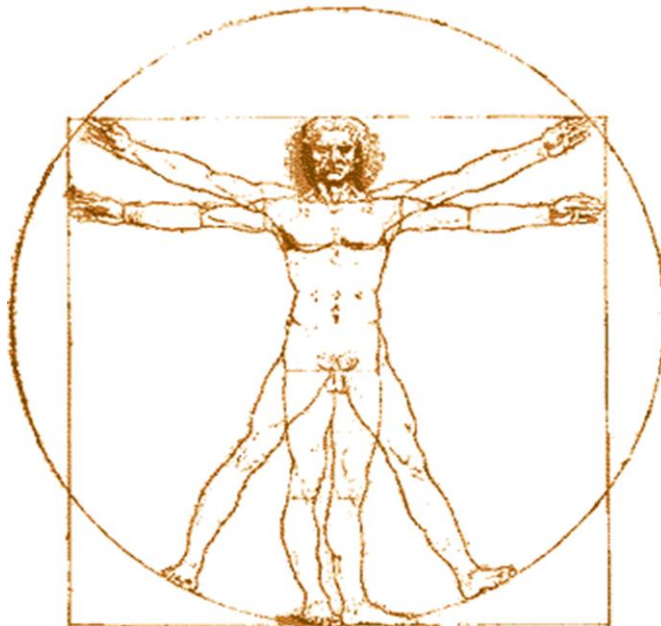




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The Fusion of Arts and Science:

An Innovator's Guide to Workplace Harmony



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INTRODUCTION

In Megacom's boardroom on the 50th floor of the massive glass-panelled office complex in Silicon Valley, Mike Bommel Head of product design has just finished a compelling ten-minute presentation on the prototype design of the company's new tablet. The smile on his face betrays how proud he is of his team's production and expects everyone in the room to share his enthusiasm. However such is not the case.

"No doubt Mike, your department has put so much into this, but I don't see how we can produce on those specifications you mentioned without compromising on quality". This was Nick Welch, Head of Engineering and Production. "The Ultra-thin surface will be a strain on battery space and feasibility will be a problem too", he concluded.

"No it won't", countered Mike, "I have word that *Verox* intends to produce their model with somewhat similar specifications and their production team may roll out demos next March. If they can do it, so can we".

The tension between both heads is thick and as Nick starts to answer, the Chief Operating Officer decides to cut in and bring order to an impending boardroom tiff...

*Scenes like this are very familiar in most organizations' strategy sessions; such conflicts (especially in innovative workplaces) can be overwhelming and destructive to creative output if improperly handled. On the other hand, they can prove very useful if kept within healthy limits.

*characters mentioned above are purely a figment of the author's imagination.

1. DEFINITION OF CONCEPTS

The arts have been defined as several things, including 'the tendency to unite dissimilar things', 'the generation of unselfconscious experience' and 'the creation of illusions' (Belton, 1996). It encompasses both the visual and the non-visual elements in cultural representations. Its many disciplines comprise of drawing, painting, sculpture, music, drama, and dance and so on.

Tolstoy also summarized it as:

'A human activity consisting in this, that one man consciously, by means of certain external signs, hands on to others feelings he has lived through, and that other people are infected by these feelings and also experience them.'

Science on the other hand is defined by the Science Council as 'the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence'.

This means answers to naturally occurring phenomena are sought and obtained through continued experimental methods and their corresponding logical conclusions. Like the arts, it contains various disciplines which include; Biological Sciences, Physical Sciences, and Environmental Sciences.

According to popularly held beliefs, Art is often referred to as chaotic, unstructured and entirely un-methodical as opposed to Science's more methodical, data-driven and well-structured procedures; hence the age long rivalry between both fields (Kieniewicz:2013).

Although the arts may not be subjected to as many experimental methods as the sciences, its final results are borne out of creativity and intelligent processes; something both branches have in common.

Another popular conception of both fields is the description of arts as affective, intuitive, and subjective while science is cognitive, logical and objective (Mengfei: 2009). This means the arts seek to appeal to our emotional states and strives to affect our behaviors/attitudes and the sciences deal more with our rational thought processes. Both concepts, though may seem contradictory, are actually complementary to each other.

