PHYSIOLOGY OF INNOVATION

2017

"The Physiological State of an Individual or Team Determines the Quallity of Ideas and Innovations"

HEART

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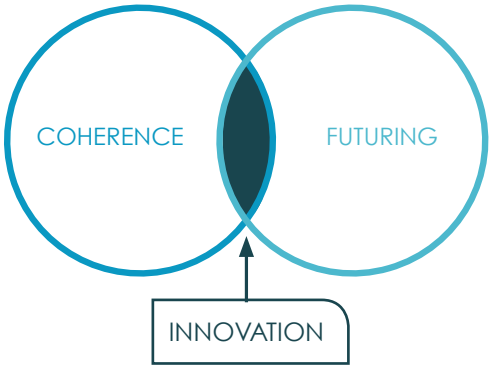
ABOUT PHYSIOLOGY OF INNOVATION



COHERENCE, INNOVATION & FUTURING

Business that can understand the relevance and application of human physiology science within the emerging business landscape, will own the future.

According to Harvard Business Review, successful business growth and innovation requires four things: (1) hiring functional experts to take the enterprise to the next level, (2) adding management structures and operation systems to accommodate increased head count while maintaining informal ties across the organization, (3) building planning and forecasting capabilities, and (4) spelling out and reinforce the cultural values that will sustain the business.

Heart Lab provides solutions for (3) and (4) by investigating the latest in scientific research and developing smart frameworks for application in the business environment. Heart Lab focuses specifically on three areas of research: (1) Physiological and Team Coherence, (2) Actionable Innovations, (3) Strategic Futuring and Forecasting.

Recent developments in neuroscience, heart-brain communication and quantum physics are offering new insights into the influence that physiological states have on our cognitive function, ability to collaborate, and how we think and feel about the future. In our experience at Heart Lab we have concluded that when individuals become physiologically coherent and collaborate in teams to collectively envisioning the future, actionable innovations consistently and reliably emerge.

In this white paper, Heart Lab provides some of the insights from their investigation into human physiology and how they are applicable to high-performance culture and Innovation.

The Heart is 100 times stronger electrically and 5,000 times stronger magnetically than the brain. To access the full potential of our physiology, we need to *think about* and *feel into the* innovations being developed.

IDEAS ARE CHEAP. **INNOVATIONS ARE EXPENSIVE.**

Performance is a product of the collective physiology of the organization.

Utilizing science to cultivate physiological & team coherence, today's businesses can more accurately scan the horizon to discover **actionable innovations**.

Collectively envisioning the innovation in the future allows coherent and **effective strategies to emerge.**

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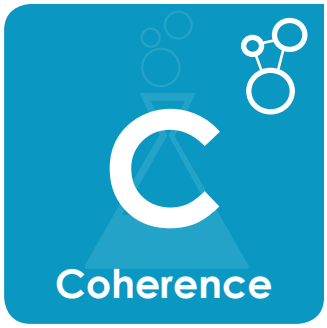
INTRODUCTION

The Three Keys to Innovative and High-Performance Cultures Are Coherence, Innovation and Futuring.



Coherence is the quality of being orderly, consistent, and intelligible. It allows individual parts to work in synergistic relationships to expand the whole.

Coherence is the harmonious flow of information, cooperation and order among subsystems of a larger system that allows for the emergence of more complex functions. Physiological coherence can be measured in the heart, brain and between individuals. By developing personal and team coherence the best innovations can be discovered.

"Contemporary science reveals that it is the underlying state of our physiological processes that determines the quality and stability of the feelings we experience, and the movement of information through the brain."

Innovation breathes new life into old systems and processes. It requires us to change our perspective on what is possible.

Innovation encourages us to take a new perspective on, or a new action from, what already exists. Innovation allows us to discover new ideas and collectively shaping those ideas into new products, services, processes, and business models. Ultimately, innovation requires us to make changes to create the future in which these new ideas are a reality.

"Innovation is essential to the success of most organizations, but most executive leadership does not know how to innovate consistently and reliably. The big mistake is when companies follow the old, comfortable approaches to innovation and become stagnant."

Futuring requires decoupling from the current state of the business so we can scan the horizon for what is emerging both within the organization and the market.

As we allow the future to reveal itself new perspectives, actions, and strategies arise. The brain is constantly predicting the future to prepare the physiology for what might happen next. If the future, or an innovation, seems uncertain or unclear, then the brain feels uncomfortable and may reject the idea. Forecasting a clear, time-lined strategy will ensure 100% organizational commitment to taking action towards the future without the challenge of physiological barriers.

