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*Abstract* – We make the business at the time of great transition from the digital disruption to the quantum disruption, when the multiple quantum inventions in the natural/social sciences lead to the quantum leaps realization by the modern firms in the hi-tech industries in the quantum creative economies of the scales and scopes in the quantum disruption age. At this opportunities/challenges time period, a chairman of the board of directors must take a personal responsibility for the creation and execution of the quantum strategy - a most effective winning virtuous organizational strategy - toward the optimal business model design/discovery for the prosperous effective organization in the quantum creative economies of the scales and scopes in the quantum disruption century. The quantum strategy uses the quantum strategy search algorithm, applying the quantum logic (the probabilistic logic) on the top of the inductive, deductive and abductive logics (the value based logics) with the purpose to create the most effective optimal winning virtuous organizational strategy by the chairman of the board of directors with the interlocking interconnecting directors in the modern firms in the quantum creative economies of the scales and scopes in the quantum disruption time. We study the case on the quantum strategy formulation and execution by a chairmen of the boards of directors with the interlocking interconnecting directors in the modern firms such as Alphabet Inc, expressing a great confidence that the quantum strategies will continue to be implemented by the prosperous organizations to increase their valuations in the quantum creative economies of the scales and scopes in the quantum disruption century.

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## Introduction

The *fundamental strategy theory* - a *pink diamond*, which shines brightly and colorfully in a *spectrum of illuminating lights* of the *business administration science*, the *microeconomics science*, and the *macroeconomics science* – continues to attract a *considerable scientific interest* among the *leading strategy thinkers* and undergoes a *natural evolution* by making a *chain* of the *scientific evolutionary visions transitions/transformations* in the *best minds* of the *leading strategy thinkers* from:

1. The *classical philosophical views on the fundamental strategy theory*, which consider the *continuous-time processes* in the *analogue economies of the scales and scopes* in the *analogue disruption century* in Chandler (1962, 1998; 1977, 1993; 1994; 2001; 2005); further to

2. The *digital philosophical views on the fundamental strategy theory*, which deal with the *discrete-time processes* in the *digital creative economies of the scales and scopes* in the *digital disruption century* in Ledenyov D O, Ledenyov V O (2015b); and further to

3. The *quantum philosophical views on the fundamental strategy theory*, which focus on the *discrete-time quantum processes* in the *quantum creative economies of the scales and scopes* in the *quantum disruption century* in Ledenyov D O, Ledenyov V O (2015b, n, o).

During the *scientific evolution process toward the fundamental strategy theory*, the *strategy thinkers* have been involved in an *intensive thinking process* to formulate the principles of the *fundamental strategy theory* with an application of the *accumulated knowledge base* in Chandler (1962, 1998; 1977, 1993; 1994; 2001; 2005), Chandler, Daems (1980), Andrews (1971a, b, 1980, 1981a, b, 1984), Rumelt (1974, 1982), Porter (1979, 1980, 1982a, b, 1983, 1985, 1987a, b, 1991, 1994a, b, 1996a, b, 1997, 2001a, b, 2008, December 2013), Porter, Harrigan (1981), Porter, Salter (1982), Montgomery, Porter (1991), Porter, Rivkin (2000), Porter, Sakakibara (2004), Anand, Bradley, Ghemawat, Khanna, Montgomery, Porter, Rivkin, Rukstad, Wells, Yoffie (2005), Porter, Kramer (2006), Porter, Heppelmann (November 2014), Schendel, Hofer (1979), Yelle (1979), Dess, Davis (1984), Schwenk (1984), Pitol-Belin (1984), Hambrick (1985), Palepu (1985), Barney (1986, 1991), Huff, Reger (1987), Hill, Snell (1988), Hill, Jones (1998, 2004), Baysinger, Hoskisson (1989), Rue, Holland (1989), Fombrun, Shanley (1990), Pearson (1990), Ansoff (1991), Goold (1991), Goold, Luchs (1993), Goold et al (1994), Goold, Campbell (September, October 1998), Alexander, Goold, Collis, Campbell, Lieberthal, Montgomery, Palepu, Prahalad, Stalk, Khanna, Hart, Shulman, Evans (1992, 1995, 1996, 1997, 1998, 1999), Yip (1992, 1998, 2000, 2007), Campbell et al (1995), Johnson, Scholes (1997),

