Chapter 1: In Search of Innate Leadership

Discovering, Evaluating and Understanding Innateness.

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Declaration

We hereby certify that this master’s thesis was written by our own. Furthermore, we confirm the proper indication of all used sources.

Kalmar, 15th of May 2014

Erica Morra

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Abstract

Every individual is born with different natural competencies that can be honed by both voluntary and involuntary environmental stimuli. The response our genotype decides to make, if any, towards those stimuli, determines how well our competencies develop. Each person’s coding and variations of genes will result in unique qualities in their phenotype, or physical structure. As a result, a person has various traits that are displayed through their behavior. DNA is genetically shown to express itself through traits by up to 75%. This leaves a sort of buffer of around 25%. This region is available for us to adapt to our environmental stimuli. Your innate qualities will not reach their full potential without stimulation from the environment, in a leadership case, with education and training and therefore it can be argued that environmental exposure is necessary to fully expose the potentials and capabilities of an individual, rather than instill a new skill or develop a talent that was not existent before. Innate leadership is not a permanent state, on the contrary, it is a continuously adaptive situation demanding contextual evolutionary changes or resignation from the subject occupying the role. When the needs and demands of a society or era outweigh the relevance of the innate leaders' traits and competencies, an evolution of leadership is needed to maintain a positive relationship between all parties involved. As a result, the innate leader will begin to lose their innateness in their role and unless they evolve and adapt (because the two actions are not the same) to new contextual needs, their tenure as leader will begin to be detrimental and counter-functional. What we want to put forward is a real, universal and constructive understanding of what makes a human happy, motivated and productive and how an innate person in context is a much better solution in the short and long run, for those around them when put to a task.
Keywords

genetic inheritability, gene expression, genetic determination, gene mutation, case study, innatism, traits, leadership, behaviour, brain development, brain function, neural pathway, neural coding, SNP variation, connectomics, genomics, heritability, leadership theory, DNA, competencies, environment, education, behavioural psychology, genetics, trait theory, nature vs nurture, dopamine, neurotransmitters, polygenic traits, Google, Hitler, personality, innate leadership, Morra, Zenker
Introduction

Talent exists in every person. Every talent has it best uses across many fields of study and is harnessed and trained to maximise a person's potential to be the best they can be for the good of themselves but more importantly, for the good of their societies. With the inevitable exponential increase in the world population, good leaders will be needed, possibly more than ever before. Specific talents and skills are incredibly important in leadership, on all levels. As with every field, we believe there exist innate talents for leadership that make people innate leaders in society. The leaders of tomorrow will be in charge of keeping the peace, keeping the pace and keeping the people of every society in coordination. Technology has brought us new post-modern era demands. Among those demands are needs that require a better understanding of innate abilities, a new way of harnessing those to provide solutions to future demands and a new way of value the results of their use.

There is no such thing as an innate leader, everyone can be a leader and you can learn anything you want, in order to reach your goals. We feel that none of these statements are inherently true. Innate Leaders are people born with the collective talent to lead. Raw talent must be disciplined and the innate leader must seek training and education and experience to move forward into action. Everyone can learn how to lead, but not everyone can become a leader. We will define the difference between the two points and raise arguments in support and against the concept, potentially arriving at clear and solid conclusions from our research. You can learn many things to reach your goals, but you may not be able to learn them well enough to perform at the level of the goal you intend. You can be taught how to be a leader, but in order to put it into practice you must have internal attributes that allow you to be effective in applying the knowledge. We will define the difference between how to do and actually doing what you’ve been shown to do.

Research into what controls our behavior and more importantly, what makes us who we are in personality and physical appearance, has made huge progress over the last two years. In this paper, we present some of the latest findings that support the existence of innate leadership. Defining innate leadership is the same as defining the fixed stability of one cubic meter of air, you cannot. It is ever changing and adaptive which serves its purpose in an ever changing world.

We found it important to acknowledge, without stating what leadership traits are or should be, that the context in which a person seeking leadership finds themselves, will determine if their inborn traits are desired or not. This means that a person with strong traits in self-confidence, extroversion and authenticity may not necessarily be the leader needed in context in one region of the world, however, in another region they would be considered an innate leader because their traits are valued in that context by those people. It will suffice to say that innate leaders are essentially anyone who carries the inborn traits in demand by followers in a particular context. This also implies that there is an expiry date to the need for those innate traits and therefore, we would like to state that innate leadership is an adaptive process with a life cycle of its own for each individual, determined by those who seek or need a leader.

We provide in-depth research from a concrete molecular level to an open ended, wide reaching sociological scope of thought and experience. As such, our paper is not easily read in some sections and we urge the reader to take the time to find a comfortable place of calm to enjoy the information we are about to share to the fullest extent. It is very important to note that illustrations in this paper are equally, if not more important than the text preceding or following them, because they serve to replace what would be complex and difficult to read
passages by using colourful and hopefully, easy to grasp explanations. Throughout the paper
the reader may also encounter information that ends with questions. These questions are
answered through paragraphs and illustrations, so we ask the reader to give us space to
explain, as we travel through the researched material in a fashion that allows a close to full
understanding of innate traits and innate leadership.

Our findings and arguments are developed in a pyramid fashion from a micro to a macro level
throughout the paper. The finer molecular details are introduced at the start of the paper,
eventually developing a wider scope through the thesis and culminating in macro-socio
questions and case studies as shown on the next page:

This paper is open-ended, meaning it leaves the conclusion and potential execution of
proposals up to the readers’ discretion and maintains that further research will confirm further
concepts that pop-up during discussions on innateness. We write this paper with the
confidence that the reader will be provided with the fullest detail presented, within our
capacity, and hope that you, the reader, may receive this information knowing we only intend
to broadcast our findings for your consideration.

Due to the complex nature of the subjects defined and explained in this paper, we have chosen
to alternate between the first person and second person narrative, thus allowing for a changing
style of explanation as a means of dialoguing and directly conversing through the paper, with
you, the reader.

Own Illustration
Methodology

Research questions we have asked and discussed throughout this paper include:

- Do inborn traits exist in a person making them unique?
- Do traits determine a personality and behavior?
- Is there such a thing as an innate leader?
- What is the value of innate leadership and its contribution to society when maximised in its potential?
- Do innate leaders exist and what makes them different from not-innate leaders?
- Do non-innate leaders experience greater degrees of difficulty and failure when it comes to representing a vision, organisation or country and why?
- Do people naturally, therefore, tend to the subjects they are genetically optimised for?
- What implications do innate studies and innate leadership have in everyday life?
- How can we locate them and harness their talent to be of greater use the world, in order to solve current issues?

We investigate innate leadership through the subjects of epigenetics, behavioural genetics, molecular biology, biochemistry, neuroscience, behavioural psychology, genomics, connectomics, psychiatry, sociology and history. Using genetic analysis we have come to discover the existence of inborn traits, their determination of behaviour and how they can be influenced through environmental factors. The fields of psychology will help us to identify the causes and reasons of behaviour that would lead to certain patterns and structures in leader’s motivations of being and acting as a leader in different contexts by explaining the structure of the brain, its development, its function and how it can be influenced throughout a leader’s lifespan. History as well as current existing literature and theories about leadership compared with new findings and solutions provide answers to the question of which value innate leaders might have in consideration of human interactions in different situations, circumstances and driven by different aims.

Regarding Genetics and Psychology, the research was conducted using lab reports, science journal publications and national scientific databases. Through reading the different journals we noticed that well-known, supposedly reputable sources were in fact not peer reviewed and therefore could not be treated as solid and credible for our research. This surprised us because we took it for granted that well known individuals who give interviews in prominent publications and give lectures around the United States and Europe, are in fact only philosophising on rational deduction. Since we are determined to argue on a scientific and factual basis, using consolidated knowledge by tying together splinters of information to form a tree of new knowledge that we can use to grow a new forest with new potential uses, we very carefully checked and cross-checked that all sources of information were peer reviewed or produced by first parties in the relevant research field. This approach of literature research continued throughout the whole paper.

