# Can "Rational" Intuition be a VRIO for Competitive Advantage? AStrategicManagement Decision-Making Perspective

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**ABSTRACT:** Intuition has been used as a tool for decision-making by experiencedmanagement executives to solve corporate problems and dilemmas. This paper takes a look at scholarly writing in the field of managerial intuition, and explains it in the context of business and military decisions from the vantage point of recognizable cases. The creative destruction and subsequent blue oceans emerging from "rational" intuition have positive impacts on business and society. It is argued "rational" intuition emerges from experienced, skilled and motivated minds that are knowledge—rich with, schema-construction going on in their brains. As a field of research, however, in the social sciences, intuition has taken a back-seat to other knowledge systems of research inquiry, and is only now gaining recognition as a valuable, rare, inimitable and organizationally embedded (VRIO) for competitive advantage.

**Key words and Phrases**: Rational Intuition, Schemas, Strategic Decision-Making, Competitive Advantage, Creative Destruction, "Blue Ocean."

#### I. INTRODUCTION

Corporate, government, and military leaders are familiar with the use of intuition when confronted by complex situations where there is incomplete and imperfect information, and when time is of the essence, or in which judgements must be made in the absence of immediately observable phenomena. Intuition has been linked to intelligence by Bastick (1982, pg. 77) as "the older and greater part of intelligence.") Other scholars have asserted thatintuition is an evolutionary thoughtprocesses that is distinct from cognitive thinking. This system for rapid decision-making is something that humans and animals share. Because of this it has been seen as inferior to slower cognitive processes. Intuition is seen as intelligence that is rapidly thrust into consciousness from existing internal knowledge deep within data bases in the brain. Scholars have also termed it "skilled memory" (Ericsson and Stazeweski, 1989). Recognizing that the human brain is more powerful than the most sophisticated computer, scholarly articles have their views of it as "rational" (Osbeck and Held, 2014), and as a legitimate "fast thinking" brain power (Kahneman, 2011) process, coming from the patterns and associations of ideas, sometimes known as "schemas" in the reasoning architecture of the brain (Sloman, 1996, Demasio, 1994, Dreyfus and Dreyfus, 1986, Kuhn 1962, and Simon 1987). Chase and Simon (1973) first explained "recognition-primed decisions" or decisions that come from recognition and rapid syntheses of data already stored in neural networks.

Anton Zeilinger, professor of experimental physics at the University of Vienna and the leader of research groups that have made breakthrough discoveries in quantum teleportation and quantum cryptography, stated: "I believe the most important thing is that you should ... above all [trust] your own feeling and your own intuition, and then act accordingly" (Matler, et.al., 2007) When faced with more than one path of research, Zellinger always chooses the more radical one: "Intuition guides me, gives me a feeling about which direction I should continue in." In a crisis situation intuition can be very useful, as noted --"In a real crisis, you simply don't have time to wait for sufficient information to build up a picture and analyze the situation. You need to make the initial decisions quickly, based on your experience-based intuition. As you receive more information, you can analyze your way to adjustments and more decisions" (Bakken, 2013)<sup>2</sup>.

Despite the above writing which provides support from practicing executives about the role of intuitionin organizational management, this topic has only recently received credence in academic journals in the field (Kahneman, 2003; Sinclair and Ashkanasy 2005, Gore and Sadler-Smith, 2011). We are now coming to

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<sup>&</sup>lt;sup>1</sup> Daniel Kahneman (2011) talks about reading social cues in "fast" modalities based on expert knowledge and gives the examples of thinking while skillful driving of a car on an empty road, and the thinking of an experienced leader on a firefighting team.

<sup>&</sup>lt;sup>2</sup>From a participant in a research experiment conducted by Bjorn Bakken in BI Norwegian Business School and the Norwegian Military Academy have tested their skills on the simulated crisis situations. A further 500 participants have solved various kinds of decision-making problems.

appreciate this kind of thinking as valid in situations that call for rapid decision-making under uncertainty (Dane and Pratt, 2007; Bargh and Morsella, 2008). However, as a cross-disciplinary field of research intuition is "a relatively young field of inquiry and still is in a process of conceptual consolidation and cross-disciplinary integration" (Sinclair, 2014, xviii).

