Review.

To begin the planning process, you and your employee review overall expectations, which includes collaborating on the development of performance objectives.

Individual development goals are also updated. You then develop a performance plan that directs the employee's efforts toward achieving specific results to support organizational excellence and employee success.

Goals and objectives are discussed throughout the year, during check-in meetings.

This provides a framework to ensure employees achieve results through coaching and mutual feedback.

At the end of the performance period, you review the employee's performance against expected objectives, as well as the means used and behaviors demonstrated in achieving those objectives. Together, you establish new objectives for the next performance period.



unconscious bias since part of the problem can be attributed to memory and the way the mind makes associations. But it is a dangerous bias all the same. Very simply, it is because recency bias can make or break a performance review. So overemphasizing recent performance can result to failure of the performance management system.

## **5. Annual Performan**



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While discussing issues and problems of talent management, it's necessary to mention employee retention. Many organizations do not have any organizational plan to retain employees, not even for talented ones. They don't have diverse programs. For example, in Georgia employee benefits usually include insurance, corporate phone/communication service, excursion/corporate events financing, basic trainings. Everyone would agree, that this package is quite standard and basic in fact, for every small and medium organization and doesn't represent important motivational tool to retain the best employees and stop them from considering the offers of competitors. Of course, the field of business and the nature of position held by particular employee is important in this case.

In Georgian business environment, word "Talent" often is not defined by managers. Here I mean that, it's not considered to be technical term on the professional level. "Talented", "Skilled" these words can be used to characterize particular person, but there is no practice of frame, method or technique to manage them as such employees.

Amidst all this, it's necessary to mention that there's a considerable shortage of professional workforce on the labor market. Organizations are all the time trying to take away from competitors the best talents, people who have been identified as experts and professionals in their field.





$\mathbb{N} = \sum_{i=1}^N \delta_{i, \cdot}(\cdot, *)$ ,  $\mathbb{N}^* = \sum_{i=1}^N \delta_{i, \cdot}^*(\cdot, *)$  on  $(\bar{\Omega}, \mathcal{F}, \mathbb{P})$ . If

$$\Omega = \bar{\Omega} \times \{1, \dots, N\}, \quad \mathbb{P}(\cdot, \cdot) = \frac{1}{N} \mathbb{P}(\cdot), \quad \mathbb{P}^*(\cdot, \cdot) = \frac{1}{N} \mathbb{P}^*(\cdot)$$

then

$$\begin{aligned}
 \mathbb{P}(\omega, \cdot) &= \mathbb{P}(\omega), \quad \mathbb{P}^*(\omega, \cdot) = \mathbb{P}^*(\omega), \\
 \mathbb{Q}(\omega, \cdot) &= \mathbb{Q}(\omega), \quad \mathbb{Q}^*(\omega, \cdot) = \mathbb{Q}^*(\omega),
 \end{aligned}$$

\*







## 2 Symmetry of Economies





$$w(x) = -d'(p)/d(0)$$

$$Q_t = \alpha + \lambda Q_{t-1} + b \ln(A_t) + c \max(0, \Delta A_t)$$

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$\Delta A_t$

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# Martingale Method of Solving Lobachevsky's Functional Equation

$$M_c(x) = M_c(x')$$

$$G(x, g) = M_c(x) - A(x, c), \quad G(x, g) = M_c(x')$$

Abstract.

## 1 Introduction

$$L(x) = f(x) - c$$

$$L(x) L(x') = 2^2 \left( \frac{x+x'}{2} \right) \quad (1)$$





$\mathbb{D}(\Omega, F, P) = (F, 0)$

**Theorem 1.**  $\mathbb{D}(\cdot, \cdot) = 0$ .

$$\begin{aligned}
 & \dots \\
 & \dots = (0) \dots \\
 & \dots = (0) \dots
 \end{aligned}$$

*Proof.*  $\dots = 0$ .

$$\dots / (0) \dots / <$$

$$\begin{aligned}
 & \dots \\
 & \dots = (0) \dots = (0) \dots \\
 & \dots B \dots L \dots (1) \dots
 \end{aligned}$$

$$= {}^2(0) \dots = {}^2(0) \left( \frac{+}{2} \right) = {}^3(0) \dots (5)$$

$$\dots = \dots (1) \dots$$

$$\dots = {}^2 \left( \frac{-}{2} \right) = (0) \dots$$

$$\dots = \frac{\dots}{\dots} = \frac{\dots}{(0)} \dots (6)$$

$$\begin{aligned}
 & \dots + \dots - \dots \\
 & \dots = (0) \dots = (0) \dots \\
 & \dots (0) \dots = 0.
 \end{aligned}$$

$$g = \frac{1}{2} \left( \frac{1}{2} - \frac{1}{2} \right) = \frac{1}{2} \quad (1)$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) \left( \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{4} \quad (7)$$

$$M = \frac{1}{2} \left( \frac{1}{2} - \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{4} \quad (7)$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) + \left( \frac{1}{2} - \frac{1}{2} \right) = \frac{1}{2} \quad (8)$$

$$= \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{4} + \left( \frac{1}{2} \right)$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) - \left( \frac{1}{2} - \frac{1}{2} \right) = \left( \frac{1}{2} - \frac{1}{2} \right) - \frac{1}{2} =$$

$$= \frac{\left( \frac{1}{2} - \frac{1}{2} \right)}{\left( \frac{1}{2} \right)} \quad (9)$$

$$B = \frac{1}{2} \left( \frac{1}{2} - \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{4} \quad (9)$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) - \left( \frac{1}{2} - \frac{1}{2} \right) = \left( \frac{1}{2} - \frac{1}{2} \right) / \left( \frac{1}{2} \right) =$$

$$= \frac{\left( \frac{1}{2} - \frac{1}{2} \right)}{\left( \frac{1}{2} \right)} \quad (10)$$

$$B = \frac{f(W-W)}{f(0)} = \frac{f(0)}{f(0)} = 1 \quad (4)$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) - \left( \frac{1}{2} - \frac{1}{2} \right) / \left( \frac{1}{2} \right) = 0;$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) \left( \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{4}$$

$$\left( \frac{1}{2} - \frac{1}{2} \right) = \lambda + \frac{1}{2} \quad (11)$$







$F_{c, \tau}^{\text{fi}} \approx [2]$        $J_{c, \tau} \approx [6]$        $Q_{c, \tau} \approx [f]$

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