We intend to provide the reader with a complete picture of how humans are built and how this construction works naturally with all its environmental stimuli and changes throughout life. By doing so, we hope to answer questions to support future researchers in using the presented biological based reasons to explain leadership and its outcomes for society. We try to address fears concerning this topic and seek to discuss them with scientific argumentation. We aim to challenge current perspectives of innatism that influence the way people approach and analyse data in this field of study, relying heavily on past research (Arnbor & Bjerke, 2009).
As researchers it is important to follow a certain methodology in order to clarify the big picture and not lose the reader in the huge amount of literature and data. After presenting detailed information, we always seek to take "observations, intuitions, and understandings to a conceptual level and provide the guidelines for the discovery" (Strauss A.L & Corbin J.M 1997, p. 182). By using the analytical view, first while collecting both primary data of twin studies, brain imagings and genetic scans, as well as secondary data like study reviews, study consolidations and literature reviews, we want to show the fact-based reality which is independent of the individual perception and assumptions in order to create a foundation on which we can build on our argument. With the combination of the system view and analytical view, we are then able to connect the researched data with our experiences and observations, as well as interpretations, to form a bridge to philosophical matters (Arbnor & Bjerke, 2009). This method allows us to compare “data with data, data with concept, concept with concept, and theoretical category with theoretical category” (Charmaz 2002, p. 6397).

<table>
<thead>
<tr>
<th>Theoretical level</th>
<th>Concepts of innate vs. nurtured leadership</th>
<th>Genetic framework</th>
<th>Psychology framework</th>
<th>Inn nurture Concept</th>
<th>New Theory of Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical pattern</td>
<td>Noticing of similar traits and skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empirical level</td>
<td>Observation of innate leaders</td>
<td>Analyzing of behaviour</td>
<td>Break down of observations to basics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Own Illustration

Starting with observation of innate leaders in a certain situation, which are intended to provoke our attention and interest, we follow our gut feeling and interpretation of their behaviour and action, raised the hypothesis about the existence of innate and continued in future contexts to look out for further details and evidence to backup our gut feelings. There turned out to be patterns combined with certain specific skills and traits that were consistent in all observed cases. This was the reason to go into the topic in the first place. We looked into the term of innate leadership and natural born leaders, and recognized a huge research group leading a discussion about nature versus nurture. We recognized a certain fear in these research areas to speak out freely and thus contradict the dominant paradigm. Furthermore, a restriction in genetic research by law in certain countries increased our motivation even more to find solid results in this area of study. While looking into the researched data with increasing depth, we realized through cross-checking and following the references they used that statements and conclusions were drawn without fundamental evidence or even solid empirical research as mentioned above. These events forced us to go back to the empirical...
level and look closer into our environment and our findings. The specific analysis of the situational context of each case made us think about the common effects. We broke those situations down layer by layer and came to the building blocks of everything in nature and biology itself. Through a new pair of methodology glasses that made us see the world in a different colour, precisely in the colours of scientists in different fields in genetics, we continued with an analytical view on our data that made us focusing on a scientific and factual basis.

During our research in the genetic area and major findings that could support our empirical observations and therefore our argumentation of innateness, we realized that the current developed framework might not be enough to close the circle for a solid re-evaluation and to present a fundamental contribution to the field of leadership. That is why we decided to combine our analytical view with the system view to connect different areas of research. Psychology and neuroscience cannot be understood without the fields of genetics. In order to conceptualize our work, we developed the concept of innurture in order to consolidate our argumentation and apply innateness to leadership. We present different case studies to explain the value of recognizing innateness in history and present leadership. All three sections influence each other and cannot be seen as summative (Arnbør & Bjerke, 2009). The last piece of puzzle to close the circle made us address the used the framework of current research to compare them with our new solutions in order to re-evaluate their utility for future demands of society, which brought our research on another level of empirical observation. After all this back and forth in research, we are now able to evaluate them on a scientific level that cannot be ignored, misinterpreted or rejected, and thus contribute to potential future needs.
I Genetics

We start on a molecular level where the root of what makes us is exposed in varying levels of detail. The most important point we would like to stress, in the following section of genetics and psychology, is that a lot of this information is very recent and therefore, any arguments for and against innate traits and innate leadership, were until recently, mostly speculative. That time of speculation is now over with the advent of scientific developments and advancements. Now that we have more answers, we search for new solutions to complicated problems. To begin effective problem-solving, we need to understand as much as we can, in as great a detail as we can, and therefore, without any further delay, we begin genetics below.

Deoxyribose Nucleic Acid or DNA is formed by chains of nucleotides Adenine (A), Cytosine (C), Guanine (G) and Thymine (T) in a fixed order. The genetic language or code that the chain of nucleotides spells is called a genotype. A genotype can only be viewed with molecular biology equipment. The physical expression of this genotype that you can see or experience, is called a phenotype. The phenotype that becomes your physical characteristics is coded and managed directly from your DNA, and the phenotype you cannot see but you can experience, for example your personality, is managed by your brain. Sections of your DNA are called Genes. Genes contain genetic code that is either active or inactive. The active sections are translated to build molecular structures. The instructions that make every person unique that are found in genes are called alleles. Alleles are single nucleotides that pair together, specifically Adenine with Thymine and Guanine with Cytosine. The parts of DNA that carry unique allelic variations of a trait and pair to make a unique set that only you carry, are called Single Nucleotide Polymorphisms or SNP’s. In order of smallest structure to main composite: allele in an SNP, in a gene, in DNA. Our DNA strand is extremely long and therefore, nature has coiled it tightly into what is known as a chromosome (Russel, 2001).

Illustrations A + B connect the different genetic parts we have mentioned graphically below:

ILLUSTRATION A

http://2010g09r3bdnawiki.wikispaces.com/file/view/r22_chromosome.jpg/223654302/352x264/r22_chromosome.jpg

Nucleotides pair in a fixed sequence. A pair where the sequence is different and unique is called an SNP.
All humans share 99.9% of their DNA. The 0.1% difference is due to the existence of SNP’s. In order for a trait in your genotype to be seen in your phenotype, it must be expressed. All humans have the same SNP’s, however not every SNP is expressed. When the SNP is expressed, the unique allelic variation contained within it is expressed as well. Approximately 12 million SNP’s have their own allelic variations, therefore making every individual unique with millions of possible pairings leading to millions of variation possibilities (Sandman, Pereira & Reeve, 1998).

Illustration C graphically represents this genetic dynamic below:

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**ILLUSTRATION C**

An allelic variation in an SNP will be unique to a person. The SNP in this case, for example, codes for the trait of empathy. If this SNP is expressed, the traits will be different for each person in varying degrees.

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http://www.cancer.gov/cancertopics/understandingcancer/geneticbackground/AllPages
You inherit your SNP’s from your parents, however, SNP’s experience their own mutations throughout human development, making you unique from your parents, as well. As we have mentioned, the nucleotides A, T, G and C pair along the DNA strand. This chain of nucleotides passes through mRNA or messenger RNA and is read like a sentence of instructions (Thanbichler, Wang & Shapiro, 2005). The code is translated to determine what molecular bonds are formed on an atomic level and in what specific order these bonds must form, thus building proteins that are ready to transform into different cells and then tissues and then organs and bones and veins and chemical receptors. Each person’s coding and variations will result in unique qualities in their phenotype, or physical structure, meaning that genetics is translated and seen on a cellular level.

Illustration D shows how your DNA code is translated into, in this case, a dopamine receptor (one of many) in your brain which affects social behavior, memory and motivation depending on how it is built and interacts on a molecular level.

**ILLUSTRATION D1, D2, D3 & D4**

**D1**

http://ghr.nlm.nih.gov/chromosome/10

The DRD2 gene is one of the genes affecting your social behaviour, memory and motivation.

The DRD2 gene is located on the long (q) arm of chromosome 11 at position 23. More precisely, the DRD2 gene is located from base pair 113,409,594 to base pair 113,475,684 on chromosome 11.

**D2**

On a molecular level, the nucleotides are being read by RNA and translated and transcribed with instructions. The instructions build molecules one by one with peptide bonds between atoms. Below you can see this on a cellular level.

http://www.genome.gov/Images/EdKit/bio2c_large.gif
Your inherited set of SNP’s and their mutations influence each other on molecular levels, sometimes working together and sometimes working against each other in variations of ways that are still trying to be understood in the field of genetics. As a result, a person has various traits that are displayed through their behavior (Griffiths, P 2009). Various polygenetic or multiple SNP interactions are understood, and we can now determine the outcome of the expression of several genes and SNP’s in a human. This means we can actually see the genes making each person who they are, actively.
Illustration E shows a sample list of known Gene/SNP trait expressions below:

**ILLUSTRATION E**

<table>
<thead>
<tr>
<th>GENE/SNP</th>
<th>EXPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAO-A</td>
<td>Aggressiveness, Anti-Sociality, Impulsiveness</td>
</tr>
<tr>
<td>Rs53576</td>
<td>Empathy, Independence</td>
</tr>
<tr>
<td>Rs594242.</td>
<td>Self-Directedness, Novelty Seeking</td>
</tr>
<tr>
<td>DRD4-7R</td>
<td>Political Ideology, Extraversion</td>
</tr>
<tr>
<td>HGVST1214</td>
<td>Intelligence</td>
</tr>
<tr>
<td>HGVST1359</td>
<td>Gambling/ Risk-Taking</td>
</tr>
<tr>
<td>CHRNB3/Rs4950</td>
<td>Taking Charge/Responsibility</td>
</tr>
</tbody>
</table>


Genetic research is mainly funded in order to discover the causes of diseases and inherited disorders such as autism, schizophrenia, psychopathy, cancer and many others. Geneticists scan samples of saliva or blood that are smeared on special computer chips. These chips are then inserted into machines that can scan the samples for up to 1 million SNP’s and translate the genetic material as far down as the nucleotide sequences. When geneticists do this, they are also able to see the chain of translation of the DNA up to the actual construction of cells and tissue that eventually form and maintain a living human (The ENCODE Project Consortium, 2007, Spector, 2012).