#### II. INTUITION IN CORPORATE DECISION-MAKING:

Intuition in managerial decision making is not simply a "gut instinct", guesswork, magical thinking, or idle speculation (Coates, 2019). While to the unobservant intuition may seem to appear in instantaneous "flashes," such responses to problem-solving and decision-making only successfully arise from the brains of individuals who have deep familiarity with a given phenomenon. Klein, notes that: "...intuition is not the opposite of rationality, nor is it a random process of guessing. Rather it is based on extensive experience both in analysis, problem-solving, and implementation, and to the extent that the lessons of experience are logical and well-founded, then so is intuition (ibid, 2003, pg. 290). We seemindfulness in play in the through the behavior of experienced physicians in emergency rooms when rapid-response is critical. Such behavior is often displayed by Wall Street traders in fast-moving capital markets, and even deployed by the intuitive minds of chess grandmasters. These people "unconsciously infer" (Berne, 1949), or seem to" know for sure, without knowing for certain" (Agor, 1986)<sup>3</sup>.

An example of the use of intuition from deep-rooted familiarity with a phenomenonrelates to Henry Ford's design of a new kind of car suitable for the mass market. From where did this idea emerge? Ford may have been mulling over car sales, which were slow in the beginning, when in a flash of inspiration, the vision of the Ford Model Tcame to his mind. This inexpensive car, suitable for the mass market, would differentiate Ford Motors, from the cars of the day which appealed to the novelty, higher-end buyer. The new model was designed for reliability, ease ofmaintenance, and cheaper to repair. In 1908, the Model T cost half the price of the competition and captured the aspirations and dreams of the middle, and working-classes in America.

In another situation, a banking innovation emerged from the rational intuitive mind of Vernon Hill, creator of the retail banking model he adapted to banking in hisCommerce Bancorp of Cherry Hill, New Jersey. Hill's flash of intuition grew from acute observations of operations in Ray Kroc's model for McDonald's—i.e.,standardization of service, and scale economics. When in 1973, the model was introduced, Vernon Hill took the unpreceded step of calling his branches, "stores" to further emphasize their retail-type footprint. Then Hill invested heavily in his "stores" in customer convenience and satisfaction (before such things as bank rates) and a warm welcoming atmosphere from banking staff. Conveniences included extended banking hours for seven days a week. This customer-oriented philosophy brought in happy depositors, and mass customer appeal. The intangible resources of the firm—its staffing and other policies—showed that value, rarity, inimitability and organizational embeddedness of a well-known foundational (later introduced by Jay Barney as the VRIO model in 1991), was true, and worth initiating in the internal environment for subsequent competitive advantage. The VRIO was maintained through careful recruitment, training, and motivation with intrinsic and extrinsic employee award incentives. With this and other novel blue ocean strategies, by 2007, corporate growth showed 470 stores with revenues of \$1.93 billion. One can imagine Vernon Hill pondering the question "how can I incorporate the advantages of a retail business into a banking organization?

In 1984, a new entertainment phenomenon took audiences by storm in the live circus world of show business and recreation. Called, Cirque du Soleil (Circus of the Sun) this innovative venture gave lifeblood to the entertainment industry, particularly to the anemic circus industry which was then in decline. Guy Laliberte's vision came from his experience of street acrobatics and story-telling through dance and music. It was a leap of faith for him to take street-level performances to big tent venues, but the idea flashed into his mind from accumulated networks of expert experience and knowledge in his brain on the changing wants and desires of consumers of entertainment. Lie Vernon Hill's Commerce Bancorp, Cirque du Soleil, cleverly focused on leveraging its intangible internal resources and capabilities—by developing heavy star power of individual human artistes, again a VRIO (Barney, 1991) highlighting the skills of jugglers, magicians, dancers, fire breathers, and musicians. Its extravagant costumes and properties reflected the international flavor of customers now well-acquainted with world-class show business, and were in themselves fanciful and

<sup>&</sup>lt;sup>3</sup>Professor of experimental physics at the University of Vienna and the leader of research groups that have made breakthrough discoveries in quantum teleportation and quantum cryptography.

<sup>&</sup>lt;sup>4</sup>"Focus" is one of the three generic strategies observed by Porter (1980) that includes cost-leadership, and differentiation. Focus is a targeted market—such as a high-end buyer, which Ford's competitors were pursuing. <sup>5</sup>.By 1909 the cost dropped to \$609, by 1924, the Model T had dropped in cost to \$240—well within the reach of the mass market. In his advertisement for his car Ford launched the slogan "Watch the Ford Go By, High Priced Quality in a Low Priced Car."