"The future is owned by those who successfully innovate now."

C
Coherence

CULTIVATING SYNERGY

Coherent Brain States are the foundation of innovative thinking.

BRAIN COHERENCE

According to Heartmath, an institute researching physiological coherence, "for the brain and nervous system to function optimally, the various centers within the brain must be able to dynamically synchronize their activity for information to be smoothly processed and perceived."

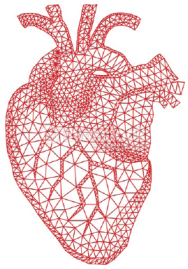
This synchronization and coordination is termed coherence and is a key determinant of cognitive health.

However, workplace stress increases the fluctuations in brain wave states and increases beta brain waves, which are associated with tension and anxiety. Hierarchies and management pressures at work foster an imbalance between the sympathetic and parasympathetic nervous system, triggering survival instincts and increasing fear.

These incoherent brain states lead to a competitive, inefficient, and less effective work environment.

Developing physiologically coherent states increases brain alpha waves and is accompanied by a relaxed and focused feeling. In these states, individuals and teams can access more information and develop new connections in the brain. This increases cognitive performance and creativity within the organization as a whole.

Consequently, coherent brain states are the foundation of innovative thinking and of an innovative culture.



A Coherent Heart state increases coherent brain states.

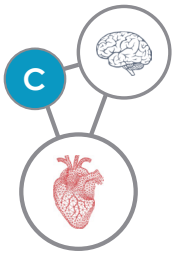
HEART COHERENCE

The heart sends more information to the brain than the brain sends to the heart. Research has shown that the heart communicates to the brain and body in four major ways: (1) neurologically, through the transmission of nerve impulses, (2) biochemically, via hormones and neurotransmitters, (3) biophysically, through pressure waves, and (4) energetically, through electromagnetic field interactions.

Studies have show that simply focusing on the heart-beat brings the heart into a more coherent state. In this state there is an increase in parasympathetic activity (feeling more relaxed and safe) and increased heart-brain synchronization. This results in increased cognitive function, increased creativity, increased decision-making, increased emotional stability, increased collaboration, and decreased cortisol (stress hormone) levels.

When the heart is in a coherent state the information it sends through communication pathways sets the rhythm for the entire nervous system.

In this coherent and collaborative state we can access new ideas and innovations without the limitations of brains survival-based and fear-based mechanisms.



When Team Members collectively maintain coherent states, innovations emerge.

TEAM COHERENCE

As individual enter more physiologically coherent states and access more innovative ideas, they also influence the state of those around them. Current technology has measured the electromagnetic field of the heart 3-4 feet outside the body. The electromagnetic field of an individual has been shown to influence the brain rhythms of another.

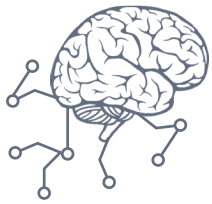
As individuals collectively enter synchronized physiological states, the ideas and information they can access as a team increases exponentially. In these coherent states the social and hierarchical threats have been minimized, we feel more supported and are more likely to take risks with our thinking, and we stop competition to win.

This results in more collaborative, more efficient, more effective, and more innovative teams.

Not only do the best innovations emerge from the collaborative efforts of coherent heart and brain states, but organizations can also realize the best strategies for shifting innovative ideas into actions.

Innovation

ENVISIONING CHANGE



To think innovatively we must break from old patterns and neuralpathways

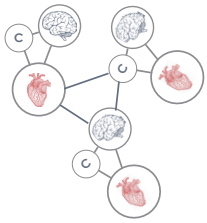
NEURAL PATHWAYS

At the heart of innovation is change; seeing a future where new products, services, processes and business models exist. Interestingly, global innovation surveys report that innovation is seen as the key to organizational success, while at the same time executive leaders admit they are resistant to change and do not know how to put innovative ideas into action. *(see Heart Lab's Global Innovation Summary Report 2017 for more details).*

The brain is designed to resist change, and this is a challenge to innovation. For the brain, it is more efficient to repeat the past and so it anchors repeated habits and behaviors in the nervous system for quick recall. These neural pathways may not be the most efficient or effective, but they have allowed for survival up to this point, and the brain thinks they will be essential for survival into the future.

When we present the brain with a new challenge it attempts to match solutions with memories based on prior experience.

Novel ideas, and innovations, trigger the brain to create an emotionally uncomfortable state, and increase the probability of rejection, because they do not align with past thinking.



