
The Aristotelian Framework for Innovation

Articulating, igniting and implementing an effective innovation framework

By: David Frederick, MBA

Today there are many books, theories, and concepts on innovation and the development of practical frameworks in which to develop innovative products, processes and solutions. However, most of these books, and theories really focus on what I refer to as post “prime” or adaptive innovation. They also focus on how to leverage those innovative concepts for maximum ROI - Return On Innovation. All very important topics. Especially the ROI part.

If this is your objective, let me save you a lot of time and recommend one of the best quantitative and qualitative approaches in driving innovative strategies on adaptive innovation. It is the use of Lead User Studies pioneered by MIT Prof. Eric Von Hippel, which in this authors opinion derives innovation primarily from the adaptive approach of innovation and product-service evolution which is ultimately derived by the actual user or consumer of the product and services.

As outlined in Van Hippel’s book, Democratizing Innovation, empirical research demonstrate that “users” of a product or service from 10 percent to nearly 40 percent engage in developing, modifying or applying in different ways, the product and services they consume. This naturally produces a result of innovation that can be reacted to by the producer of the originating product or service or even by a third party. In many cases, new products, services, “cottage” industries, user groups and associations form around the innovated adaptation of the originating product or service thus spawning new innovation and development. I refer to this as Adaptive Innovation.

Adaptive Innovation takes many forms, from the innovation of new products and services derived from an exiting or original product, service, material, compound, etc - “The Prime”, or from the action or reaction of “Lead Users”. This article primarily focuses on the process of innovation of the Prime utilizing Aristotelian principals and questions. Through this, I will give you a new dynamic framework in which to rationally apply an innovative process based on what I term the Aristotelian Framework for Innovation (AFI) . For those interested in the Lead User approach and study, I highly recommend Von Hippel’s book Democratizing Innovation available from MIT Press. However, we will focus on actually igniting the innovative process and providing a frame work in which to drive that innovation. The spark.

What did Aristotle know about innovation?

Its rather ironic that in the 21st century one finds a unique framework for innovation from the dynamic and thoughtful period of 384 - 322 BC. In particular, from one of the great masters, Aristotle, a man of incredible intellectual and creative power.

Aristotle more or less invented and formalized the rules of right reasoning, the beginnings of philosophical logic. More importantly and in direct relevance to the AFI, he was the first to study the nature of deduction, to say what it means for a proposition to follow necessity from premises, to identify and formalize different possible sorts of syllogism.

With the general notion of proof in hand, he formalized the relation between the evidence gathered by studying things in the world and coming to true conclusions about those things. In doing this, he did much more than point us in the direction of what we now recognize as science.

This alone would have been beyond impressive and earned him a large place in history, but his writings on logic and methodology constitute only a part of the Aristotelian corpus. Aristotle was just getting warmed up when he invented science.

So what does this have to do with the process of innovation?

Aristotle was the first to engage in the practice of distinguishing between different subject matters; recapitulating and considering a topic's intellectual history and presence; explicitly identifying the standards of evidence, degrees of precision, questions, and so on proper to each. Aristotle not only invented whole disciplines, he invented the very notion of a discipline as such.

When looking at the process of innovation and the creation and application a powerful yet flexible framework for the actual process of innovation, one can apply what I have come to refer to as an adaptation of Aristotle's Four Questions of Cause which are the foundation of the AFI. By asking these fundamental questions, we begin to position our creativity and mind set to create. To innovate.

These being:

- What sort of thing is it? Product? Service? Process? Material? (Formal Cause)
- What is it made of or going to be made of? (Material Cause)
- What brought it into being or initiated the changes that led to its being what it is? (Efficient Cause)
- What is it for and who would want it? (Final Cause)

Aristotle denies that we really know a thing, even a natural object, until we know what it is for, what it aims at or does, who does it do it to, what is it made from and who needs it. This premise is problematic in the sense that sometimes, innovations happen by accident thus not allowing us to fully know what it is for, what it aims at or what it does. However, the original cause that created the "accident" happened for some predefined objective that was the birth of the innovation action - the birth of what I term, the Prime. The spark that led to the innovation.

Ironically, Aristotle maintains that knowledge of this world is possible without the recourse to a permanent realm of Forms. On the contrary, Forms or universals exist only in the things in this world, and knowledge and innovation consists not in the contemplation of Forms, but in getting one's hands dirty, examining, experimenting, and dissecting and poking the things of this changing world, coming to know their causes and innovating things that are not yet part of this world. The golden question is how does one go about innovating something that is yet to be conceived? That is where the AFI comes into play.