<sup>&</sup>lt;sup>6</sup> In 2007 the bank was sold to Toronto Dominion Banknorth for \$8.5B,

attractive. The business expanded the circus market from juvenile appeal, to include adult customers, who appreciated the skill of performers and the whimsical and spectacular choreography, thereby sustaining a competitive advantage, that has lasted. The platform also reduced operational costs by eliminating expensive animal acts, which were often dangerous to performers and customers alike. One can imagine Laliberte mulling over the central strategic question, "how to take the excitement of street performances, bundle them together, and put them under one roof—like a circus--only more animated and modern?" The intuition that came one day (seemingly of the blue—but in reality from his pre-existing was the world-recognized Cirque du Soleil!

Pre-existing knowledge and experience were triggers for intuitive innovation in the above cases. This model is shown in Graphic 1.1., below:

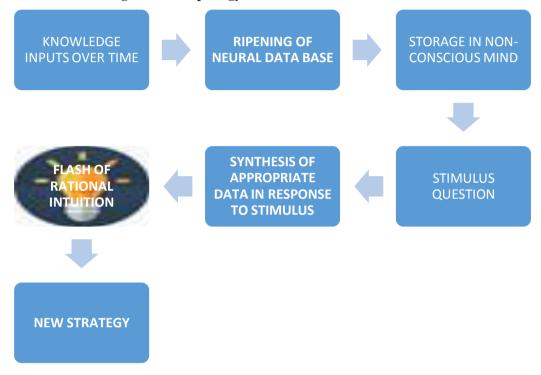


Figure 1.1:Morphology of a"Rational" Intuition Event

Source: Coates, B.E. 2019

Across the ages, intuition wasused as a tool for explaining unobservable phenomena by highly-trained individuals in science, philosophy, and medicine across the ages. Intuition has been seen as a fount of original knowledge by ancient and contemporary analytic philosophers as evidence(Chalmers, 2014; Cappelan, 2012). However, it must be mentioned that intuition has always been part of the scientific toolbox for creating indirectly-inferred theoretical concepts. Many intuited models of reality existed for hundreds of years before they were proven. When Einstein put forth his theory of general relativity in 1915, we were introduced to the concept of black holes in the universe—derived from his postulate that matter and gravitational force causes space-time to ripple and warp. As scientific tools help us to see more clearly we can explain smaller, and denser realities, with ease and specificity. Nevertheless, it was verified by many mathematically, and sometimes falsified by what Karl Popper called "common sense" knowledge (Popper, 1972). unobservables" in this way by so called "common sense" is customary in the history of science (Godfrey and Hill, 1995) More than a century later, in early April 2019, did the unseen become observable, when a global span of a network of telescopes, called the "Event Horizon Telescope," zoomed in on the galaxy, M87, thatits supermassive black hole was exposed to human eyes (Grossman &Conver, 2019). Thus we see that hard sciences often begin with inspirations from intuition and then data are collected and experiments are designed around the intuited conceptsand eventually what was unobservable is exposed (Coates, 2019).

<sup>&</sup>lt;sup>7</sup> "The scanning microscope opened up a whole new world of formerly unobservable phenomena to the 'view' of scientists...Accordingly the realistic should try to develop new instruments..." (Godfrey and Hill, 1995, pg. 531).

# Can "Rational" Intuition be a VRIO for Competitive Advantage? A Strategic Management...

The above is also true for the social and behavioral sciences, including managerial fields, where business innovations come from leadership flashes of inspiration. Scholarly thinking has suggested that since intuition is about "seeing" and "recognizing" it is useful for spotting faint clues from the environment and identifying patterns in those dim signals. Scholarly writing indicates that the more familiar the leader is with his organizational dynamics, the better he/she is able to distinguish between muffled signals, and irrelevant noise; and the better that leader is capable of such data as a threat to the organization in critical incident situations (Dane and Pratt, 2007;Agor, 1986; Brockmann and Anthony, 2002; Dörfler and Ackermann, 2012). Igor Ansoff (1975), also wrote about faint indicators that arise in the minds of strategic leaders, he called them "weak signals". These faint signals are intuition about formation of destabilizers in the organizational environment. Trained minds can access such faint pointers. Ansoff asserted that managerial minds can decipher these soft signs and prepare for strategic surprises (Combs, 2007) that could easily grow into destabilization of the firm (Nikander, 2002).