*Johnson, Scholes, Whittington (1998), Johnson, Scholes, Whittington (2002, 2003), McKiernan (1997), Child, Faulkner (1998), Martin (1998-1999, 2004, 2005-2006, 2007a,b, 2008, 2009), Moldoveanu, Martin (2001), Lafley, Martin (2013), Shiryaev (1999), Laffont, Tirole (1999), Grant (2001), Welch (2001a, b), Choo, Bontis (2002), Drejer (2002), Sadler (2003), Gavetti, Levinthal (2004), Gavetti, Rivkin (2007), Roney (2004), Thietart, Xuereb (2005), Godard (2006), Ireland, Hoskisson, Hitt (2006), Hitt, Ireland, Hoskisson (2007), Lorino, Tarondeau (2006), Besanko, Shanley, Dranove (2007), Sull (2007a, b, c, d, 2008), Teece, Winter (2007), Samuels (2008), Chamberlain (2010), Holt, Cameron (2010), Ledenyov D O, Ledenyov V O (2015b, n, o).*

At present time, one of the *most interesting research problems* to understand in the *fundamental strategy theory* is: ***Why do a chairmen of the boards of directors with the interlocking interconnecting directors in the modern firms need to change their approaches to the creation of the most effective optimal winning virtuous organizational strategies in the frames of the fundamental strategy theory, shifting their focus from:***

1. ***The classical philosophical views on the fundamental strategy theory, which consider the continuous-time processes in the analogue economies of the scales and scopes in the analogue disruption century in Chandler (1962, 1998; 1977, 1993; 1994; 2001; 2005); further to***

2. ***The digital philosophical views on the fundamental strategy theory, which deal with the discrete-time processes in the digital creative economies of the scales and scopes in the digital disruption century in Ledenyov D O, Ledenyov V O (2015b); and further to***

3. ***The quantum philosophical views on the fundamental strategy theory, which focus on the discrete-time quantum processes in the quantum creative economies of the scales and scopes in the quantum disruption century in Ledenyov D O, Ledenyov V O (2015b, n, o)?***

The *most significant problem* is that the process of the *strategies creation and execution* by a *chairmen of the boards of directors with the interlocking interconnecting directors* in the *modern organizations* takes place in the *time of constant introduction* of the ***disruptive innovations*** in the *natural/social sciences*, including the *market-creating innovations, sustaining innovations and efficiency innovations*, in the *modern economies of the scales and scopes* on a *global scale* in *Christensen, Raynor, McDonald (December 2015), Christensen, Denning (December 2015), Rodin (2015), Dobbs, Woetzel, Flanders (2015), Barber (2015).*

The ***disruptive innovations, having a considerable impact on the economy of scale and scope, are introduced at the certain moments of time in the time domain sharply, hence the disruptive innovations can be classified as the discrete – time processes.*** In agreement with the

*business administration science*, we think that these *disruptive innovations* may be divided into the two big classes in Ledenyov D O, Ledenyov V O (2015b, n, o):

1. The ***natural sciences disruptive innovations***, which trigger the multiple abrupt changes in the *different industrial processes*, because of introduction of the *new advanced discoveries and technologies* to design/develop the new *products/services* in the *modern economies of the scales and scopes globally*;

2. The ***social sciences disruptive innovations***, which trigger the multiple sharp changes in the *different social processes*, because of introduction of the new advanced *discoveries and technologies* to manage the *social interactions/processes* in the *modern economies of the scales and scopes globally*.