2. THE INNOVATOR

“Successful innovators use both right side and left side of their brains.”
[Peter Drucker]

Artists and Scientists often have a strong curiosity and passion about their surrounding environment which makes them potentially good innovators or ‘knowledge workers’ as coined by Peter Drucker (1959). According to him, these are people who are in the business of thinking for a living and using previous knowledge to create new ideas to solve everyday problems. Creativity is vital for such a role.

In many organizations, knowledge workers exist as either ‘artists’ or ‘scientists’ whom I like to refer to as the dreamers and realists respectively. As was the case in the short dialogue at Megacom’s boardroom meeting, it can clearly be seen that Mike Bommel’s product design team are the dreamers while Nick Welch’s Engineering and Production team represent the realists. The friction is understandable but their synergy is inevitable for success to prevail.

2.1. What Can Innovators Learn from Artists and Scientists?

‘Innovation is work. It requires knowledge, ingenuity, creativity...This work requires diligence, perseverance and commitment.’ [Peter Drucker]

All of these qualities can be found in artists and scientists. One famous innovator (and my favourite) seemed to possess all these attributes even at a time when technology resources were limited. He was Leonardo Da Vinci.

Leonardo was said to be a mathematician, engineer, anatomist, musician, painter and sculptor just to mention a few. He embodied the true exemplar of an innovator and lived as a scientist and an artist, a dreamer and a realist; a contradiction quite difficult to comprehend but very plausible. His methods should provide an interesting learning point for many innovators today because even though he existed centuries ago, he was a man ahead of his time; a pioneer and a luminary.

As an Artist:

Leonardo was known to be a curious and observant person. He was constantly writing down and sketching his observations. He drew ideas from many sources to improve and perfect his art. (Slideshare)

- Innovators should always pay attention to details like the artist; they should develop a keen interest in naturally occurring matters in our world. They should also always have with them sketch-pads or notebooks to record these details whenever they find something new. Some of the best ideas usually come in unusual places when you least expect them, so it is important to put them down as soon as they do.
- Innovators should be dreamers; open their minds to wider perspectives of their exposure and not be constrained to their 'box' of specialisation.
- Innovators should understand the concepts of *infographics*; the use of graphics to depict data or information. Artists see and understand things in dimensional pictures because images are very creative methods of depicting information.
- Innovators should be humanitarian. Emotion is a very integral part of the human psyche. The ability to inspire a desired feeling in any creation is a very powerful skill and can be used to solve problems especially where people are concerned. Additionally, the affective power of cultural values, languages and systems of belief has led to their success and sustainability over the years.

As a Scientist:

Leonardo kept seeking ways to transcend the depths of artwork. He delved into science and studied anatomy and naturally occurring phenomena. He was always asking questions and deriving logical solutions to problems. As a scientist, he used the anatomy of birds to design the 'flying ship' and the protective shell of the tortoise to develop the 'armoured vehicle'. (Slideshare)

- Innovators should constantly question norms around them and derive logical answers from these situations. The words 'why' and 'how' should precede most of their questions. They should also possess a natural curiosity and be able to challenge existing stereotypes around them. Scientists don't readily accept what they haven't proven and will continue to study it until they do.

- Innovators should be patient. Scientists often go through rigorous testing procedures before they come up with right answers, and this requires a lot of commitment and diligence.
- Innovators should have a passion for knowledge. Scientists always research and analytically study previous data in order to find answers to current problems. (This is consistent with the principle of the knowledge worker).
- Innovators should be good communicators.
- Innovators should be methodical in their approach. Scientists follow steps from recognition and formulation of a problem, data collection, observation, experimentation, to formulation and testing of the hypothesis (Bright, 1952). This approach allows for attention to details and validity of results.

3. MANAGING INNOVATION IN THE WORKPLACE

As an advertising and marketing student, I am aware that creative differences between 'artists' and 'scientists' such as those in Megacom create complexities in the office. It is a manager's job to identify these gaps and bridge them productively. In fact, according to Drucker, conflicts in organisations are very healthy when controlled. Fear of conflicts often lead to under-performance of any organisational team.