Such "muffled" and "dim signals" prompted a new form of banking that arose in the intuitive mind of Professor Mohammad Yunus while travelling with his students through the poor rural regions of Bangladesh. He observed the lives of the rural poor. These people while being poor were highly imaginative and creative. For the lack of capital to fund their handmade products, they remained port. Yunus, however, saw the great potential of these people to make sustainable livelihoods, through hand crafts. Traditional banking institutions would not lend them the necessary capital to fund these ventures, as they were not "credit worthy." Thus they remained poor. As he walked through the poverty stricken countryside, Yunus pondered the question over and over in his mind: "how can poor people get small loans to create entrepreneurial ventures that will lift them out of poverty?

One day Yunus' mind made an intuitive leap from traditional banking to a new model of lending-microfinance. He would create associations of people, and they would collectively decide which of the projects envisioned by the participants in the associations were viable for small loans. Yunus himself would stand as guarantor for these very small loans. A grant from the Ford Foundation serendipitously turned Yunus' intuitive vision to wider reality. The rest of the Grameen Bank's microfinancing model is history<sup>10</sup>. The women of this experiment grew self-sufficient and their experiences led to others wanting to use the Grameen paradigm. Yunus model was imitated in64 countries around the world, including a World Bank initiative to finance Grameen-type schemes. This was a blue ocean strategyin lending to the poorest of the poor—known now as the broad swath of people who fall on the "bottom of the [economic] pyramid." (Prahalad, 2006). Again, this flash of intuition did not arise from guesswork, but from the educated mind of the economics professor, Mohammad Yunus, and from is knowledge-rich data bank of rural observations.

Dim intuitive signals are often seen in military operations especially in uncertain and ambiguous environments--where information is scarce. In the highly technical military force of today, the tactical commander's intuition cannot be replicated with the use of artificial intelligence alone (Reinwald, 1997). .Lt. Gen. (Retd.) F.S. Lodi, Pakistan Army,recounted one such intuitive from a military perspective in a lecture at the Command and Staff College at Quetta in Balochistan (Saini, n/d). In 1971 India and Pakistan were at war, at which time Lodi was the infantry brigade commandant on the war front in Lahore, Pakistan. During the war he was commanding an infantry brigade on the Lahore front and had taken territory of about 20 square miles of Indian Territory, including populated communities. The enemy--the Indian Army—had used its 14 RAJPUT Regiment, an infantry regiment launched an assault with tanks under the cover of darkness. They recaptured an Indian village under China Bedi Chand.It was a situation of chaos that happens often, as explained by the well-known "fog of war" dynamic. Various reports were proffered to the Pakistan Brigade Command. The Balochi commandant reported that his whole company had been destroyed. Another commander corroborated this, saying that the Indian Army

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<sup>&</sup>lt;sup>8</sup> In the natural sciences we have seen intuition as a considerable evidence of intuitive decision-making, where intuition is seen as a preconscious process (Dane and Pratt, 2007; Cowan, 2008; Bargh*et al.*, 2008). This concept is asserted by Llinás (2009) as an action of unconscious "self" which based on prior experience and knowledge can work without conscious awareness. controlled by what he terms 'the self', which can plan based on previous experience and can work without self-awareness.

<sup>&</sup>lt;sup>9</sup>Intuition from early warning systems appear in theliterature about natural calamities in defense, and weather systems (Abon *et al.*, 2012; Assilzadeh and Gao, 2010; Collins and Kapucu, 2008; Davis and Izadkhah, 2008.

<sup>&</sup>lt;sup>10</sup>As of 2017, the GrameenBank (*The Village Bank*) had about 2,600 branches and nine million borrowers, with a repayment rate of 99.6%. Women made up 97% of the borrowers. The Bank has been active in 97% of the villages of Bangladesh.Its success has inspired similar projects in more than 64 countries around the world, including a World Bank initiative to finance Grameen-type schemes

<sup>&</sup>lt;sup>11</sup>This term was used by Claus von Clausewitzin his posthumously published book, *VomKriege*(1832), which appeared in English translation in 1873 under the title *On War*:

was "pouring in across his left flank". However, the Brigade Commander, had an intuition that this did not sound right. He believed that only a village had been lost and that the situation was not so dire. The Commandant believed that a counter attack could be launched. He studied the map for a few minutes doing a quick mental appreciation of the process of counter-attacking, and decided to do so. He believed that he could be victorious in this effort as he already had two rifle companies and a squadron of Sherman tanks in the general vicinity of that Indian village. His intuition paid off. His troops recaptured the village, along with 34 Indian prisoners of war. Later he found out, much to his surprise that his Balochi company had suffered few losses, and had pulled back, and the enemy soldiers "pouring in" was an unfounded report, due to uncertainty and confusion in the Fog of War.