Considering the ***natural/social sciences disruptive innovations***, we would like to explain that the *natural/social sciences disruptive innovations* relate to a group of the *discrete – time processes*. Presently, we can observe that there are the *great transitions* from

1. a ***period of the analog natural/social sciences disruptive innovations***, when the *multiple analog inventions* in the *natural/social sciences* lead to the *analog devices/technologies introduction* and the subsequent *analog leaps realization* by the *modern firms* in the *hi-tech industries* in the *analog creative economies of the scales and scopes*, further to

2. a ***period of the digital natural/social sciences disruptive innovations***, , when the *multiple digital inventions* in the *natural/social sciences* lead to the *digital devices/technologies introduction* and the *digital leaps realization* by the *modern firms* in the *hi-tech industries* in the *digital creative economies of the scales and scopes*, and further to

3. a ***period of the quantum natural/social sciences disruptive innovations***, when the *multiple quantum inventions* in the *natural/social sciences* lead to the *quantum devices/technologies introduction* and the subsequent *quantum leaps realization* by the *modern firms* in the *hi-tech industries* in the *quantum creative economies of the scales and scopes*.

Researching the *quantum strategy synthesis* by the *chairman of the board of directors* at *modern firm* in the *quantum creative economy of scale and scope* in the *quantum disruption century*, we would like to concentrate our attention on the following propositions:

1. We think that, at this *opportunities/challenges transition period*, ***a chairman of the board of directors with the interlocking interconnecting directors must take a personal responsibility for the creation and execution of the quantum strategy - a most effective winning virtuous organizational strategy - toward the optimal business model design/discovery for the prosperous effective organization in the quantum creative economies of the scales and scopes in the quantum disruption century.***

2. We believe that, at this *opportunities/challenges transition period*, **a chairman of the board of directors with the interlocking interconnecting directors must understand that the disruptive quantum innovations may have multiple direct/indirect impacts on an professional ability/capacity by the chairman's of the board of directors with the interlocking interconnecting directors to synthesis the quantum strategy - a most effective winning virtuous organizational strategy - toward the optimal business model design/discovery for the prosperous effective organization in the quantum creative economies of the scales and scopes in the quantum disruption century.**

In this *research article*, we would like to discuss a *process* of the *quantum strategy synthesis* by the *chairmen* of the *boards of directors* with the *interlocking interconnecting directors* at the *modern firm* in the *quantum creative economy of scale and scope* in the *quantum disruption century* comprehensively. More clearly, we would like to focus on the following *key research points* toward the **quantum strategy creation and implementation** in details:

1. The **quantum strategy synthesis, which is an organizational strategy, which can be formulated with the use of the quantum strategy search algorithm (QSCA) in the fundamental strategy theory by the chairman of the board of directors with the interlocking interconnecting directors in the modern firms at the time of quantum disruption;**

2. The **quantum strategy search algorithm, which applies the quantum logic (the probabilistic logic) on the top of the inductive, deductive and abductive logics (the value based logics), aiming to create the most effective optimal winning virtuous organizational strategy by the interlocking interconnecting directors in the board of directors in the modern organization in the quantum creative economy of scale and scope in a quantum information century in Ledenyov D O, Ledenyov V O (2015n).**

We hope that our research will formulate and greatly improve the **quantum strategy theory**, which was proposed for the *first time* in *Ledenyov D O, Ledenyov V O (2015n, o)*, moving the frontiers of the *business administration science* and the *microeconomics science* forward. At the same time, we would like to comment that our *innovative research* on the *strategy creation and implementation* in *Ledenyov D O, Ledenyov V O (2015b, n, o)*, attracted a *considerable scientific interests* among the *academicians* and the *practitioners* at the *leading universities / corporations* in the *World*, namely a statement that the *knowledge is a new currency* by *Faust (2015)* was made, and a new course on the *disruptive strategy* by *Christensen (2015)* for the *senior executives* at *Harvard Universities* in the *USA* was compiled.