Sudhir Venkatesh of Co-Create also says that 'disruptivity' leads to useful ideas;

'Creativity arises when you consciously seek opinions from those who are different or force you to revisit your assumptions'.

Many strategies have been developed for managing organisational conflicts, but the widely accepted one is that of the integration approach. In Rahim's (1992) meta-model of conflicts management, this approach involves openness, exchanges and understanding of differences in order to solve them in a way that is most acceptable to both parties. According to the integration approach, artists and scientists should work together to obtain the best results.

Taken literally, collaborative efforts of some scientists and artists have led to the collective, *SymbioticA*. This group have been able to produce outstanding works that reveal art in a combination of living bio-specimens known as "bioart". (Dixon et al: 2011)

Similarly, a biological artist who draws anatomical diagrams and structures which are used for learning purposes must work with a scientist to understand and give a true depiction of the real thing. A painter who knows the composition and elements of his oil paints will easily produce the best mixes for his art, and sculptors who know the best temperatures to produce their pottery will make better long-lasting sculptures than those who are clueless.

In Dr. Kieniewicz's view (2012), scientists who engage with artists regularly make better communicators and researchers because they are more exposed to other more exciting methods of communication.

In the case of Megacom, the Product design and Engineering & Production teams should collaborate effectively- with both Heads Mike and Nick supervising them- to produce a more attractive and efficient tablet device. Regular ideas-exchange and knowledge-sharing sessions between both parties will ensure a more creative and productive workplace environment.

3.1. Managing Innovation in the Workplace (2)

'A knowledge worker assesses input in order to evaluate complex or conflicting priorities', Drucker (1973). Hence, a manager should essentially be a knowledge worker too.

Inhibitors of innovation and creativity in organisations (private, government and NGO's) include restrictive principles, bureaucratic policies, unsuitable office atmospherics, unhealthy staff competition, inadequate learning and knowledge-sharing techniques and unmotivated staff. Creative people should not be restricted, they love to wander and dream.

One good stimulant of creativity is passion; innovators should be given some level of freedom to fuel this passion and exploit opportunities.

Managers can also free up creative potential in their organisations by:

- Creating a relaxed and comfortable working environment for innovators across departments [improved office atmospherics].
- Reducing bureaucratic policies and complex reporting hierarchies.
- Setting up ample learning and knowledge-research systems within organization.
- Working with staff to develop their own business objectives and responsibilities.

4. ARTS IN SCHOOLS

'Every child is an artist. The problem is how to remain an artist once we grow up'. [Pablo Picasso]

As a nursery school child I loved to draw and paint (we all did), but as I grew older I noticed the curriculum in my school changed and the focus was more towards certain subjects that were perceived to be more essential than others. It didn't help that my parents kept putting ideas of so-called 'professional' occupations into my head.

'Nigerian artists are poor!' My mother would always say.

When I got into high school, there was a division between science oriented courses and the art courses. Students who majored in Biology, Chemistry and Physics always saw themselves as smarter than students in Fine arts, Music or Languages hence most students gravitated towards the former regardless of their innate preferences.

This kind of ideology in Nigeria (and many developing countries) fuels the art-science rivalry previously mentioned. If teachers (who are incidentally knowledge workers) encourage this sort of academic segregation right from pre-school stage, how then can a mutual collaboration of both fields be sustained?

The art-science discrimination should be stopped right from the genesis; primary school levels. Both courses should be made mandatory from the start, and treated without bias to the other. Likewise, funding to departments should not be based on the type of courses taught but on the quality and level of learning expected.

Orientation in schools should focus on the importance of arts as well as sciences. Parent-Teacher meetings in schools should also focus on such synergies to ensure that each student is exposed to as much art as they are exposed to science not only at school but at home as well.

An understanding of the arts builds one's appreciation for the humanities and their culture. It also develops the 'plant community' which in Drucker's words is "the key to fostering a healthy society where people found a sense of belonging and civic pride."

5. BIG DATA AND CREATIVITY

One of Drucker's seven sources of innovation is *New Knowledge*.