As a result of being able to scan millions of SNP’s per person, several large databases of SNP’s were created, one being called the HapMap project (HapMap, n.d.). These databases are intensely analysed and traced for behavioural traits by scientists in the field of genomics. Genomics is essentially about mining the databases of genetic knowledge to understand genetic mechanisms and polygenetic interactions that result in physical or behavioural characteristics in humans. Simple physical traits like height and eye colour are now understood and there have been significant discoveries in recent years about complex social behaviours and how they are formed (Wolf et al., 2013, National Human Genome Research Institute, 2014).

We have understood from research that variation causes unique changes in our phenotype, however, what exactly determines which variation strength takes place in the first instance? In order to answer this question we must look at promoters regions of DNA that determine the transcription of a gene (Genome Browser Gateway 2009, Gottesman & Gould 2003). These regions reside upstream from the segment of DNA to be transcribed or decoded and will affect the variation strength in phenotypic expression and therefore how strongly your traits are expressed. All the regions in DNA that are expressed, have been stimulated by an environmental catalyst, like a genetic crucible moment.
The code that is the sequence of nucleotides on the copied DNA strand contains unique SNP variations, but promoters control the variation degree itself as shown in Illustration F and how the variations themselves can be viewed and measured in Illustration G below:

**ILLUSTRATION F**

"Different allelic forms of the cis- and trans-acting variants have different influence on gene expression. In this example, individuals with the G variant of the cis regulator have a higher expression level of the target gene than individuals with the C variant of the regulator. Similarly, individuals with the A variant of the trans regulator have a higher expression level of the target gene than those with the T variant of the regulator." (Cheung & Spielman, 2009)

http://www.nature.com/nrg/journal/v10/n9/fig_tab/nrg2630_F2.html
We are aware that many of our readers are content to read through the scientific explanations of our references for detailed answers to precisely understand how gene expression works and other readers are eager to know more right away and furthermore, some are content with skipping the details altogether. As such, if you are not interested in knowing the very deep details on how gene expression actually works in adapting to environmental stimuli, please skip to page 15. If you are interested in knowing more, we have compiled as digestible and accurate as possible a consolidation of explanations, without teaching you genetics entirely!

Illustrations H through J follow below:

ILLUSTRATION H

This is the only part shown when talking about DNA on a basic level. In reality, this DNA helix is actually bundled with sophistication and within this sophistication is the answer to how genes are expressed.

DNA is wrapped around bead-like structures called histones and a chain of beads holding DNA is called chromatin. Chromatin can be manipulated by twisting it 80° such that the DNA helix is broken into two strands. (Explained in Illustration J.)

Chromatin is bundled into tight coils making condensed chromatin that itself coils into a chromosome structure. Chromosomes float in a liquid filled nucleus that holds all DNA content. This DNA content is ready to react to stimuli from the environment when the cell containing it influences changes around its membrane from, for example, neurotransmitters.

This entire process happens everytime a reaction to our environment is demanded. eg: Attending Davis World Summit.


Example of environmental stimuli causing DNA to react, affecting behaviour:

1. A leader attends a conference to give a speech.

2. Nervousness and stress cause various hormones to be secreted to regulate blood pressure and emotions.

3. The hormones cause an imbalance in cells around different parts of the body but only some "care" because they are part of the functional reaction to regulate. eg: Cells in adrenal glands for adrenalin control.

4. The imbalance causes changes in chemical charge of proteins which invokes a reaction by the nucleus of the cell. This reaction is explained in detail in illustration G below.
The stress at a conference leads to a leader's DNA reacting by doing as follows in illustration I below:

**ILLUSTRATION I**

Transcription Factors (TF) are proteins that control if a strand of DNA is activated or repressed. (A) shows a chromatin strand that is tightly coiled, blocking proteins from reading the genotype coding, which includes SNP variation coding.

A protein called CRC is in charge of attaching to a histone and twisting it so that the DNA wrapped around it is exposed. (B) When DNA is exposed, it opens to expression and copying to build cells as a response to a stimulus.

The colourful pieces are different proteins that power the bigger piece to turn the histone.

In (C) the DNA sections or gene regions are exposed, ready to be copied and then later decoded to express whatever genetic content is in that section.

(D) shows how the TF's together attach and twist the DNA 80º, breaking bonds between the base pairs causing two strands to form. Illustration H shows how this works in detail.

This process is exactly how a gene is determined to be expressed.

The TATA box, TBP, TAP and TFIID are proteins that co-interact to snap the Helix in two so that RNA can join one strand to begin Transcription i.e.; copying genetic code. This code could be an SNP that codes for cell building in your brain, for coping with stress or creation of more blood cells to help oxygenation to regulate blood pressure and keep the leader calm. A strong variation will mean this happens to a greater degree either in speed or quality or number of cells to build, resulting in a stronger phenotypic reaction, possibly resulting in the leader dealing with the situation well.

Hartl, Jones, Genetics: Analysis of Genes and Genomes. 6th Ed., Chap.11 (2005) Figure 11.27
http://web.nchu.edu.tw/~jhliu/images/RSC_C11F27.jpg
Illustration J

In this detailed manner, yet as briefly and basically as possible, you can see how our DNA or genotype codes for everything about us as a result of an environmental stimulus (Cheung & Spielman, 2009, Bu & Callaway, 2011, Phillips, 2008, Hoppes, n.d., Sesardic, 2005, European Society of Cardiology, 2014, Freudenrich, 2007). Multiply this process from illustration H through J by millions and that collective action is what makes a personality and in our argument, an innate leader. How does personality affect behaviour and does it all come from our traits?

Behavioural genetics has experienced vast expansion and popularity since 2012, mainly because of the genomic databases developing in the fields of behavioural SNP analysis. In order for us to analyse innate traits and more specifically, leadership traits, we would need to define which traits would be considered necessary, desired or advantageous to a person who seeks or naturally attains a leadership position in society. In the 21st century, it is arguably widely accepted that traits such as above average intelligence, extroversion, self-confidence, reliability and empathy could be considered positive assets in a leader’s personality. As such, we have looked at these traits when researching genetics, to relate our concept of innate leadership through inborn characteristics. Phenotypes can be more or less resistant to the environment, depending on the amount and strength of a variation in an SNP. If an allele is expressed 100%, this would result in a phenotype that is dominant to a trait that has been expressed only 50%, for example (Beaulieu & Gainetdinov, 2011). Different variations from different SNP’s will interact polygenetically to influence what traits stand out or not. The resistiveness of a genotype and therefore a phenotype, to its environment, is called evolutionary robustness (Stelling et al., 2004). This particular genetic concept is important to
innate leadership, because depending on a leader’s traits, they will be more or less influenced by their environment, which may be of interest to those around them, whether supporters or opponents. Do those with less resistant genotypes, who seek leadership, experience greater degrees of difficulty and failure when it comes to representing a vision, organisation or country? Illustration K graphically represents this concept below:

**ILLUSTRATION K**

Throughout life, social, political, educational and various other forms of environmental stimuli will cause reactions in a person’s genetics. When genetic material is exposed to different kinds of stress from either internal or external factors, it will undergo a mutation. A mutation changes the nucleotide sequence in genetic material, whether it is along the DNA chain or within an SNP, such that a single nucleotide change will lead to a noticeable phenotypic change (Burrus & Waldor, 2004). The phenotypic change could be in the form of a disease or health issue, or it could also be in the form of a behavioural change. Our research is interested in behavioural changes because leadership is also a social science and therefore, dependent on behavioural modifications. Evolutionary robustness is important, but how significant is it with regards to mutations? Can a leader with a less resistant genotype adapt better to their environment?
Illustration L and M demonstrates the importance of evolutionary robustness with mutation below:

**ILLUSTRATION L**

Of the Genotype expression possibilities...