In this connection, we think that the *innovations can be disruptive*, because of their *disruptive nature*. At the same time, we believe that it is better to say that **the quantum strategy**

*is a most effective winning virtuous organizational strategy, because of its quantum nature*

However, we think that the term: “the *disruptive strategy*” by Christensen (2015) is not scientific, because any *strategy* must be aimed to create something rather than to disrupt something. In other words, the *disruptive innovations* can cause the *disruptive events* to occur, however the *strategy* must be synthesized to overcome these *objective obstacles* (the *disruptive events*) and increase the *modern firm’s market valuation* and add the *social value* to the *local community*, where the *modern firm* operates. In our opinion, a ***chairman of the board of directors with the interlocking interconnecting directors works to create and execute the quantum strategy - a most effective winning virtuous organizational strategy - toward the optimal business model design/discovery for the prosperous effective organization in the quantum creative economies of the scales and scopes in the quantum disruption century.***

Completing a *short insightful introduction*, let us begin a *more detailed scientific discussion* and present our *original research thoughts* on the *subject of scientific interest* in this *research article*.

### **Quantum strategy synthesis by chairman of board of directors at modern firm in quantum creative economy of scale and scope in quantum disruption century**

We prefer to begin our scientific discussion by stating that the *quantum strategy synthesis* has to be performed by a *chairman* of the *board of directors* at the *modern firm* in the *quantum creative economy of scale and scope* in a *quantum disruption century*.

As we know the ***chairman*** chairs the ***board of directors*** in the *modern firm* at a *certain time moment* could be mathematically represented as a *two dimensions matrix* in Ledenyov D O, Ledenyov V O (2015b, n, o):

$$\mathbf{Chairman}_{c,t} = \left\{ \mathbf{Board\ of\ Directors}_{c,t} = \begin{matrix} \mathbf{d}_{1,1} & \mathbf{d}_{1,2} & \mathbf{d}_{1,j} \\ \mathbf{d}_{2,1} & \mathbf{d}_{2,2} & \mathbf{d}_{2,j} \\ \mathbf{d}_{i,1} & \mathbf{d}_{i,2} & \mathbf{d}_{i,j} \end{matrix} \right\},$$

where  $\mathbf{d}_{i,j}$  is the position of a director’s seat in the matrix.

The ***change of the composition of the board of directors in the modern firm*** over the time could be mathematically described as an integer in Santella, Drago, Polo (November 11 2007), Ledenyov D O, Ledenyov V O (2015b, n, o):

$$\mathbf{Chairman}_{c,t} = \left\{ \mathbf{board}_{c,t} = \mathbf{board}_{c,t-1} + \int_t^{t+1} (\mathbf{en} - \mathbf{ex}) dt \right\}$$

where

$en(t) = \frac{d}{dt} en \cdot t = en$ ,  $en(t)$  is the number of directors entrants at time  $t_i$ ,

$ex(t) = \frac{d}{dt} ex \cdot t = ex$ ,  $ex(t)$  is the number of directors exits at time  $t_i$ ,

$board_{c,t}$  is the board of directors size at time  $t_i$ ,

$c$  is the company,

$i$  is the director.