. Another complex decision riddle was resolved in the intuitive mind of Ingvar Kamprad, creator of IKEA—the Swedish home furnishings company. Kamprad wrestled with the problem of creating sophisticated furniture at affordable cost to the mass market of consumers. This seemed to be an intractable problem with two ideas in tension—high style, and low cost. Could these two opposing forces come together? A believer in thrift himself<sup>12</sup>, Kamprad kept analyzing the issue over and over again. Suddenly one day the idea came to him in an intuitive blaze—why not move the assembly line from the factory floor into the homes of average costconscious consumers, who would be willing to do some of the assembly themselves, with minimal household tools, in return for a lower-priced but elegant piece of furniture? In his mind's response Kamprad found a way, and in doing so had discovered an unconventional model for the traditional manufacturing factory-based assembly line. Kamprad's intuition led to the idea of moving the factory floor into the homes of customers, who could do the assembly themselves. This novel idea was one that subsequently inspired thousands home "do-ityourselfers" around the world. It also spawned the growth of another industry (ubiquitous today) the expansion of the traditional hardware store, which now serves handymen and women. Kamprad believed that his elegant designs could be shipped in flat packages to IKEA retail stores. Another cost-savings idea was to move the original urbanIKEA stores to the suburbs, where building rental costs were lower, and larger parking lots could be made available. To encourage customers to go shopping at IKEA, Kamprad had the idea of selling them inexpensive roof racks for their cars. Thanks to this simple policy, the company's product turnover doubled in one year. This bundleof revolutionary inspirations grew the IKEA business from Sweden to other Scandinavian countries and thereafter to Europe, and finally to the rest of the world.

The landscape of strategy is full of many models of innovation, coming from inspiration. Joseph Schumpeter's "creative destruction" concept(1942)<sup>13</sup> and the related concept of the "blue ocean strategy" (Kim and Mauborgne, 2014)<sup>14</sup>. Another such creative destruction idea from the mind of Howard Schultz, who would morph the conventional coffee shop, into the much more versatile "coffee bar.". Schultz' singular intuition was that Americans needed social gathering places for the expression of ideas that ideally could be designed around the selling and drinking of coffee. The germ of that idea grew with his travels, particularly when he came across coffee bars in Milan. His bars would serve coffee and provide space and furniture for social interaction. Schultz found a small coffee shop in Seattle known as "Starbucks" thathe thought would be ideal territorial strategy in which to house his coffee-bar experiment. Gradually, his ideas expanded into providing not only an eclectic variety of coffee brews, but also whole coffee beans, as well as ground coffee. He continued to expand the offerings with teas, spices, snacks, CDs, frothy juice concoctions, and reading material. Starbucks took off from 11 stores to more than 28,000 across the globe, and now provides WiFi. It has become the hang-out for customers who like their coffee with Internet's many virtual social offerings as well as face-to-face meetings.

In the field of management, one of the earliest observations of intuition as being "indispensable" in decision-making in the "executive arts" was put forth by Chester Barnard (1938, pg. 291). Robson, M. & Miller, P. (2006, pgs. 43-61) posited the belief that "elite decision-makers" use intuition in corporations to come to conclusions in complex decision puzzles. In his *Journal of the Academy of Management* article in 1987, the Nobel Laureate Herbert Simon, spoke about the role of intuition in managerial decisions in complex puzzles. Weturn to this process of strategic change next.

## III. BASIC TENETS OF INTUITION IN STRATEGIC CHANGE:

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<sup>&</sup>lt;sup>12</sup> Even with his enormous success with IKEA, Kamprad's thrifty ways prevailed. Ingvar Kamprad was known to fly economy class and to stay in cheap hotels. He drove an ageing Volvo.

<sup>&</sup>lt;sup>13</sup>Creative destruction is a concept developed by Marxist economist, Joseph Schumpeter, which is a process through which something new brings about the demise or strategic change of some existing entity, of whatever existed before it.

<sup>&</sup>lt;sup>14</sup>Blue ocean strategy is based on the idea that winners in the competitive race for market share between companies, the "winning" a firm will create a new, un-contested market space that makes competitors irrelevant and that creates new consumer value often while decreasing costs.

