

# 10

## Unfolding Signal Maps

The importance of the question *what?* cannot be overstated. The answer reveals not only the deeper meaning of any innovation, but also its journey toward maximization. On this journey, there is room for the *why* and *how* as well, but the order in which we ask these questions determines how much we can maximize the benefits of any innovation. To understand the nature of the questions we pose when interpreting an event or experience, we must understand the condition and context from which they emerge—that of being human, and our desire to seek and to know.



# A Brief Interlude in What, Why, How, and the Human Condition

*Men are conditioned beings because everything they come in contact with turns immediately into a condition of their existence.*

—Hannah Arendt

In her 1958 book *The Human Condition*, German political theorist Hannah Arendt introduced the concept of *vita activa*: “With the term *vita activa*, I propose to designate three fundamental human activities: labor, work, and action,” Arendt wrote. “They are fundamental because each corresponds to one of the basic conditions under which life on earth has been given to men.” We innovate for the activities of labor, work, and action—for them, we have built and created the world of tools, the world of education, and the world of laws, as well as all the constructed spaces we now call *civilization*. This is, in effect, the world I defined earlier as *technology*—the sum of our practical knowledge in reference to our material and social culture.

Arendt defined labor as:

*“the activity which corresponds to the biological process of the human body, whose spontaneous growth, metabolism, and eventual decay are bound to the vital necessities produced and fed into the life process by labor. The human condition of labor is life itself.”*

In this condition, we ask questions in the realm of the tactical—questions that begin with the word *how*: How do I survive? How do I find food? How do I build shelter?

This is a condition related to the “having” side of the human being, a side interested in the quantity of things and their performance, durability, appropriateness for the task, and the sequence of actions that they require to satisfy the question. It is a condition concerned with the *tactics of life*. Thus, the creation of tools arises from the question *how*?

**“The quality of *being*—of *becoming*—through experiences and learning is unique to humans. It completes us and explains why we always need to move forward, searching for more ways to experience life, and to learn.”**

Perfecting the performance of tools is also a *how* question, suitable to what psychologist and philosopher Erich Fromm termed the “having mode”—a mode dominated by our interest in acquiring things that are fixed and describable. According to Fromm:

*"Most of us know more about the mode of having than we do about the mode of being, because having is by far the more frequently experienced mode in our culture. ...Being refers to experience, and human experience is in principle not describable."*

This quality of *being*—of *becoming*—through experiences and learning is unique to humans. It completes us and explains why we always need to move forward, searching for more ways to experience life, and to learn—exploring in order to have more worth and merit. These things allow us to *become*: to leave a mark through our work and deeds. To have mattered, for others.

For Arendt, work is the activity “which corresponds to the unnaturalness of human existence. ...Work provides an ‘artificial’ world of things, distinctly different from all natural surroundings. ...The human condition of work is worldliness.” In other words, the creation of worth, using our tools, answers the question *why*?

## **BUT WHAT IS IT ALL ABOUT?**

What is the most asked *what* question?

### **What is the meaning of life?**

Arendt continues:

*"All three activities and their corresponding conditions are intimately connected with the most general condition of human existence: birth and death, natality and mortality. Labor assures not only individual survival, but the life of the species. Work and its product, the human artifact, bestow a measure of permanence and durability upon the futility of mortal life and the fleeting character of human time. Action, in so far as it engages in founding and preserving political bodies, creates the condition for remembrance, that is, for history."*

And so, when faced with a new disruptive innovation, can we ignore Arendt’s discourse on the human condition and the totality of the questions *what?*, *why?*, and *how?*

Let’s consider what each question reveals: *What?* reveals the ultimate benefit of an innovation; *why?* reveals its purpose and function; and *how?* reveals the enablement, a particular form of the function represented by a specific tool. The coffeemaker is a *how*. The screw is a *how*. The coffeemaker and screw will not exist without a purpose larger than their immediate function and performance, larger than what they represent tactically—the *what*.

And yet, *The Human Condition* notwithstanding, most innovation in large organizations is still stuck in the *how*. Business and manufacturing have had more than 150 years since the Industrial Revolution to perfect and deliver the *how*. But here is the catch: We are now in a *what* moment, similar to that after the discovery of fire, when the question was: What can we do with fire?