The **quantum strategy theory** in the **business administration science / the microeconomics science** for the first time has been introduced in Ledenyov D O, Ledenyov V O (2015n), going from the **quantum mechanics science / quantum physics science** in Planck (1900a, b, c, d, 1901, 1903, 1906, 1914, 1915, 1943), Einstein (1905, 1917, 1924, 1935), Einstein, Podolsky, Rosen (1935), Bohr (1922, 1924, 1933), de Broglie L (1924, 1925, 1926, 1927, 1928), Compton (1926), Compton A, Allison S K (1935), Schrödinger (1926, 1935), Schiff (1949), Akhiezer, Berestetsky (1953, 1964, 1980), Berestetsky, Lifshits, Pitaevsky (1980), von Neumann (1955), Dirac (1958), Merzbacher (1961), Feynman, Leighton, Sands (1965), Heisenberg (1967), Petersen (1968), DeWitt (1970), Atkins (1974, 1977, 1978), Landau, Lifshits (1977), Bransden, Joachain (1983), Resnick, Eisberg (1985), Galindo, Pascual (1990, 1991), Shankar (1994), Ballentine (1998), Bransden, Joachain (2000), Liboff (2002), Abers, Pearson (2004), Blokhintsev (2004), Griffiths (2004), Vakarchuk (2004), McMahon (2006), Halliday (2007), Hand, Finch (2008), Teschl (2009), Zettili (2009), Laloe (2012), Papirov (2013), Rylov (2015), hence it cannot be used as a meaningless label in Heracleous (2013) as well as the **probability science** in De Laplace (1812), Bunyakovsky (1846), Chebyshev (1846, 1867, 1891), Markov (1890, 1899, 1900, 1906, 1907, 1908, 1910, 1911, 1912, 1913), Kolmogorov (1938, 1985, 1986), Wiener (1949), Brush (1968, 1977), Shiryayev (1995).

The **Quantum Strategy Search Algorithm** in the **business administration science / the microeconomics science** for the first time has been proposed in Ledenyov D O, Ledenyov V O (2015n): “**The Quantum Strategy Search Algorithm: The Ledenyov theory postulates that the director with the highest information absorption capacity, who experience the phenomenon of resonant - type absorption of information, is able to create the winning virtuous strategies through the decision making process on the available business choices in the diffusion - type financial economic system with the induced nonlinearities, applying the econophysical econometrical analysis techniques in Schumpeter (1906, 1933), Bowley (1924), Box, Jenkins (1970), Grangel, Newbold (1977), Van Horne (1984), Taylor S (1986), Tong (1986, 1990), Judge, Hill, Griffiths, Lee, Lutkepol (1988), Hardle (1990), Grangel, Teräsvirta (1993),**



*Pesaran, Potter (1993), Banerjee, Dolado, Galbraith, Hendry (1993), Hamilton (1994), Karatzas, Shreve (1995), Campbell, Lo, MacKinlay (1997), Rogers, Talay (1997), Hayashi (2000), Durbin, Koopman (2000, 2002, 2012), Ilinski (2001), Greene (2003), Koop (2003), Davidson, MacKinnon (2004), Campbell, Lo, MacKinlay (1996), Vialar, Goergen (2009) and using the creative imperative integrative intelligent conceptual co-lateral adaptive logarithmic thinking process with the application of the quantum logic above the inductive, deductive and abductive logics in Martin (1998-1999, 2005-2006) in the frames of the strategic choice structuring process, that is the winning through the distinctive choices process, in Porter (1979, 1980, 1982a, b, 1983, 1985, 1987a, b, 1991, 1994a, b, 1996a, b, 1997, 2001a, b, 2008, 2013), Porter, Harrigan (1981), Porter, Salter (1982), Montgomery, Porter (1991), Porter, Rivkin (2000), Porter, Sakakibara (2004), Anand, Bradley, Ghemawat, Khanna, Montgomery, Porter, Rivkin, Rukstad, Wells, Yoffie (2005), Porter, Kramer (2006), Hill, Jones (1998, 2004), Martin (1998-1999b, 2004, 2005-2006a, b, 2009), Moldoveanu, Martin (2001), Lafley, Martin (2013), Grant (2001), Choo, Bontis (2002), Drejer (2002), Sadler (2003), Roney (2004), Ireland, Hoskisson, Hitt (2006), Besanko, Shanley, Dranove (2007), Hitt, Ireland, Hoskisson (2007), Gavetti, Rivkin (2007), Teece, Winter (2007), aiming both to get an increased business valuation (a return premium) and to make a positive social impact in the local community and society in the frames of the socially responsible investment (SRI) process that integrates social, environmental, and ethical considerations into the investment decision making in the real sector of economy in Waddock, Graves, (1994), Arora, Gangopadhyay (1995), Sparkes (1998, 2004, 2008), Johnson, Greening (1999), Lydenburg (2002), Cox, Brammer, Millington (2004), Kotler, Lee (2005), Louche, Lydenberg (2006), McWilliams, Siegel, Wright (2006), Scholtens (2006), Cespa, Cestone (2007), Cumming, Johan (2007), Williams (2007), Hull, Rothenberg (2008), Reinhardt, Stavins, Vietor (2008), Renneboog, Horst, Zhang (2008), Arjalies (2010), Crifo, Mottis (2010), Morrell, Clark (2010), Baron, Harjoto, Jo (2011), Crifo, Forget (February, 2012).*