Red = 100% expression. Pink = 50% expression.

**ILLUSTRATION M**

Our mutated leaders...

Both are exposed the same business environment. Eg: Expo 2015.

Pink’s phenotype takes on significant influence.

Red is less influenced phenotypically.

Pink’s more flexible genotype takes on significant influence internally.

Red’s reacts by adding the experience while being less influenced phenotypically.
Well-known internal mutagens are stress, depression and anxiety. External mutagens vary from chemical product inhalation to air pollution and passive smoking. DNA is copied within the nucleus of every cell, however, mutagens cause stress in the copying process and instead of the sequence AGCCT being copied, for example, AGCTT is mistakenly transcribed (Phillips, 2008). This will lead to a different decoding which will end up clashing with other processes potentially causing illness or with relevance to leadership, behavioural changes in the individual. It would be the equivalent to leaning on a photocopy machine, thereby increase the likelihood of an error in copying. Do people of a less resistant genotype, genetically decide not to pursue leadership as a survival strategy? Perhaps the DNA calculates the best use of its phenotypic existence to guarantee the best chances of being passed on and surviving? Do people naturally, therefore, tend to the subjects they are genetically optimised for?

Our research has thus found that the environment stimulates a reaction from our DNA through a mechanism called cell signaling (Bu & Callaway, 2011), as if the two were having a conversation. DNA is genetically shown to express itself through traits by up to 75%. This leaves a sort of buffer of around 25% we like to call the Buffer Adaptive Capacity (BAC). This region is available for us to adapt to our environmental stimuli. In essence, you are not absorbing something new from your environment that seemingly appears to lead to a change in your behavior, in fact, what is happening is that your DNA is being stimulated by the environment and responding within its means to create an optimum survival situation. There is great debate between the notions of nature versus nurture and that anyone can become a leader through the right education. Research suggests that neither is entirely correct, what is more accurate would be an argument for innurture. That is to say, your innate qualities will not reach their full potential without stimulation from the environment, in a leadership case, with education and training and therefore it can be argued that environmental exposure is necessary to fully expose the potentials and capabilities of an individual, rather than instill a new skill or develop a talent that was not existent before. What is not there, essentially and arguably cannot be developed. Research supports this point in twin studies where twins who have been separated experience a congruence or eventual similarity of choices in careers and fields of study (Genetic Science Learning Centre, 2014). In order to delve into how a person’s traits, in this case leadership traits, are psychologically affected by their environment and how their leadership is expressed behaviourally, we enter the field of psychology.
II Psychology

Through our psychology research we have come to realise two very important points that have been confirmed with the latest genetics research represented previously: firstly, that genes do not influence us like some satellite affecting our physical and psychological facets, instead they are us and code for 100% of who we are and what we become as a result of reactions to stimuli from our environment. Secondly, our genotype, starting from embryonic development, has a BAC that gives us a natural adaptive scope to develop within and into our environments. In summary, we have explained how we adapt by reacting to stimuli from the environment whereby our existing genotypic capacities are developed as a response, to create or in some cases suppress genotype expression and therefore phenotypic expression, in order to build a phenotype that is compatible with its environment with the final purpose of optimized survival of a genome.

Genes are also, unsurprisingly, responsible for shaping and developing our brain by building the volume of gray matter and the functional circuits it contains (Wright et al., 2007). There are two different layers of the brain, the outer layer and the inner layer that can be seen in illustration N below:

**ILLUSTRATION N**

[Diagram of the brain with labels]

- **The Motor cortex** contains circuits to control movement.
- **The Sensory cortex** deals with sensations.
- **The Parietal lobe** deals with perception, sense making, arithmetic and spelling.
- **The Occipital lobe** manages vision.
- **The Temporal lobe** manages memory, understanding and language.
- **The Brain stem** deals with instincts and basic emotions.
- **The black circle** represents the Limbic system.
- **Our Frontal lobe** manages executive functions, thinking, planning, organizing, problem solving, emotional and behavioural control and personality.
- **Our Amygdala** manages emotional conditioning, recognition of emotional signals, basic functions.

http://eweb.furman.edu/~einstein/general/neurodemo/100A.gif
Regions of the brain have different functions and most importantly, different heritability. In the cortex, which is the outer brain, there are different regions organized by genes. The overall genetic creation of brain volume is up to 85%, leaving a BAC scope of approximately 15% (Posthuma et al., 2002) and the right frontal and temporal areas are genetically determined by up to 75% and 70% respectively, with the additive genetic effects on phenotypic variation (Camelli et al., 2002). This research has also shown a lower initial genetic influence on the right occipital and parietal areas, which are only 40% and 56% respectively, which leaves them open to more genetic environmental adaptation through a greater BAC scope. Furthermore, research has shown that there is a connection between higher cognitive abilities through genetic material that connects how learned behaviour is developed on a neural level (Thompson et al., 2001).

The inner brain consists of the limbic system and the brain stem which have been influenced throughout evolution and contain the basic instincts, routines and emotions like seeking, rage, fear, lust, etc. (Davisa & Panksepp, 2001) The amygdala is responsible for emotional conditioning and the recognition of emotional signals, for example, sense making and temperament. These signals influence our behaviour and cannot be influenced easily by the environment or education (Lohmann, van Cramon & Steinmetz, 1999). Functions in the amygdala are mostly unconsciousness reactions and habits (Rock & Schwartz, 2006).

Genes can be expressed at different times throughout life, when they are required in phenotypic adaptation with mutations and are also responsible for coordinating how much regions in the brain should react to environmental stimuli or how many neuronal connections should be produced in neural networks that make the gray matter of our brain (which is genetically determined) (Hart, 2008, Fan et al., 2003, Diamond et al., 2004, Mattay & Goldberg, 2004, Taki et al., 2012). Neural networks are made up of neurons that transfer electric impulses along Axons. The number of electrical impulses sent through a neuron is determined by the strength of the initial stimulus, with a direct relationship meaning that a higher number of impulses means a stronger stimulus will be interpreted. What determines the interpretation of the strength of the impulse or signals are neurotransmitters (Koch, n.d.). Neurotransmitters are single amino acid molecules that are created and momentarily consumed by receptors. Various important neurotransmitters are Dopamine, Serotonin and Adrenalin among others that affect behavior and ultimately personality (Young, 2007, Beaulieu & Gainetdinov, 2011). As a quick reminder, genes have coded for all chemicals, receptors, neurons and brain tissues, in their size, quality and quantity, as well as their responsiveness and durability or resistance to mutation.
Illustration O explains how neurons work and how behavioural changes are determined by our neural networks, that have in turn, been determined by our genotypes.

**ILLUSTRATION O**

- **Neurotransmitters** are produced, to be transferred to the next neuron over a synapse.
- **Myelin** is the isolative substance around an axon which also increases the speed of information transmission.
- **Axon** Regions of the brain that are stimulated often or with greater impulse frequency develop thicker Axons that allow the neuron to work faster and more efficiently in transferring impulses through neural networks.
- **Dendrites** are the tips of the neuron “head” that will connect to axion connections of the “feet” of another neuron to form a chain along which impulses pass. Neurons connect in circuits stimulating transfers between them using neurotransmitters.
- **Neurotransmitters cross a synapse.**
- This could be Dopamine.
- Depending on the variation expressed in the genotype, receptiveness to neurotransmitters will affect personality differently.

http://jordan-tesch.wikispaces.com/Chapter+four

There are already pre-existing embryonic connections we are born with, that are the foundations for the later development of neural networks (Chédotal & Richards, 2010, Sowell et al., 2004). A human is born with approximately 100 billion neurons (Williams & Herrup, 1988) and this amount does not alter throughout a lifetime, however, the number of connections between them increases with stimulation. The genetically determined synaptical development peaks between three to four years of age but declines again by one third over a human lifespan, due the brain becoming more efficient in the usage and need of the neural circuitry (Zero to Three, n.d.). Just as you may cut a flower, so that more stronger stems grow, the brain will make the initial circuitry work more efficiently by developing regions more and shrinking others as compensation (Shonkoff & Phillips, 2000). This helps on the one hand to establish stronger connections that are used often as well as new connections. Brain development is reactive to stimuli from experiences that are responded to by our genes pushing development of more neurons if required and this is called neuroplasticity (Pascual-Leone et al., 2011). This results in phenotypic adaptations in neural pathways and synapses.
causing changes in behavior by environment and neural influences throughout life. In order for us to develop our inborn skills to full capacity, noting that we are born with up to 75% of our capacity expressed, we need to seek out environmental stimuli to activate further development. The environment therefore does not “influence” us, it simply causes a reaction of existing potential to grow and develop when demanded. The meaning of influence is the capacity to have an effect on the character, development, or behavior of someone or something, or the effect itself. So instead of saying the environment does not influence us, in fact we argue that it stimulates our genetic material and \textit{that} is what changes our personality as a response, depending on our genotypic robustness. It is completely different saying the environment has a direct influence on us instead of, the environment provokes a reaction from our genes and \textit{they} directly influence us, which we argue, is the case.