## Strategic Questions

Do you recall the first time you encountered one of the most ubiquitous objects ever invented: the screw? Did you ever think twice about the importance of this little tool in maintaining and enhancing your life? You would have had you been an astute entrepreneur in the 18th century, when British toolmaker and inventor Henry Maudslay invented the first screw-cutting lathe. What was once a labor-intensive operation—painstakingly making each screw manually—soon became a mechanized operation that resulted in hundreds of screws being produced in one day, thanks to Mr. Maudslay. So for any entrepreneur worth his mantle in the 18th century, the question had to be: *What else can use a screw?*

This question is similar to *What can we do with fire?* and *What can we do with electricity?* and *What can we do with plastics?* It's similar to all the *what* questions that have shaped the world as we know it today.

The answers to the question *What else can use a screw?* has made it one of the most important inventions of all time, shaping and reshaping almost everything we know.

### WHAT *WHAT?* CAN TEACH US

Any answer to the question *what?* will inform a set of strategic directions that allow us to forecast and contemplate response tactics. As discussed in Chapter 8, McLuhan's Laws of Media tetrad, a tool for defining the potential of any new signal, is framed around the question *what?*

Three things to remember about this all-important query are:

- ◆ *What?* is a strategic and imaginative question.
- ◆ *What?* is about possibility, not tactics.
- ◆ *What?* is a defining question. It allows us to map future possibilities—the ~~dfuture~~ *how* tactics of any new innovation.

The *how* is the screw—or any other tactical technology. Every *how* needs a *what*; without purpose, tools have no larger meaning. The invention of the screw-cutting lathe did not just make life easier for the toolmakers of the 1750s. It was the trigger signal—the disruptive technology of its time—that allowed for the creation of a new world that was not imaginable before. And so is data a trigger in the information/knowledge economy.

So *what* can we do with data?

And, as with the invention of the screw, *what else* in the world has changed and is shaping your life right now?

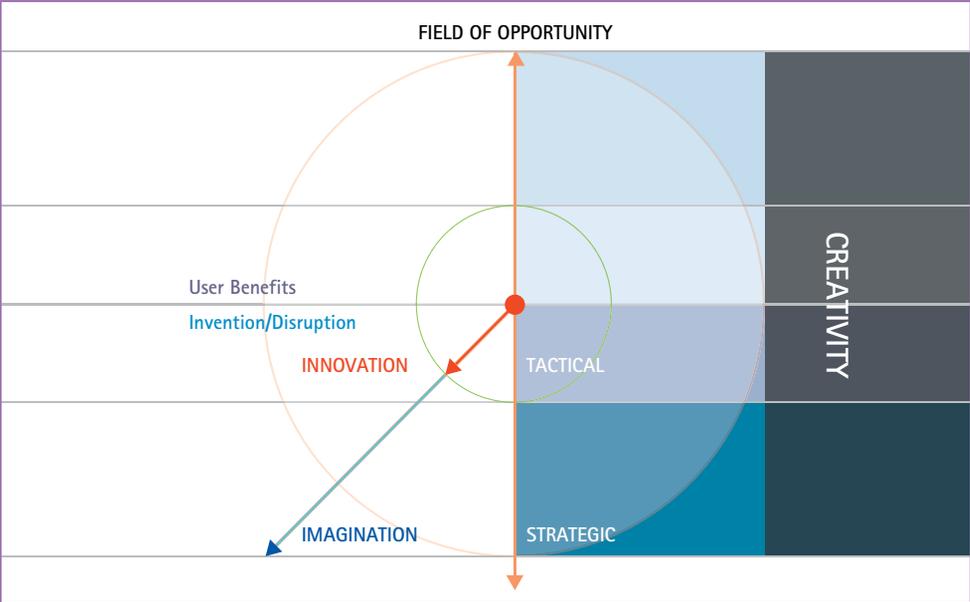
Let's look at an example of an innovation, or a moment of disruption. From the prism of the *what*, *why*, and *how* questions, smart tags or any other device that holds and transmits data is like the invention of the electric motor. It holds the potential to impact every aspect of our social, cultural, and economic lives. It is as powerful and transformative for us as the foam was for Dick Fosbury.