To help answer this question we will break down Aristotle's Four Questions of Cause and explore their application in the creative process of innovation. There is no real dedicated order in which these questions must be asked and explored. What's important is you ask these questions.

Question 1 - What sort of thing is it? Product? Service? Process? Material? (Formal Cause)

It should be obvious that this is a very important question. You must determine what sort of thing it is going to be before you set out on your innovative journey. Is it a Process? New Product? New Service? New Technology? What are you setting out to innovate? By exploring this question, you will determine critical issues that will need to be addressed. Issues like context, resource planning, materials, permits, budget, etc. Not only is this a practical question, but one that lays the foundation for the other questions. As Diogenes of Apollonia once said, "Nothing can be produced out of nothing." So ask, what sort of thing is it?

Question 2 - What is it made of or going to be made of? (Material Cause)

At face value this would also seem like another simple question to ponder. However, its actually another critical question to ask and one that is not easily answered. By asking this fundamental question, you start to lay out the details of your framework of innovation. Essentially, what is it you are setting out to do. You must first know where you are going to determine what you are going to innovate on to take your journey. Lets say for example you want to build a better boat which would have been determined in Question 1.

What are you going to build your boat out of? Fiberglass, Wood? Oak? Teak? Hybrid materials? Where are you going to take your boat? Lakes? Bays? Open Blue Water? Is it All Weather? Build for speed? Stability? Is it sail powered? Will it need engine's? How many? Or, lets say you are looking to innovate a new internet solution. Does it require broadband? Dedicated applications to run? Hosted or client side? Will it require capital investments? Does the current technology support your idea? You can see how these questions around the fundamental question of what is it made of has a major determining factor on where you begin and what all other actions are predicated upon.

By asking this question, you will also set the stage for the next question -What brought it into being or initiated the changes that led to its being what it is? This is important because it determines cause. Now you may say, what if I want to simply be creative and ponder the ethos and think freeform, be really creative because I am a creative type, and innovate intuitively? I would say join a Bebop Quartet or spoken word retreat. But even in Jazz and poetry, there are fundamentals that guide the creative process. It should also be noted that inside of this question lies the bridge to the Lead User approach to innovation. By using the Lead User approach, the question of what brought it into being or initiated the changes that led to its being what it is can be answered in a definitive and actionable manner. So, on to question 3.

Question -3 What brought it into being or initiated the changes that led to its being what it is? (Efficient Cause)

This question helps us understand a variety of critical data points around our motivation for innovating. What brought about the conditions that led to our innovation imperative? Market need or change? Productivity? Need for greater efficiency? Price? Competition? Consumer Demand? Consumer modification or adaptation? Product evolution? What has happened that ignited your need to innovate? Understanding what the imperative is or was helps you focus your innovation to meet the needs or potentially more important, finding a need that drove you to innovate in the first place. No one innovates for the sake of innovation. There is always a reason. Understanding that reason is critical. When you know why you need to innovate you can better answer the next question. Can you see the theme here?

Question - 4 What is it for and who would want it? (Final Cause)

Everything has a purpose. As an expansion of question 3, you must determine, what is my innovation for? Productivity? Efficiency? New Product? New Service? Helps people? Helps my company compete? Market demands? Innovating for the sake of innovation is a complete waste of resources and never leads to a sustainable competitive advantage. You must ask yourself, what is my innovation for? What purpose does it serve? Who will it help and how will it help them? What is its final cause.

By asking these specific questions in the way Aristotle would, you begin to lay the framework for you to begin innovating in a productive and proactive manner. Yes, you can be creative, yes you can be intuitive, but by applying this question framework you lay the foundation for producing the schematic for a more productive and useful innovation. All the great innovators, inventors and visionaries asked these very same questions.

The Aristotelian Framework for Innovation - AFI

What is it?	What is it made of or from?	What brought it into being?	What is it for?
<ul style="list-style-type: none"> • Product? • Service? • Process? • Technology? • Material? • Intellectual Property? 	<ul style="list-style-type: none"> • Compounds? • Chemicals? • Intellectual Property? • Technology? • Media? • Materials? • Human Resources? 	<ul style="list-style-type: none"> • Competitive Pressures? • Market Demand? • Lead Users? • Growth? • Acquisition? • Necessity? 	<ul style="list-style-type: none"> • What does it do? • Who does it do it to? • Would someone want it? • What reaction will it have in the market? • What's compelling its existence?