On a molecular level, stimuli from the five senses evoke reactions in genes that affect behavior by causing the release of various chemical transmitters that activate different neural networks. At this point in our research, all the way from genotype nucleotides to the existence of SNP’s making us unique, to our phenotype being a translation of our genotype, to our non-visual phenotype being represented by the brain, we have come to understand precisely how our genes react on a neural and cellular level with their own signature from unique SNP’s. The process by which neurons join to form a circuitry that is regarded as a memory is called neural coding (Thorpe, Delorme & VanRullen, 2001). Neural coding refers to the map from stimulus to response of the brain, caused by a reaction from our genes to the environment. Using electron micrographing, neural coding studies are able to see which neurons an electrical impulse passes through as a reaction to an environmental stimulus. This means we can see which parts of the brain activate when exposed to certain stimuli, by using fluorescent dyes to identify which neurons are connected in a circuit. This is the basis for understanding which parts of our brain react and develop to the environment and quite precisely, where and how they develop new neural networks. This also means, very importantly, that we can physically see brain development occurring as a reaction to different environmental stimuli. We are able to learn associations between particular developments in the brain regions and differences in developments between individuals by measuring the reactions of genes that are causing this development to take place, eventually affecting behaviour and personality.

Combined with neural coding, it is possible to measure reactions in genes by isolating them and verifying their associations to phenotypic characteristics by manipulating their structures and expressive variations through genetic testing. Although most focus and funding for research in genetic testing is for medical purposes, many behavioural and therefore personality associations have come to light because researchers had to understand the effects, associations and correlations between polygenetic influences on or by personality and diseases.

It is through the research of behavioural genetics, genomics, connectomics, neuroanatomy and psychology that we have now been able to show scientifically, that our genes determine all our capacities and potential, however, without environmental stimulation as, for example in education, we will not develop to our full capacity or potential. This once again points to our argument that what is not within your genetic scope of capability, cannot be put there or developed, however, what is possible will only develop to full potential via an environmental stimulus. How do neurons connect into circuits in the brain and where do these circuits go to connect to each other, making a seamless behaviour response express itself? Just as the Human Genome Project seeks to map our entire DNA, so does the newly funded Human Connectome Project. A connectome is a brain map showing the neural pathways in our brains, explaining the chain of neurons our "thoughts" pass through to understand, analyse and react
to the world around us through our genes (Wedeen et al., 2008). Using the latest techniques to map our neural circuitry, scientists have used a technicolour approach by lighting up the brain with fluorescent proteins, each reacting differently to dyes, giving themselves a coloured hue to differentiate the different neural circuits. As a result, we can now not only see the environmental stimuli stimulating chain reactions in our brain, but we can associate them with developments in the brain and genetic stimulation reactions. Illustration P + Q below consolidates this research in the most comprehensive manner possible:

**ILLUSTRATION P**

This brain map could show a leader’s problem solving when faced with a business challenge.

A 3D connectome Map shows how different neural circuits connect to process impulses that are activated through the five senses. Different regions have greater connectivity, represented by large orbs. Larger orbs in different regions would phenotypically express themselves as greater aptitude or competency in a task. This, in turn, can be interpreted as talent or innate trait depending on the accepted definitions of both.


After fluorescent proteins make their way around the brain, the resulting image achieved through fMRI scanning, shows scientists exactly which neurons are connected to their respective areas. We therefore can trace behavioural reactions through neural stimulation to environmental stimuli. An example would be the experience of socialisation in a group, where electrodes would allow scientists to see which parts of the brain react to exhibit social responses like extroversion, empathy and many others. Once the region and neural network is located, development can be studied in connection with neural coding results to find out which genes are associated with behavioural reactions. This is a very new field so a few more years in the future will see huge improvements in our exact understanding of the relationship between environmental stimulation to genetic expression as a reaction and therefore innate trait expression. Illustration Q shows a Brainbow of the cerebellum neural pathways where the same coloured neurons are connected to the same circuitry and this is important because it shows us exactly where traits are expressed on a behavioural level.
DNA is powered by electrical charges and thus anything made from or by DNA is powered by electrical charges. The different atoms and ions on a molecular level are positively or negatively charged, causing bonds to form and break throughout the body. The charge alteration also activates or silences reactions from taking place, from nucleotide bonds to neural connections. What determines whether a gene is open for transcription and translation has been explained previously in Illustrations H and I, however what we have not explained yet is how the gene expression is behaviourally determined in its extent and therefore, its degree of strength. The process of a cell charge being changed and thereby activating different reactions, stemming from genetic transcription, is called Phosphorylation (Tsui, Inagaki & Schulman, 2006, Korzus, 2010). The brain is the capital city of nerve impulses, built on genetic code and reactive genetically to environmental stimuli. Changes in the charges of atoms and chemicals on a molecular level cause different kinds of developments in neural networks, again determined genetically (Paramino, 1999). Illustration R explains this in as simple as possible a way, to show how our genes physically make us different, and therefore, how our personalities are forged through these molecular interactions:
(1) Surface Receptors pick up a variance in electric charge between the inside and outside of the cell membrane. When this occurs a chain reaction begins, like a selective domino effect depending on which charge and which protein is affected.

(2) Using energy in the form of ATP, the altered charges of ions cause proteins to connect to histones and twist DNA exposing genes that are related to the protein domino chain reaction as we saw in Illustration G.

(3) This causes a genetic code to be read and transcribed to make chemicals to be converted to other chemicals that will build proteins to join with other proteins to form a substance the body can use in the reaction to the original stimulus that caused a changed in the surface receptors.

(4) In this particular case, we have adenosine that is phosphorylated or activated/charged. This will stimulate production of particular proteins and they in turn react against the particular stimulus.

Important: The environmental stimuli provoke a response from the genes, and it is the genes that determine a reaction via the expressable DNA code and SNP variations in the genotype.

(5) The proteins are released from the cell to cause further chain reactions throughout the body, for example in muscle tissue that will invoke a certain behavioural change, as a result. In this case a neural reaction will take place, invoking the development of an associated neural region in the brain to manage this reaction. If the genes contained a strong SNP variation, the reaction would cause a more significant behavioural reaction. (This is where behavioural issues can occur because the proteins cannot reach their destination due to damage or chemical inhibitions.)

The genetic reactions to stimuli are what make every person unique, with their SNP code being unique, they develop differently (Bouchard, 2004). Illustration S below explains how the brain acts as DNA's ambassador by reactive genetic determination, seen below:

**ILLUSTRATION S**

Person A has SNP A, H and Z expressed in their genotype.

Person B has SNP O, K and M expressed in their genotype.

Both people are exposed to Stimulus X, for example, a Harvard class lecture. Their genetic make-up will cause different reactions in brain development as a result. See below.

Person A develops greater analytical skill.

Person B develops greater creativity.

http://eweb.furman.edu/~einstein/general/neurodemo/100A.gif

We have mentioned the scientific foundational innate processes from which a personality is formed but how is it maintained or managed?
III Leading Innately

In order to understand traits, personality and eventually leading innately we rely on the amazing phenomena of neural coding, mentioned briefly in the psychology section. Neural coding is a system of coded orders of impulse transmission through neural networks. Neurons are biologically numbered or tagged by way of their circuitry development such that we can actually see a circuitry's activation followed by a phenotypic observation. For example, neurons 54, 344 and 878 connect in a circuit and when an impulse passes through these three neurons, the feeling of happiness is experienced. Consequently, when one feels happy, that neural circuit will be seen to have impulses pass through it. In this way, billions of neural connections form different circuits. The determination of whether an impulse goes left from neuron 56 to 124 to experience fear, for example, or right from neuron 56 to 566 to experience laughter, is determined by neural coding which is developed by causal interaction. That is to say, when one of the senses picks up a stimulus, the set of nerves carrying the impulse, cause the impulse to have a certain frequency. This frequency then continues into a section of the brain that reads that frequency and processes it through a neural network, activating a feedback mechanism that, for example, releases hormones to cause a behavioural reaction to the stimulus. Different nerves have different frequency signatures which are filtered by different neural coding circuits in the brain, resulting in different changes in phenotype (Korzus, 2010, Tsui, Inagaki & Schulman, 2006, Bourchard, 2004, Taki et al., 2012, Monchi, 2001). This is how traits are expressed through personality and what is the basis of a person's temperament.