The *inductive logic, deductive logic, abductive logic, quantum logic (the probability logic)* have been described in *Ledenyov D O, Ledenyov V O (2015n)*:

1. **Inductive logic** – the logic of what is operative — reasons from the specific to the general. Induction allows inferring **a** entails **b** from multiple instantiations of **a** and **b** at the same time.
2. **Deductive logic** – the logic of what must be — reasons from the general to the specific. Deduction allows deriving **b** as a consequence of **a**. In other words, deduction is the process of deriving the consequences of what is assumed.

3. **Abductive logic** – the logic of what could possibly be true – reasons through successive approximation. Abduction allows inferring **a** as an explanation of **b**, because of this, abduction allows the precondition **a** to be inferred from the consequence **b**.

4. **Quantum logic (Probability logic)** – the logic of what may occur – reasons through computing of events probabilities distributions. Quantum logic allows **a** and **b** to be realized, depending on **a** and **b** events probabilities distributions equal to square of the Schrödinger's wave function.

The practical realization of the **Quantum Strategy Search Algorithm** has been discussed for the first time in Ledenyov D O, Ledenyov V O (2015n):

1. the interlocking interconnecting director absorbs the information of interest on the particular business events/processes/ecosystems,

2. the interlocking interconnecting director applies the creative imperative integrative intelligent conceptual co-lateral adaptive logarithmic thinking process to analyze the particular business events/processes/ecosystems,

3. the interlocking interconnecting director uses the inductive, deductive and abductive logics (the value based logic, the binary logic) to come to a certain logical conclusion on the desirable corporate strategy of the choice during the strategic choice structuring process in Ledenyov D O, Ledenyov V O (2015b),

4. the interlocking interconnecting director applies the quantum logic (the probability logic) to evaluate the corporate strategy of the choice, with the ultimate purpose to create the quantum strategy or to disregard the corporate strategy of the choice during the strategic choice structuring process, and then

5. the chairman of the board of directors with the interlocking interconnecting directors in the board of directors thinks on a set of the proposed strategies by the directors and creates / implements the quantum strategy in the quantum creative economies of the scales and scopes at the selected time period.

### **Quantum strategy synthesis by Alphabet Inc in quantum creative economy of scale and scope in quantum disruption century**

The *Alphabet Inc* has a governing organizational structure, including a chairman of the board of directors with the interlinking interlocking directors, which can be closely approximated by the above formulas.

The *Alphabet Inc* organization includes the following divisions in Grant (2016):

- “•Google, which would comprise search, advertising, maps, YouTube, and Android;
- Calico, an anti-aging biotech company;
- Sidewalk, a company focused on smart cities;
- Nest, a maker of Internet connected devices for the home;
- Fiber, high speed Internet service in a number of American cities;
- Investment arms such as Google ventures and Google capital;
- Incubator projects, such as Google X, which is developing self-driving cars and delivery drones.”

The *Alphabet Inc corporate strategy* has been comprehensively discussed and analyzed in *Reeves (2015) Rosoff (2015), Waters, Platt (2015), Grant (2016)*. The *Alphabet Inc* has been classified as a *conglomerate*, going from its *organizational structure* in *Reeves (2015) Rosoff (2015), Waters, Platt (2015), Grant (2016)*.