'Innovation is work rather than genius, it requires knowledge.'

Critically speaking, ingenuity is also a key player in innovation. As an innovator a passion for acquiring knowledge is fundamental and this information can be obtained from stored data. Our era today has been described as the 'information age' where the answer to every question is just a click away.

Purposeful, systematic innovation begins with the analysis of the sources of new opportunities. This analysis refers to the constant acquisition of insight obtainable from data, for creativity is borne through an acute knowledge of existing processes and systems. However, the downside is the existence of 'unnecessary' information which can counter creative output. Hence it is essential for the innovator to focus attention towards selective research methods.

5.1. Is there an Algorithm for Creativity?

An article I read sometime asked the same question. It seemed to suggest that computer programs would soon replace the very methods innovators used to solve problems. 'Big data' has been most useful in the marketing industry to envisage consumer behaviour. Digital Marketer, James Kirkham said algorithms are playing a greater role in the creative process and are being adopted by more marketing agencies today.

I believe that machines may mine data and use them to set outlines for best practices in creativity however there is only so much it can do with that data. The human element is still required to produce ideas with affective impacts on people, a quality which machines lack. Organisations in the business of service need to constantly be in contact with their customers, after-all human seduction is more emotional than mechanical (Kemp: 2013) .

One of the ways empirical methods balance very well with creativity is the use of algorithms in mining data to produce collaborative filtering. This is when recommender systems in a database to predict additional items or products a person may like based on their search history (Herlocker et al). Data can be subjected to experimental analysis when data-scientists perform various tests based on hypotheses to predict how people may behave in future situations using records of their previous actions. This is how online stores are able to 'suggest' future products for customers; "People who bought this also bought..." Another use of empirical methods in solving complex problems is in the use of internet cookies.

There can be a balance between creativity and empirical analysis as long as the application of the human element is not neglected.

5.2. Hotspots for Creativity

Cities can be made hotspots by concentrating creative activities in these locations. By building more learning and knowledge sharing environments, creating networking conventions for innovators to meet, discuss and make presentations as well as organizing competitions and award ceremonies to recognise outstanding works of creativity. These events should involve both the arts and science genres.

6. IS MANAGEMENT AN ART OR A SCIENCE?

On a comparison scale, I will say that management tends towards an art perspective especially if such management involves people. Although elements of science such as empirical analysis of information and knowledge dissemination are very much applicable, management requires more than pre-set methods of solving complex problems. It demands skill, experience and humanitarian orientation to pull off effectively.

Science does have its limitations in practical management applications if certain encounters haven't been previously recorded. This is not to say that management can't be learned, in fact many effective managers are made. However, as observed by Drucker (2001), setting a paradigm for operating on established facts does not prepare one for changes in an ever dynamic business environment. This is best tackled with experience and skill in social and political backgrounds.

6.1. THE VITRUVIAN MAN

This famous work of Leonardo Da Vinci (see title page) may not exactly hold the greatest lessons for management, but it does have several learning points on the current issue which managers can draw from. Also known as the Proportions of Man, The Vitruvian Man is an infographic depiction of man's connection with nature. It highlights the similarities of his anatomical proportions with objects of the universe (Wikipedia). It epitomizes the fusion of art and science.

6.2. LORD OF THE FLIES

A literary masterpiece by William Golding, this work tells the story of how a group of otherwise educated young boys marooned on an island without proper control and driven by paranoia descend into barbarity with chaotic consequences to themselves. Important management lessons to be learned from the story are references to leadership; managing different groups (students versus choir-members), individualism and teams, rational versus emotional reactions and rules governing people in an 'organisation' (Golding: 1954).

CONCLUSION

Innovators in any organisation can work together irrespective of their creative backgrounds (art or science). An effective manager's responsibility is to recognise strengths in these groups and guide them in synergy towards achieving their objectives. Naturally conflicts will occur; the idea is not to avoid them but to ensure they are controlled to healthy extents that lead to cross-productivity.

After all, "Dreamers need the realists to keep them from soaring too close to the sun, and the realists, well without the dreamers may never get off the ground" (Modern Family: 2011).

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