Please remember that we are born with an inherited set of circuitry that is expressed by up to 75% with the remaining possibilities of development resting on matching environmental stimuli with expressive parts of our DNA. This means that environmental stimuli through, for example, social interactions, may or may not unlock genetic expression depending on the reactivity which will result in a person developing or not developing a relationship within their social interactions and therefore, whether or not that person ends up being successful or not in their goals. This applies to leadership, as with any field, and is an important implication in the attainment of a leadership position through merit and therefore, innately. "You can only go as far as your natural competency. Once it has been reached, you must change track and maximise another one in order to move forward." (Morra, 2010 pers. comm. April 29th)

Every individual is born with different natural competencies that can be honed by both voluntary and involuntary environmental stimuli. The response our genotype decides to make, if any, towards those stimuli, determines how well our competencies develop.
Illustration T shows how innurture is a new perspective from current nature vs. nurture arguments:

**ILLUSTRATION T**

*CURRENT THEORY*

There is a linear relationship with the Nature vs. Nurture debate.

*OUR RESEARCH SHOWS*

Our research shows that instead of a linear relationship, in fact, the determinant of who you are is genetic from birth, however who or what you can be is determined by the matching of environmental stimuli to your genetic reactivity.

The grey genes are inactive and will never be expressed. The coloured genes have been stimulated to different extents and act polygenetically to determine how well developed inborn traits are based on their collective stimulation and developmental reactivity.

Own Illustration
The first dimension in the relationship between our genetics and the environment is contextually causal. There is a base amount of expression at birth and environmental stimuli are reacted to by the genes resulting in development of potential. Only relevant, matching environmental stimuli will unlock potential, being the second dimension of the relationship between our genes and the environment. A third dimension that affects the reactivity potential is the existence of mutations that will either suppress or promote genetic expression and the fourth dimension of this relationship is if damage occurs to the brain, our genetics will not be clearly represented due to the interferences of the damage in our neural networks, possibly infringing the development of our abilities. All these four parts must be taken into consideration when thinking about the concept of innurturing.

As we are born into society, we are also born into influences that put demands on us through different agencies of socialisation. An agency of socialisation is a social context within which significant processes of socialisation occur as, for example, in a family, peer group, school, mass media or at the workplace (Giddens, 1989). Within these spheres of influence we are exposed to various environmental stimuli, affecting our physical growth and mental development.

When something is innate in a person, it means their capacity to perform actions that require this innate quality is easily developed and the person loves to perform actions that stem from innate abilities. When we try something for a long period of time and with great effort and experience limited progress, or our interest wanes and our passion can fizzle out, this will indicate a subject or task that is not supported by any innate capacities we have in our genetics. In the latter case, some people automatically switch to subjects that are more interesting, in a quest to find what they are good at and like as a job or function or hobby, and other people can have an ideology that is instilled in them by different agencies of socialisation, leading them to insist on succeeding in the task, subject or position they do not have any innate affinity for. When this non-innate motivation propels a person to succeed in a non-innate environment, negative repercussions can and do happen; of what kind and how, is an important question. This applies to leadership attainment as well. Leadership attainment, as we see it, can be broken down into three situations:

a) A person is best suited to a leader role because they carry the best innate ability for the task but they are not socially accepted by the group they must lead.

b) A person is socially accepted to be the leader of the group but is not best suited innately to the role.

c) A person is both best innately suited and socially accepted to be the leader of the group.

Situation a) and c), as we see it, contain innate leadership and situation b) does not. The research presented in this paper until now, has shown the foundations of science in innate existence and therefore innate leadership being the ability to lead innately by merit and not through coercive, forceful means. A person experiences associative learning when exposed to environmental stimuli that match with genetic potential, thereby unlocking and developing themselves progressively. Different environmental stimuli would be part of a myriad of experiences that could have the potential to activate genes, as in culture, social interactions, crucible moments and so on. What makes an innate leader is the combination of well chosen matching environmental stimuli to ones genetic potential and applying development in the
right area to achieve situation c) mentioned above. A leader who is supported into their role by means of social propaganda alone, we would not define as an innate leader.

How could we know which innate traits would be needed for a role of leadership, in order to find the best suited candidate for the job? The first step would be to acquire a DNA analysis of the candidates, as ordinarily as a CV is asked for when recruiting. Although a shocking, previously laughable proposal, our new research has shown this method to be an answer to problems we never had answers for before. Blood tests are not required to analyse a person's DNA, samples from hair, nails or saliva for example, would suffice as non-invasive. Technology has been developed to instantly scan a person's sample and produce a report, so to speak. Using this report, with a curriculum vitae attached like a portfolio, recruiters would then be able to match a leader's biography with their inborn potential, to choose interviewees best suited to the job. Prior to analysing the portfolio, recruiters would do what they do now, which is defining the abilities needed to perform the task successfully. Portfolios that match these descriptions best are set aside as first interviewees. This process is already performed without DNA analysis, however, the ability to match actual potential would allow companies new opportunity of avoiding hit and miss investments in leaders. From the perspective of the potential leader, prior to applying, their portfolio would allow them to seek close matches in job searches instead of applying to endless numbers of jobs, only to be turned away constantly, not knowing which direction to go in exactness and compatibility.

One could ask, if genetics determines us 100% through our developmental reactive response to certain matching stimuli, then does that mean in a fatalistic way, that we have no need to concentrate on choosing our paths and need only a saliva swab to know what goals we are meant for? The answer is most definitely no. Just as the potential is unlocked only if the person is exposed to relevant environmental stimuli, so too do genetic diseases and flaws in genetic make-up remain dormant. The power to determine the outcome lies in the knowledge of what is there in the first place, allowing people and leaders to support inborn talent and take actions to avoid the expression of things that are dangerous to the person, like diseases, psychopathy etc. Knowing is the primary tool in avoidance or promotion of our genetic potential. Currently, not knowing our genetic potentials and medical weaknesses leads to unnecessary detrimental effects on oneself and society as a whole, arguably having very significant social and economic repercussions. One example was a worry that a person would find psychopathy in their genetics and they therefore feared seeing their DNA analysis. We in turn questioned whether it was better that people knew of potential dangers and were able to remedy or take steps to avoid those dangers, or would it be better not to know and the implications being murder, crime, etc.? The answer seemed obvious afterwards. It is this reasoning that we wish to promote to allow the leaders, scholars and writers of today to help societies in understanding that innurturing systems would be a positive reform and nothing to fear. Innurture environments and proposed policies are not easily explained, however, looking at the differences between an innate change and a non-innate change, may help to show the level of danger if a non-innate leader is allowed to attain leadership.

If an environmental exposure stimulates a region of the brain that has a gene expressed in the affected cell nucleus, as we saw in the previous sections of this paper, then the gene will accentuate the genotypic reaction with progressive development of the region because of high sensitivity to the stimulus and therefore, over-reactive responses in developing more neural circuitry. If a gene expression is not present in the stimulated regions on a molecular level, no progressive or further development will occur within that region and existing neural circuitry will be reinforced. In the case of a gene expression existing ie: innate trait ready to code for development in lieu of repetitive memory circuitry, the new neural circuitry allows multiple
dimensions of analysis and performance with increased speeds through different combinations. A translation into basic terms would be quick thinking coupled with controlled motion and processes of elimination and analysis occurring faster, for example. In the case of non-gene expression, the myelin sheath around the neuron will grow as well as the thickness of the neuron circuitry involved, without extra neural connections occurring. This would mean the same capacity simply reinforced to be made more efficient but not multifaceted in its interpretive or analytical ability. So, instead of developing a better ability to analyse, to be quick and to react, a non-innate person would instead have a faster performance of the same capacity, through repetitive practice, not biologically capitalising on the experience of performance to gain insight, but merely speed up motor performance. As an innate person, gene expression will lead to a multifaceted, dynamic improvement in performance whereas non-expression will lead to a linear increase in performance without dimension. An example of when such a situation would occur would be when two leaders are exposed to the same environmental stimuli, however, one leader carries innate abilities in adaptive mental process and the other leader does not. After attending several of the same meetings, back to back, the innate leader will mentally gain and develop multiple scenario problem-solving solutions for future use, to be adapted on demand for any scenario and prior to that saved in the mental memory matrix bank of leadership, for example, and the second, non-innate leader, will gain knowledge to be used in replicated scenarios that show up in the future in a 1 to 1, a to a ratio. As such, the innate leader will draw upon variations of learned knowledge to solve challenges that come across their way, thus being host to a better ability to scope out the most innovative and optimum solutions. The non-innate leader (remember in this context), will have a more linear, textbook application to solution finding and will not be able to see the solutions an innate leader could come up with, arguably being host to a lesser capacity to manage challenges in the future. This kind of innate vs. non-innate is applicable in context and in any field known to us. It is of particular interest to us because if leadership fails, the implications are far reaching, as history has shown us too many times. If a non-innate doctor misses a diagnosis because their ability to perform their duties is limited to textbook methods, a person may die. If a non-innate engineer fails to see the real issue, a plane may crash. If a non-innate leader takes the helm, hundreds or thousands or millions may die. It is at this point that we wish to emphasise the importance of innate leadership by presenting Case Study A.