For example, *Reeves (2015)* writes: “Page’s distinction brings to life the idea of strategic ambidexterity: a company’s ability of exploring new practices, products and business models while exploiting existing ones at the same time—a capability which is both remarkably valuable and equally hard in practice. As we write in *Your Strategy Needs a Strategy*, successful companies in today’s diverse and dynamic business environments do exactly that: they select right approach to strategy and execution for each part of the business—and animate the resulting collage of approaches as circumstances change or each businesses evolves.”

In addition, *Reeves (2015)* states that the *Alphabet Inc organizational transformation* makes it possible to realize the *three main things*:

1. “Allows each unit to deploy the right approach to strategy and execution
2. Makes it easier to build the required capabilities in each business.
3. Lowers the hurdles to acquiring and growing companies.”

In this connection, we think that *Reeves (2015)* makes the *misleading mistaken incorrect conclusions* in view of *lack of practical experience of intensive work at the boards of directors* in the *modern firms* presumably. We would like to express a *research opinion* that an ability to select a right approach to the *strategy creation and execution for each line of the business* cannot be considered as a *unique identifier of Alphabet Inc business success*, because *every chairman of the board of directors with the interlinking interlocking directors in the modern firm* has enough *knowledge and human/financial/technical capabilities* to do exactly the same things in other *modern firms*. Moreover, the *organizational transformation into the conglomerate* can add/subtract a *certain value* to/from the *firm’s total market valuation*, depending on many *factors* beyond this *discussion*. In other words, the *organizational transformation into the conglomerate*

does not mean an *automatic increase* of the *modern firm market valuation*, because there are *many examples*, when the *conglomerate companies* went bankrupt in view of various reasons/circumstances.

*In our opinion, the quantum strategy synthesis by Alphabet Inc means that a set of most innovative successful unrelated research and development (R&D) strategies has been created and implemented by a chairman of the board of directors at Alphabet Inc in the quantum creative economy of scale and scope in the quantum disruption century.*

*The quantum strategy synthesis by Alphabet Inc means that a number of new superior products and services have been delivered to the customers due to the fact that a set of most innovative successful unrelated research and development (R&D) strategies has been created and implemented by a chairman of the board of directors at Alphabet Inc in the quantum creative economy of scale and scope in the quantum disruption century.*

The *Alphabet Inc* transformation into some kind of *conglomerate* can be merely considered as the *optimization efforts*, aiming to successfully execute a *set of most innovative successful unrelated R&D strategies*, by a *chairman of the board of directors at Alphabet Inc* in the *quantum creative economy of scale and scope in the quantum disruption century*.

We think that the *quantum strategy synthesis* by a *chairman of the board of directors at Alphabet Inc* in the *quantum creative economy of scale and scope in the quantum disruption century* resulted in a situation, when the *Alphabet Inc* became a *most valuable company* with the *market valuation* of about *US\$533.4 billion* in the *World in La Monica (February 1 2016)*, of about *\$546.50 billion* at the selected time periods in *Ghosh, Mukherjee (February 2 2016)*.

We would like to state that the *chairmen of the boards of directors* with the *interlinking interlocking directors* in the *modern firms* will greatly benefit by creating and by implementing the *quantum strategies*, pursuing the *ultimate goal* to build the *prosperous organizations* in the *digital creative economies of the scales and scopes* at the *time of the disruptive changes and opportunities* by the *globalization*.

## **Conclusion**

We live and make business at the time of great transition from the *digital disruption* to the *quantum disruption*, when the *multiple quantum inventions* in the *natural/social sciences* create all the necessary conditions for the *quantum leaps realization* by the *modern firms* in the *hi-tech industries* in the *quantum creative economies of the scales and scopes* in the *quantum disruption age*.