Think of all the Dow component companies in the business of motorizing mechanical motion and you will find a surprising large number of them—General Electric, Boeing, General Motors—stuck in the motorization of predecessor archetypes. Being stuck in the *how* does not necessarily mean that a company is not innovating; there are many tactical innovations that help the *how* deliver its function better. Once motorized, a tool will move through all the technology developments associated with the transmission, distribution, and storage of electricity: electronics, digital, power accumulation and storage allowing for portability, and so on. But all will still be connected to the initial function of the device, as the electric eggbeater was to the manual eggbeater: making a better omelet, perhaps, but still making an omelet. *Stuck in the how is also stuck in the what.* In this stage, an innovation grows out of a passive strategy—reaction—and results in an accidental position.

"The screw was the trigger signal—the disruptive technology of its time—that allowed for the creation of a new world that was not imaginable before. And so is data a trigger in the information/knowledge economy."

Understanding the depth of the *why* and *what* questions to be asked of a disruptive innovation is where the creation of a new paradigm is possible. For this, one needs imagination: The depth of our set of questions determines how well we can maximize the potential benefits and opportunity of any new innovation.

In order to uncover the unique value of an invention (technological or behavioral disruption) and intentionally select a strategic position, we



must consider its potential to become beneficial in ways that can only be imagined. This does not mean these opportunities are impossible to plan for; it means they require imagination to foresee. And each imagined possible value widens the field of strategic opportunity.

So what is the difference between the questions *what?*, *why?*, and *how?* Where do they come from and how do they help us *in* unfold signals? How do we navigate from the retrieval of *how*—or the predecessor of any disruptive innovation—toward a truly new product or service? By placing the *how* into the deeper human context, and understanding its meaning as part of the condition of being human.

"In order to uncover the unique value of an invention and intentionally select a strategic position, we must consider its potential to become beneficial in ways that can only be imagined. This does not mean these opportunities are impossible to plan for; it means they require imagination to foresee. Each imagined possible value will widen the field of strategic opportunity."

### Grasping the *How* of the Electric Motor

You are a 19th-century entrepreneur and have just become aware of this invention called the "electric motor." A certain Michael Faraday played enough in his laboratory in Great Britain that, by 1821, he had a rudimentary form of a rotary motor.

Faraday's contraption was the classic inventor's nightmare: good enough to supply proof, but too inconvenient in size, architecture, and complexity of parts to encourage contemplation of practical use: A wire submerged into a bath of mercury containing a magnet. Pass a current through the wire and it starts rotating around the magnet.

"*What* does this thing do?" you ask. And you learn that it converts electrical energy into mechanical motion. So you pose another *what* question: "*What* can I use this for?" After a quick survey of all the devices that use mechanical motion, you engage in the largest "predecessor retrieval" of all time, considering the motorization of all human artifacts that use mechanical motion. (Faraday himself saw the scope of possibility of his invention. When asked by Prime Minister William Gladstone what was the usefulness of electricity, it is said that he replied, "Why, sir, there is every possibility that you will soon be able to tax it!")

*Continued*

← *Benefits that can only be imagined: The circle of strategic opportunity widens with each imagined value.*

## Grasping the *How* of the Electric Motor *Continued*

You decide to add a number of new benefits to one's hand in the form of the electric eggbeater. This is the first phase of tactical innovation: The new disruptive innovation—the motor—is used on all the tools that are its predecessors. These tools have established markets, established users, and established benefits.

The rudimentary motor was enough of a signal to you to define the opportunities that it held. To contemplate a future for the motor, you needed the imagination to see beyond its form at that time. And by 1871, you and a few other foresighted—or lucky—inventors are transforming artifacts that humanity had used for centuries to a new level of performance and benefit, via dynamos, electrical generators, and high-voltage electrical engines.

The market potential of the eggbeater will increase, as your new tool finds new users who appreciate the ease of operation, power, performance, efficiency, and saved physical energy it affords. But the purpose—that which answers the *why* and *what*—will not be affected. *The egg does not know:* The mayonnaise still tastes the same. The deep purpose is not changed. The benefits are time saved and power of performance: the *how*.