CASE STUDY A – THE POLITICAL LEADER

"Being powerful is like being a lady, if you have to tell people you are, you aren't."

- Margaret Thatcher.

How do you tell an innate leader from a non-innate leader? The answer is fairly simple. If the person rises to the position of leader with non-violence and honesty, they are innate leaders in context. Alternately, if the person rises to the position of leader via means of force, dishonesty, violence, coercion, familial non-merit and other ambitiously planned means, they are not innate leaders in context. With this definition in hand, let us analyse a well-known historic occasion where a non-innate leader came to power.

He performed well in his younger years at school, however, by the time he reached high school his behaviour had deteriorated into the class bully, demanding subservience from his fellow classmates and publicly mocking his teachers daily. This young man had a flamboyant flare about him and he wanted to study art. Having failed the art academy's entrance test two years in a row, it was obvious his innate talent did not like in that field of study. Not having a channel for his innate traits, this young man was driven by one of the
backlashes of no innate environment stimulation: idleness of the mind and dissatisfaction with his own lack of development, he developed social bias and hatred for those who had what he wanted. Innate Leader 0 - 1 Non-innate Leader.

He found a channel for his anger which turned to a need for violence, by joining the army and volunteering for all dangerous missions without hesitation during World War I. This could be interpreted as a lack of self-worth, from a lack of innate stimulation and therefore lack of motivation to be a part of life and society, leading to recklessness with his own life. Regardless of his two decorations for bravery his superior officers refused to promote him, due to his countenance not being able to command the respect of his peers if promoted. Innate Leader 0 - 2 Non-innate Leader.

After being influenced into a political party, this young man finds more men like him and begins to mastermind a way to reach positions of power using scheming, opportunistic and occasionally, backstabbing tactics. He eventually succeeds in gaining the leadership of his political party, however, due to significant protest from party members following this, he resigns. Innate Leader 0 - 3 Non-innate Leader.

Using violence to stage a coup, he attempts to take control by leading a group of disgruntled veterans of a lost war and fails. He is arrested and sentenced to five years, however, with influence on the judge, he only serves nine months and once again plots to regain power with cunning and dishonesty. Innate Leader 0 - 4 Non-innate Leader.

Tactically and strategically apt, this man eventually rises through the ranks of power with the same style of dishonesty, betrayal and such. He reaches the top rank of dictator and under his reign, millions of people perish. Following his death, his followers are disillusioned and broken, some remaining blindly loyal and persecuted while others become passive victims of the aftermath of his demise. Innate Leader 0 - 5 Non-Innate Leader. (Gavin, 1996)

Hitler left behind a trail of tragedy, sadness and what is globally considered to be a very bad situation for millions of people. Using our former definition of innate leadership in context, firstly, his rise to power would have needed to be without coercion or violence or betrayal and so on. Secondly, his drive to lead should have been for the good of the citizens and residents of his country because acting against what your innate traits are genetically coded for is unnatural and therefore, as a biological safety switch, it would not occur naturally. Lastly, the majority of his followers would be thankfully in his debt if he was serving their needs, which was not the case at all.

History has shown us the difference between famous leaders and notorious leaders by what was left behind and what historical accounts lead to greater goods or worse evils. Through our research, we have seen that innate environments stimulate innate traits in context, and people rise to the occasion naturally and without anterior effort. Those that rise to leadership through other means have a very likely tendency to become effectors of negative situation in agencies of socialisation leading to fracturings, deletions or suppressions in the societies they control. It is our base argument that almost all societies favour positive, peaceful, constructive, mutual, free and symbiotic relationships within and without other societies. As such, innate leaders would best serve these needs and therefore, the recognition of innate traits for leadership would be, arguably, a very positive and foresightful step in choosing new responsible candidates for leadership.
The task of leading humanity into the positive and fruitful future is not only reserved for politicians, of course, it is for every person to contribute towards, in all areas of society. Is innate leadership only important in politics? Our research indicates that the answer is no. At this point in time (2014), there is a good example that exists of a leader that, just like Hitler, on the pretext of improving lives, is in fact deteriorating them quite significantly. Case Study B analyses the presence of a modern dictator that, just as Hitler did to his followers, has passed undetected into the ranks of power and, with the threat of de facto immunity by need, could be considered to control us in many ways. Our research has shown that the methods used to gain power can be drawn as parallels to Hitler's style but instead of this occurring in the realm of politics, this is now occurring in the modern realm of technology.

CASE STUDY B – GOOGLE

Google was officially made a company in 1998 (Google, 2014). It has spent over $17 billion dollars in acquiring companies of various, unconnected areas of industry since 2001 and does not look to be stopping such activity any time soon (Levy & Womack, 2014). So what does this have to do with innate leadership? Just as a person may lead a community, society or country for the betterment of mankind, so do businesses with the intended result of making a profit but also doing so by providing a service or product that mankind can use. The core services and products of the company are its innate abilities being validated by the need for those services and products, and therefore, the significant long-term consumption of those services and products being a sign of the satisfaction of needs.

Apply this innate business definition to Google, whose core or innate service is advertising, and you soon discover that the 144 business acquisitions by Google are not in fact within its innate environment. That is to say, the companies Google now owns as part of its umbrella corporation, do not support its innate core service on which it was founded and owes it success. Is Google, therefore, a potential danger in acting in a secretive and historically-precedential ominous manner? Can people apply the behaviours of a human leader, like Hitler, as a parallel template to a leading multinational corporation and how it shouldn't conduct business?

Innate leadership by a company is driven by serving market needs openly, honestly and ethically, in-line with our definition of innate leadership for humans. If a company begins to act secretly and in public cases infringes on privacy (Gustin, 2012), commits tax fraud (Simpson, 2012) and is found to control various aspects of freedom illegally (Palmer, 2007), is it still innate or has it transitioned away from being in an innate ie: need-based environment, to a non-innate, opposing environment?

Businesses can be measured to be innate to their industry and market by way of the business decisions being made. If an innate leader in context is hired to drive the company and match its purpose, then the company would arguably be best suited to executing its innate function as opposed to a non-innate leader guiding the company with sub-optimal capacities and compatibility to the innate function of the company. This would mean that hiring an innate talent that acts as the driver or part of the driving group that steers the company, would be responsible for the company's innate position in the market. Extrapolating further, would this mean that who the company recruits as an employee should ideally, be innate to its purpose in order to allow a shared vision to pass through every employees innate understanding of its foundational purpose and possibilities? If this, with further research, is confirmed to be true, then a new system of innate recruitment would be best suited to the task of finding the right candidate for the right job as we
mentioned previously, using DNA analysis. As well as potentially saving millions of dollars, euros etc. every year in retraining and severance, companies will secure highly motivated employees due the compatible nature of the job and the employees matching traits. Methods on matching and comparing innateness indexes for each candidate are scheduled for future research, since this system of recruitment is based on very recent, novel discoveries presented throughout this paper.

Job candidates looking for work may not entirely know themselves or which industry they would like to work in. With the past onset of technology and the internet, masses of information as we know, have been accessible to an ever growing number of people. Through this accessibility there has been a shift in the demands of training and more importantly, education. Specialisation of skill from people is needed and current educational systems cannot deliver this new dynamic need because of their inflexible structures that served the needs of the industrialization (Reynolds, 2014, Spiewak, 2009). Our research argues that a paradigm shift in education to incorporate people's natural abilities and allow them to specialise freely is what is now needed. This would in turn result in innate candidates for jobs that serve an innate purpose to society that will in turn support more education for the next generation.