The fundamental premise

What is the fundamental premise behind the AFI? Ask questions. Ask why? How come? Why Not? Explore Unk Unks. Challenge current thinking, thoughts, theories and processes, just because its done this way now doesn't mean it has to be done this way tomorrow. Without asking these questions, you can not prepare your mind and creativity to begin innovating and ignite the spark of innovation or at best capture and leverage the wisp of inspiration. As those who innovate know, the innovative spark of inspiration is a fickle and elusive creature. By asking these specific questions, you begin to prime your spark and lay the framework of innovation. The Aristotelian Framework of Innovation.

It was Heraclitus, as quoted in Clements's Stromateis that stated, "If one does not expect the unexpected, one will not find it out, since it is not to be searched out, and difficult to compass". That is innovation. Very difficult to just search it out and plot it. By utilizing the AFI, you can ask the critical questions that lead to the unexpected which leads to innovation. Remember, every great inventor, thinker and creator starts out with questions. The key is to ask the right questions. Which makes the AFI so interesting. It is based in the foundational questions of the greatest thinkers of all time.

Its difficult to imagine Aristotle satisfied with a treatise, content in the state of his own thinking on any matter or another, supposing, " Well, that's all there is to know about that". Aristotle was not so easily satisfied. Nor should you be. Aristotle was also not one to waste last lines, and it is worth remembering the last line of the Nicomachean Ethics when faced with difficulties of interpretation. It is a long and bold treatise, dealing with more or less all thinking on ethics extant in Aristotle's time. Why is this interesting? Because it embodies the heart of the AFI.

He writes at the end of what looks like a comprehensive account of Virtue a simple statement: "Come, let us get on with the enquiry". That is our mission when embarking on innovation. We must ask this set of fundamental questions in the AFI to help us spark and harness our creativity, focus and purpose. Without which, innovation becomes happenstance and not a predictable, repeatable process. Herodotus in Histories said that "Let there be nothing untried, for nothing happens by itself, but men obtain all things by trying."

About the Author

Frederick is the Executive Director and CEO of iAIR | The Institute For Advanced Innovation Research. He is a seasoned senior business executive, technologist, and visionary with over 25 years experience in the global technology, strategic management, consulting, integrated marketing, innovation, media and interactive business industries.

He is a recognized leader on strategic management, innovation, the convergence of interactive media, interactive marketing and branding, and has been a key speaker on numerous industry round tables.

He is also a recognized author on such topics as innovation, strategy, IP monetization, management, marketing, business process and content development. He pioneered the first digital musical keyboard instrument based solely on a Windows Operating System, as well as pioneered the HPX- Hierarchal Platform Xchange and the follow on MPX - Media Platform Xchange, a SOA based software architecture used in managing and sharing voluminous amounts of associated meta data, digital content and rich media.

In addition to his executive background, Frederick also serves as the Program Chair for Strategic Technology & Innovation at the University of Advancing Technology, sits on the University of Advanced Technology Advisory Board, and served as Adjunct Professor of Strategic Management, Advanced Executive MBA Program for Norwich University. He is a member of and contributor to the Management Round Table, The Institute of Management Consultants, IEEE, Harvard Law School - Program on Negotiation, MIT Enterprise Forum, APS - American Physical Society - American Physics, United States Naval Institute, IGDA (International Game Developers Association) Intellectual Property Rights Committee, as well as a member of the Council of Communications Advisers, Media and Entertainment.

His experience in VC, M&A and PE has included raising venture funding of over \$30M and M&A activity of over \$36M. Frederick earned a BS in International Business and an MBA from Weston Reserve University and conducted graduate work at MIT Sloan School of Management and Harvard Law School. He is currently working towards his PhD in Behavioral and Policy Sciences with a specialty in Innovation from Atlantic International University. He also holds executive certificates from Harvard Law School and MIT Sloan School of Management (Massachusetts Institute of Technology). Mr. Frederick is also an EMMY nominated and multi-award winning composer, sound designer and producer having won the Chick Corea Jazz Masters Scholarship to Berklee College of Music. He is also a proud veteran of the United States Navy.

About iAIR: iAIR is a leading strategy and innovation consulting firm that advises organizations on growth, position and innovation issues.

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