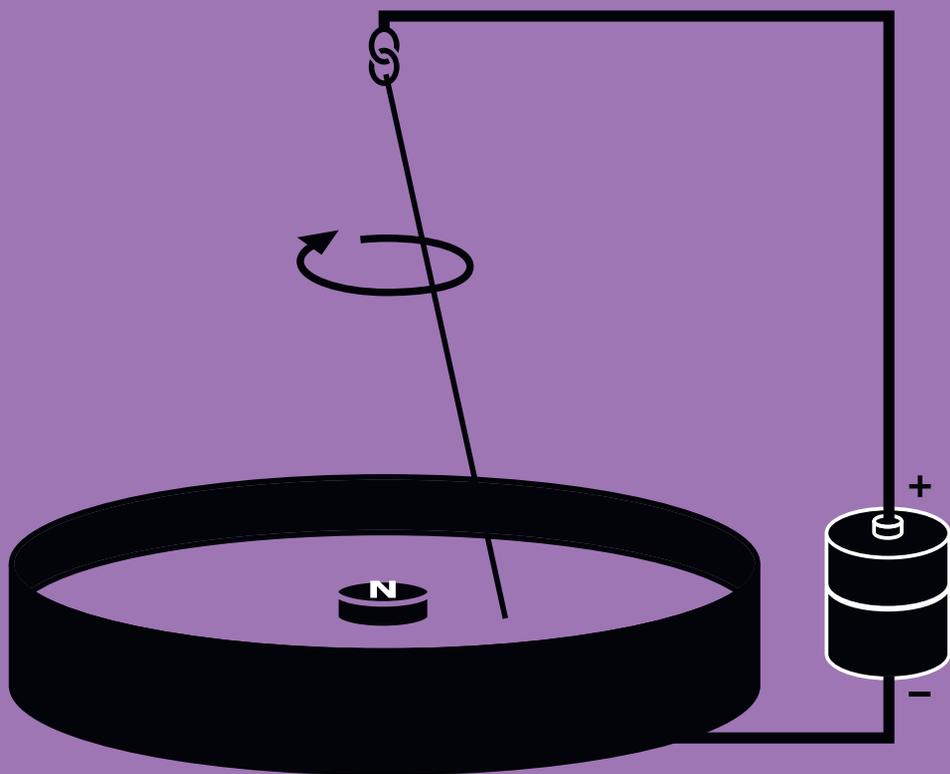
"Faraday's contraption was the classic inventor's nightmare: good enough to supply proof, but too inconvenient in size, architecture, and complexity of parts to encourage contemplation of practical use."

## Retrieval and Emergence Mapping 1: The Camera

What is a camera all about? A manufacturer can make a camera digital, but the larger question is: What do people photograph and why?

Why do people use a camera? To make images of memory. Is memory just visual, or is scent involved as well? Or sound? Or feeling? Is memory a series of familiar attributes that activate our senses—through eyes, nose, mouth, fingertips, and ears? If the answer to these questions is "yes," then it is no surprise that Kodak has a number of patents on technology combinations that can deliver the association between an image

*Diagram of the first electric motor. →*



and a scent, sound, and soon, flavor. This does not spell the end of photography, but the beginning of “memory keeping” and “memory sharing” by other means. It also spells the transformation of an entire industry from *means to meaning*—from the *how* to the *what*—based on the understanding that the ideal experience, in its most meaningful context, is the ultimate user benefit.

### THE DIGITAL CAMERA: PRECISE, UNDENIABLE, INTUITIVE, AND SENSED

The moment that a technology is introduced, it carries with it signals of any future application that it will influence or create. The map (opposite) demonstrates how the techniques and philosophies of McLuhan's tetradic analysis, Arendt's *vita activa*, and Fromm's conditions of “having” and “being” discussed in this chapter can uncover more than the obvious realm of innovation.

When confronted with a new technology, the first thing we must ask is, “What does this thing enhance?” For example, the digital camera enhances the convenience of capturing more images. Since the technology enhances our ability to perform an action, we label it a **precise** signal and ask, “How else have we accomplished this act?” This question forces us to consider all the specific ways we have captured images before, including the Polaroid camera, the camcorder, Impressionist paintings, sketching, and so on.