An education where students, from the ages of 3 years old until retirement, can learn and develop within innate environments that support their genetic affinities, is innately tuned. Of course, it is not difficult to envisage how happy a society is when every individual is acting on their talents and performing whole-heartedly in what they love, leading to excellence voluntarily and most likely higher rates of creativity and innovation. Such an education, tailored to innate talent, would be called Innate Education. Society would need to transition from classical education to innate education with children younger than 4 years old being able to start right away, and those who have already been exposed to the classical system would be able to redevelop and retrain into what they are best at and therefore, most likely will love doing. An exact restructuring and suggested curriculum is a thesis in itself and therefore, we will only announce in this paper that such research has already been planned. For further news in this field, please read further research in Chapter 2.
IV Comparison and Consolidation

We realise this is a mass of new information that is not easy to digest for some, and it was even more challenging to consolidate findings to put to you, the reader, for consideration, however, we feel we have done enough justice to the subject to open future debates and discussions on the matter. This chapter is merely the tip of what seems to be an ever expanding iceberg and we can only hope now, after presenting some of our findings, that the subject of innurture, innateness and innate leadership is a benefit to society and should be considered when making decisions at top levels. We would also encourage anyone interested in pursuing further research quantitatively, to cement our findings more.

In order to place our research into a category that can be found and research continued, we need to compare previous leadership or trait theories to our current one, whereby we claim that the sole determinant of our physical state, mental state and therefore personality as well is our genetics, however, in order to unlock our potential and develop into the best we can be, exposure to relevant environmental stimuli is necessary.

Trait theory, primarily interested in the measurement of traits, which can be defined as habitual patterns of behavior, thought, and emotion (Kassin, 2003), we see as a the first generation theory of innurturing, without the facts that we have today from genetic, genomic and other research fields mentioned in this paper. It is correct to say there are traits in people, however, trait theorists also believe there is an unlimited number of traits that could be used to describe personality, and this we disagree with through our research. In fact, our response to this assumption lies in our explanation of free will, because the two are connected. Therefore, for further answers to this leadership theory and innurture studies, Chapter 2 should be read. As a conclusion in our comparison with trait theory, we have two points to make. Firstly, all the research we have presented in this paper is still expanding and will require years if not a decade to unravel completely, we therefore will not be seeing DNA Analysis in the near future, however it is important to have discourse on the subject for long-run benefit. Secondly, once the genomic research is complete in the future, it will be irrelevant guess work trying to discover which traits make our personality because we will be able to see, factually, which polygenetic influences activate exact traits, in which cocktail and which concentrations and variations precisely. All we will need to do is match the personality traits to a function to allow for innate leadership, or innate performance in any field, for that matter. This paper stretches past leadership with universal applicability but its existence is meant to be a leader in innate study and how leaders of today can begin to incorporate innuturing in their decision-making.

When it comes to leadership theory, defining leadership tends to be the first step. We disagree with defining leadership beyond an adaptable definition of meeting the needs of those that require them through action or inaction. This is because leadership is ever changing and what defines leadership varies in the eye of the beholders but more importantly, we feel that defining leadership is not required. What is required, we feel, is verifying that the leadership is innately attained. Innately attained leadership occurs naturally, in a dynamic and fluid process through genetic reactivity to environmental stimuli. Other forms of leadership attainment, we would consider not to be innate.

There have been many theories of leadership concerning social interactions, power, sharing visions and values and such (Kirkpatrick & Locke, 1991). The Great Man Theory gives the credit of historical successes and events to one man (Hook, 1950) termed a hero and arguably...
an innate leader in context by our definition, however, we would call theories of the like extreme and excessive in their claims. There is acknowledgement of singular great figures but the focus is on assigning credit instead of analysing how those great men came to be in the first place, as products of their genetics in combination with the matching environmental stimuli. The research we put forward aligns itself slightly to the situational leadership theory which states that “there is no single "best" style of leadership. Effective leadership is task-relevant, and the most successful leaders are those that adapt their leadership style to the maturity "the capacity to set high but attainable goals, willingness and ability to take responsibility for the task, and relevant education and/or experience of an individual or a group for the task" of the individual or group they are attempting to lead or influence” (Hersey & Blanchard, 1977, p. 200). We agree that leadership attainment depends on context but at the same time, where we differ slightly from situational leadership theory, is that this attainment is not only “to the maturity” of the groups needs but because the individual developed via matching environmental stimuli to allow their genetic abilities to develop into useful, needed and applicable traits in context. Due the correct contextual interpretation of leadership, in our opinion, by most authors of leadership theories to date as applicable to certain contextual situations in history (Gregoire & Arendt, 2004), and because leadership as we have said is universally adaptable in context, we propose a first generation Grand Unifying Leadership Definition which now includes our research of innateness:

Leadership is a contextual morphological position, action and/or symbol that is adaptive, by definition, to the contextual style and/or needs required by people in that context including but not adaptively limited to the establishment or removal of limitations on a person achieving goals; experiencing creativity and influence, innovation and change; realising trust, learning, team work and intellectual stimulation; understanding vulnerability, authenticity, empathy, commitment and performance; visualising goals, solidarity and motivational factors; training self-awareness, self-regulation and emotional intelligence; discovering and applying innate potential and talents through the actions of inspiring a shared vision enabling others to act; modelling, encouraging and empowering others towards that shared vision; behaving with any or all attitudes as optimistically, calmly, flexibly, authoritatively, credibly, dynamically, persuasively, energetically, considerately, affectionately or any variations of and serving the needs of those in context.

As with many era-defined definitions, the Grand Unifying Leadership Definition above would be updated into second generation, third generation and so on forms, over the coming decades and centuries to include the new paradigms that occur in the future. The addition of the latest research in this paper is an example of how a Grand Unifying Leadership Definition would need to be adapted in either minor or major ways. It would be important to retain old definitions for historical and anthropological purposes and comparison and simply publish a next generation variation as a successor in the latest dictionary editions.

In the grander scale of discussion on leadership, development and behavior, it is inevitably complex and challenging to translate scientific discoveries into applicable, real life solutions that can withstand the imperfect world we live in. As with any transitional idea or discovery, the incremental changes to be taken will take decades to initiate, adapt and develop, however, our standpoint is that the beginning of this transition should begin as soon as possible. During our research we encountered many fears of genetic abuse and found that it was fruitful and constructive to discuss those fears and support space for a transitional attitude to take place. We are aware that what is produced in this paper is not easily digestible material to some. The most important point we would like to start by mentioning is that the constant reinforcement
through scientific research, that our genes make us 100%, is a positive finding for everyone involved. It is a positive discovery meant to solve problems that we encounter in all societies and we encourage further research to reinforce our findings more.

In order to trust what is being found, we feel that every person should be able to read about the latest science and understand it in its entirety in order to take a constructive role in discerning how genetics applies to everyday life. Fear can lead to resistance of change which may or may not be unfounded later on, when the applications of, for example innate education, reveal there are discrepancies we need to understand and resolve through trial and error. It is a natural transition between old and new where faults, challenges and potential setbacks can make progress appear to be an illusion, however, we encourage persistence because this research is highly assistive in finding true symbiotic relationships between all aspects of everyday life and how individuals can contribute to society and how society can support them in return, in a constructive manner. There is no implication in our research that states that any race or gender cannot maximize their innate potential and be a great asset to their society, whether local, national or global. There is no statement we make that is meant to belittle or fracture any compelling national vision a people, country or company may have for the future. What we want to put forward is a real, universal and constructive understanding of what makes a human happy, motivated and productive and how an innate person in context is a much better solution in the short and long run, for those around them when put to a task. What we do advocate is that the system of generalism, whereby students and then adults are forced, through the invisible pressures of society, to perform tasks they do not wish to perform or study subjects that they do not wish to study, should be reformed.

We argue that individuals should be given foundational education in reading and writing and analysis, after which time they should be allowed to develop in whichever field they are innately attuned to and identify with, without being forced, pressured or blackmail by societal norms or national laws. Adults who have already developed in a classical society where their needs and wants do not necessarily match the requirements of everyday living, should be allowed to retrain and redevelop into what it is they are innately born to do.

In conclusion, we would like to propose further research in the fields of innate education, recruitment and employment policy, organizational policy, politics and international relations, medicine, entrepreneurship, innate studies, management and leadership.
References


Tsui, J, Inagaki, M & Schulman, H 2006, „Mechanisms of Signal Transduction: Calcium/Calmodulin-dependent Protein Kinase II (CaMKII) Localization Acts in Concert