We think that, at this *opportunities/challenges time period*, a *chairman of the board of directors* must take a *personal responsibility* for the creation and execution of the *quantum strategy* - a *most effective winning virtuous organizational strategy* - toward the *optimal business model design/discovery* for the *prosperous effective organization* in the *quantum creative economies of the scales and scopes* in the *quantum disruption century*.

The *quantum strategy* uses the *quantum strategy search algorithm*, applying the *quantum logic* (the *probabilistic logic*) on the top of the *inductive, deductive and abductive logics* (the *value based logics*) with the purpose to create the *most effective optimal winning virtuous organizational strategy* by the *chairman of the board of directors* with the *interlocking interconnecting directors* in the *modern firms* in the *quantum creative economies of the scales and scopes* in the *quantum disruption time*.

We study the *real-life cases* on the *quantum strategy formulation and execution* by the *chairman of the board of directors* with the *interlocking interconnecting directors* in the *modern firm* such as *Alphabet Inc* in the *quantum creative economies of the scales and scopes* in the *quantum disruption period*.

We express a *great confidence* that the *quantum strategies* will continue to be created and implemented by the *prosperous organizations* with the aim to increase the *modern firms'* *valuations* and outperform the competitors in the *quantum creative economies of the scales and scopes* in the *quantum disruption century*.

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**891.** Ledenyov D O, Ledenyov V O 2015r *MicroITF* operation system and software programs:

**1)** the operation system to control the firm operation by means of the information resources near-real-time processing in the modern firms in the case of the diffusion - type financial economic system with the induced nonlinearities; **2)** the software program to accurately characterize the director's performance by means of a) the filtering of the generated/transmitted/received information by the director into the separate virtual channels, depending on the information content, and b) the measurement of the levels of signals in every virtual channel with the generated/transmitted/received information by the director, in the overlapping interconnecting interlocking directors networks in the boards of directors in the firms during the Quality of Service (QoS) measurements process; and **3)** the software program to create the winning virtuous business strategies by the interlocking interconnecting directors in the boards of directors in the modern firms in the case of the diffusion - type financial economic system with the induced nonlinearities, using the patented recursive artificial intelligence algorithm *ECE James Cook University Townsville Australia, Kharkov Ukraine.*

**892.** Ledenyov D O, Ledenyov V O 2015s *MicroIMF* software program: the *MicroIMF*

software program to make the computer modeling of **1)** the interactions between the information money fields of one cyclic oscillation and the information money fields of other cyclic oscillation(s) in the nonlinear dynamic economic system, **2)** the interactions between the information money fields of cyclic oscillation and the nonlinear dynamic economic system itself, and **3)** the density distributions of the information money fields by different cyclic oscillations (the economic continuous waves) in the nonlinear dynamic economic system *ECE James Cook University Townsville Australia, Kharkov Ukraine.*

**893.** Ledenyov D O, Ledenyov V O 2015t *MicroSA* software program **1)** to perform the

spectrum analysis of the cyclic oscillations of the economic variables in the nonlinear dynamic economic system, including the discrete-time signals and the continuous-time signals; **2)** to make the computer modeling and to forecast the business cycles for **a)** the central banks with the purpose to make the strategic decisions on the monetary policies, financial stability policies, and **b)** the commercial/investment banks with the aim to make the business decisions on the minimum capital allocation, countercyclical capital buffer creation, and capital investments *ECE James Cook University Townsville Australia, Kharkov Ukraine.*

**894.** Ledenyov D O, Ledenyov V O 2015u *DNACode* software program *1)* to model the Digital DNA's complex knowledge base structure for the selected economy of the scale and scope in the case of the G20 nations; *2)* to accurately forecast the generation/propagation of the Ledenyov discrete time digital waves of GIP(t)/GDP(t)/GNP(t)/PPP(t) (the discrete-time digital business cycles of GIP(t)/GDP(t)/GNP(t)/PPP(t) in the G20 economies of the scales and scopes) *ECE James Cook University Townsville Australia, Kharkov Ukraine.*

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