In this way, we quickly reveal the **undeniable** innovations of new features and applications of digital cameras. It is undeniable that we will use innovation to expand the field of opportunity by replacing established products and services. In order to see what the camera will retrieve, we ask about a prior artifact, “Why did we use this?” The insight that people want to capture, share, and express memories stimulates us to imagine devices that capture and relate more memory triggers (image, sound, scent, and taste).

We call these signals **intuitive** because they reflect the degree of intuition guiding our insight. Of these insights we ask, “What is this motivation really about?” Answering this question requires the foresight to imagine that if the camera is really about labeling a moment as important to you, then the future of the camera holds the experience of being able to tag a space and time with an event and a reaction. We call a signal like this **sensed** because it might not be practical today, but we can sense and understand its possible value.

It is important to highlight the critical role of imagination in this process. Understanding of current possibility will reveal the realm for innovation, but we must use insight and foresight to uncover the intuitive and sensed opportunities.

*Toward a deeper understanding: Imagination is critical in uncovering the intuitive → and sensed opportunities of a signal.*

## FIELD OF OPPORTUNITY & BENEFIT MAXIMIZATION



In the end, we may discover that it is not a picture that we want as a memory: It is the full recovery of ourselves in “that moment.” And “that moment” is not necessarily visual. How many times have you shown photos of a trip or party to friends, and in the end you gave up and said, “You had to be there”? In other words, “you had to experience it.”

## CAPTURING A MOMENT

So what is a camera all about? *It is about the recovery of the experience.*

It's not about the high definition of the image; it is about the moment being captured in any way, shape, or form. There is no rational explanation for people taking pictures with no clarity on their 1-megapixel cell phone camera; the picture keeps and can trigger the recovery of the moment, and that has no describable measure in megapixels.

Now what is the moment all about? The moment is about what you perceived in a particular place at a particular time. About what you felt, sensed, and experienced. And most of all, about something you want to share with others.

**“In the end, we may discover that it is not a picture that we want as a memory: It is the full recovery of ourselves in ‘that moment.’ And ‘that moment’ is not necessarily visual.”**

*A piece of you in that moment and in that place.* At the Wailing Wall, or at the Church of the Holy Sepulchre in Jerusalem. At the Colosseum of Rome. At the Great Pyramid of Khufu. Or at your daughter's wedding. You will want to keep that moment and share it with the group that defines your relevance and meaning as a human.

You may want to tag your emotions to a space. So, for example, if your friends visit the Holy Sepulchre, they can, if they so choose, use an enabled device to access your smart tags and receive a data transfer from the space telling them you were there, and this is what you felt and wanted to leave behind: “I was here. I experienced. I thought of you.” Memory is about retaining, recalling, and above all sharing information that defines who you are—for you and for others.

On a larger level, our purpose as human beings is to create something that attests to our presence on earth. We need to survive, for sure, but after that, we are involved in a quest for meaning—a quest for worth as measured by others. Nothing to do with survival, but everything to do with being human. We need to *be*, rather than *have*. We need to create and let others know we have created. We need to let others know what, where,

and how we have been. This fulfills our human condition of plurality. To be with others; to make sure others know we exist.

We do not build an Eiffel Tower or Empire State Building because we want shelter and survival. We build them to tell something about ourselves, to ourselves in the present and to others in the future. We need to leave a mark; it is the condition of our humanity. This is why we work hard at surpassing the condition of labor. We want to move from *how* to *why* and *what*.

Plurality is a condition of being human; you cannot be human without being plural. Being human means not being alone; it also means sharing *what* and *who* you are. From the moment we are born to the moment we die, we strive not to be alone, and we will do what is necessary not to be alone.

In the Zulu language, the word *ubuntu* means “me though your eyes.” *I am because you are*. Both “you” and “I” are essential in this condition: *I do not exist without you*.

In business opportunity terms, the future of the today’s digital camera will be in *memory keeping*: encoding, storing, recalling, and transmitting the information that is “you.”

*Ubuntu. “Me through your eyes.”*

## Retrieval and Emergence Mapping 2: Organized Sports

We are conditioned by what we create because each new artifact is an aggregator of past archetypes; an innovation is often the sum of several old innovations that it integrates and in turn obsolesces. And so, when forecasting the future of a signal, we start by placing it in the center of our inquiry and asking, “How did we get here? What does this embody?”