We now learn that intuition comes from bundled knowledge systems of a phenomena that are stored in the non-conscious data banks of inquiring minds. The ability to access this knowledge comes about in a socalled "flash" in minds that are mindful, contemplative, and calm (Dane, 2011) Intuition is broadly connected with delta activity in the brain, such as the slow brain waves that occur just before sleeping and just after waking. The information is already there in the brain and strategic leaders will access it in a slow, but focused mind, often in the twilights and dawns of waking and sleeping. Consider, Nintendo's Sigeru Miyamoto's intuition for the creation of the hit Wii industry. His intuition changed the game for the gaming industry <sup>15</sup>in 2006, when Nintendo's failing market share raised this sort of a question for him—"how to create a new market of non-hardcore gamers who are not participating in gaming?" Miyamoto's subsequent creation of Wii resulted in a"blue ocean" when he made the intuitive leap of seeking gaming customers. He listened and looked at a new market for a sizeable population of non-gamers, where previously only hardcore players had played. Where previously non-gamers had trouble pushing an array of buttons in play and still keeping control, Miyamoto created a "controller," as part of the kit for Wii, which made it easy for non-gamers to play. This feature allowed less-avid gamers to participate with only hand, wrist, and arm movements—over which they already had control. Miyamoto created a blue-ocean and a smash hit for himself. As a result of the successful launch of the Wii, he was named as one of the most influential 100 in Time Magazine's 2007 edition. Later, Miyamoto lent his capabilities tothe invention of "Super Mario Galaxy" for the Wii, and the exercise game "Wii Fit"—both smash hits.

Table: 1.1. VRIO ofBlue Ocean Cases:

NAMES& ORGANIZATIONS	SECTOR	$CA_t$	$\mathbf{V}$	R	$\mathbf{I}_{t}$	O	BO
Henry Ford, Ford Motors, Inc.	private	X	X	X	X	X	X
Vernon Hill, Commerce Bank, Inc.	private	X	X	X	X	X	X
Guy Laliberte, Cirque du Soleil	private	X	X	X	X	X	X
Mohammad Yunus, Grameen Bank	Non-profit	X	X	X	X	X	X
F.S. Lodi, General, Pakistan Army	public	X	X	X	X	X	X
Ingvar Kamprad, IKEA	private	X	X	X	X	X	X
Sigeru Miyamoto, Nintendo	private	X	X	X	X	X	X

#### **TABLE KEY:**

CA<sub>t</sub>= COMPETITIVE ADVANTAGE (temporary)

V = VALUE R = RARITY

 $I_t = INIMITABILITY (temporary)$ 

O = ORGANIZATIONALLY-EMBEDDED

BO =BLUE OCEAN

#### IV. CONCLUSIONS

We can now draw the following general postulates from this study of the literature and case studies of intuition in research and praxis:

- Intuition is has its genesis in the brain's reasoning architecture of expert thinkers (such as organizational management) who need to solve a given problematic situation.
- Greater thought upon a given problem adds to the knowledge bank, and sifts the data into bundles of schemas which live in the non-conscious mind.
- These intuitions flash onto the conscious mind from bundled schemas, already present in the nonconscious mind.
- When the intuition is implemented, it frequently creates "blue oceans" of differentiation that creatively destroys familiar patterns of organizational planning and action.
- A barrier to entry—either temporary or permanent--allows a focal firm to succeed against rivals.

The question posed in the title, "Can Rational Intuition be a VRIO for Competitive Advantage? has been true in the cases and scholarly writings shown in the attached exploratory study. We see that creative management professionals are more than ever using intuition in the past-paced, 21<sup>st</sup> century, active and intentional skill for making decisions, which in turn may draw from tacit knowledge sources (Sternberg et al.,

<sup>15</sup> Miyamoto's previous hits included "Donkey Kong," the Mario series and "The Legend of Zelda."

2000). Organizations can encourage the development of this skill from experiential practice through cataloging incidences when these have occurred. This will add to the existing data bank on intuition as a tool for competitive advantage, embedded as it is in the internal environment (VRIO) of the corporation.

Finally, we can recall some memorable words attributed to Albert Einstein; "The intuitive mind is a sacred gift and the rational mind is a faithful servant." Einstein is purported to have stated that we honor the servant over the intuitive mind. (Samples, 1976, pg. 62) **Today**, we are beginning to see that a critical thinker gains from the use of both forms of mental activity. Consciousness of this precept, is changing the nature of how research is being managed.

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