These questions will lead us to uncovering the archetype of an object or system, which encapsulates its original purpose as well as its specific manifestations in form. In the previous example, we began with an artifact that currently exists, retrieving its deeper archetypal meaning to understand its relevance and impact. In this example, we begin with the archetype itself, looking at conceptual constructs to understand how they are then affected or articulated in our society as activities and created artifacts.

## ARCHETYPE

1. a typical, ideal, or classic example of something.
2. something that served as the model or pattern for other things of the same type.

—from the *Encarta World English Dictionary*

In all categories of the word *archetype*, we can confidently place the name or a description for almost anything we know, and everything we have experienced. So let's give it a try with two things that we encounter throughout our daily lives: What is the archetype of a tool? What is the archetype of a toy?

Before reading further, think about these questions and write down your answers. In experiments conducted at the Beal Institute, we asked these questions to a variety of people. Compare your answers with the majority of theirs:

The archetype of a tool is the hammer. The archetype of a toy is the ball.

All we need to do now is to understand what this means in the larger picture of creating new experiences, new services, new products, and new business models. To do so, we need to ask a few more questions that define the characteristics of the archetypes hammer and ball.

**"What can the archetypes of most sports—the hammer and the ball—indicate about where we are headed and the choices we should make in deciding that future?"**

What do we expect from a hammer? We expect it to work well and be crafted to last a long time, with a good balance-to-weight ratio and a comfortable handle to hold. We expect it to look like it can do the job well. In short, we expect long-term functional performance and usability. The hammer is the oldest tool created by humans—the archetype of all tools, due to its basic physical function of amplifying force. Many tools and machines created over the centuries are based on the same principle of converting a motion—in the case of the hammer, the "swing"—into kinetic energy.

What do we expect from a ball? We expect that it can bounce, be handled by anyone, come back if we throw it against a wall, and allow us to play by ourselves or with others, as a means of relationship-building and communication. The ball affords us the capability to *be*. Its purpose does not concern labor or work, but rather action—we expect from it a good experience and a good relationship. The ball is the oldest toy form, used in Greece, ancient Egypt, and the pre-Columbian cultures of the Americas.

Once we gain imaginative insights, we can contemplate where these characteristics might lead if pushed to the limits of both performance and experience. The extraordinary success of organized sports indicates that the majority are activities that involve a “hammer” hitting a “ball” in one form or another—their success emerges from connecting these archetypes with both past and present contexts and needs, and creating imaginative foresights for the future.

The economic value of such activities is calculable, but it would take a few more pages than we have here. Think baseball, basketball, billiards, bowling, cricket, croquet, American football, soccer, golf, handball, field hockey, ice hockey, hurling, jai-alai, lacrosse, and tennis. Think of the combined revenues of the National Football League, National Basketball Association, Professional Golf Association and Ladies Professional Golf Association, National Hockey League, and many more.

What is the social value or worth that society places on organized sports? Another several pages that we don’t have room for here. But think Tiger Woods and his generic job description: *Put the ball in the hole*. The fewer the strokes, the more the player is compensated. In the 2005 Masters, Woods swung a club 276 times to earn \$1.17 million. That is \$4,239 for each swing of the club—or “hammer.”

Is this a disproportionate valuation of what might seem a trivial activity? Not if one understands the mastery required to use a “hammer” in hitting a ball and the deep roots of this archetype of human activity. Tiger Woods is putting the ball in the hole for *us*. He is *our extension* into the world of mastery that we aspire to. He represents *what could be possible*. And that is worth every penny.

Let’s close with an observation made by Christopher Barber, in the 2006 podcast “IBM and the Future of Sport”—a signal combining technology and sports that illustrates the significance of archetypes in creating culture. What can the archetypes of most sports—the hammer and the ball—indicate about where we are headed and the choices we should make in deciding that future?

*“Sports are an indelible part of who we are. From the first moment television cameras were placed on the sidelines, technology has impacted how we watch and enjoy sports. Behind the scenes, sports leagues around the world use technology to enhance how their games are played, the way their businesses are run off the field, and the way their paying customers—the fans—are rewarded. What role does technology play in sports today? And more importantly, what role will it play in the future? How will our experience as fans of our favorite sports teams change or be impacted by evolving technologies?”*