Organizational Pathways must be changed to allow innovation

ORGANIZATIONAL PATHWAYS

Company pathways are developed based on repetition of behaviors and operational procedures, just like the human nervous system. Innovation requires that some of these pathways change and this can be met with resistance.

Although organizations want to be innovative and known that innovation is required for success, executive leadership and employees will often put up barriers to the changes required to make innovations a reality. On the surface changes might seem reasonable, but to the brain of the individual it can seem like life or death. Innovations can lead to an unknown future where ROI, success, and job security are uncertain.

Although organizations put strategies and processes in place to foster innovation, and executive leadership supports the idea of innovation, in reality the brain does not feel like innovating. Old corporate pathways stay intact and organizations continue to wonder why they don't know how to put innovative ideas into action.

To be innovative, organizations need to break free from the limitations of past corporate pathways, collectively envision changes and feel comfortable with taking the action that are required to make the innovation a reality.

Pathways to the Future must lead to individaul and organizational success.

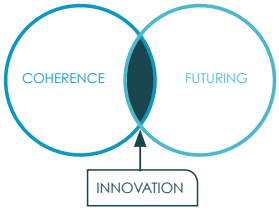
PATHWAYS TO THE FUTURE

Innovation requires us to envision a new future free from the limitations of past neural and corporate pathways.

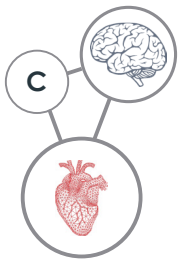
For companies to be innovative they need to first develop strategies to foster organizational coherence, where everyone is working together synergistically. This requires individuals to be more physiologically coherent, followed by working together in coherent states. Once coherent states are fostered, it is much easier to envision futures where everyone is successful.

In collaborative futures, envisioned from coherent states, innovations emerge that do not trigger survival mechanisms or increase the sympathetic (Fight, flight, or freeze) responses. In a sense, we de-couple from the past ways of thinking, feeling, and acting to envision a future free from the past. As we coherently envision these futures, individuals, and collectively as an organization, can see a pathway towards a future they all want to live in.

When individuals in a company are in coherent states envisioning the changes towards a collective future, actionable innovation emerge.



EXPERIENCING INNOVATION



The Brain is constantly predicting the future to prepare the physiology.

THE BRAIN PREDICTS

The brain is a prediction machine; constantly preparing the physiology for what might happen in the immediate future. However, the brain is not designed to make long-term predictions. The brain thinks, I am alive right now, why do I care what happens 3-months or 3-years from now?

When we derive Innovations from past experiences the brain does not need to predict much change, rather it predicts that future outcomes will resemble the past. These innovations feel safe, familiar and comfortable. However, these innovations are not that innovative.

When we envision innovations that predict a lot of change, or are de-coupled from past experience, the brain and nervous system feel uncomfortable. The further into the future we attempt to predict the more variables and the more uncertainty. The survival-based mechanisms of the brain are triggered to resist the changes required to innovate.

In order to take actions from innovative ideas, we need the brain to feel comfortable by building a physiological relationship with that future.

Innovations require us to predict what is possible, probable, and preferred.

THE HEART INNOVATES

To be innovative we must move beyond the limitations of the predictive brain, and get comfortable with the uncertainty and unknown of long-term futures. When we are in physiologically coherent states where the heart sets the rhythm for the brain, we can envision what is possible, probable and preferred.

Everyone organization can innovate right now, but often we do not feel like changing. Investigating new possibilities opens our think to new innovations, but just because something is possible does not mean it will happen. Innovations that feel more probable align with the capability and capacity of the individual or organization.

Innovations that are more preferred align with a future our individual physiology, or collective physiology as an organization, wants to take action towards.

When teams are coherent there is freedom for the individual members to authentically share all the possible ideas, even ones that feel uncomfortable, to discover which ones resonate within the larger group's intent and goals. This allows teams to consistently and reliably discover the most probable and preferred innovations.

Purposeful Futures are coherent, and align physiology and innovation with the future.

PURPOSEFUL FUTURES

As we move our physiological focus from the brain to the heart we can envision futures where innovations are purposeful. We can build a roadmap to that future from a state of physiological coherence with that future and teams are ready to take collaborative action.

In a physiologically coherent state the brain is not triggered to predict failure or danger and it can become comfortable with the uncomfortable. If we are purposeful then we do not trigger our physiology to reinvent the past and we access novel ideas.

When futures are purposeful, innovations emerge that clearly guide the way to that collaborative future. We have taken the time to not only experience the future through our thoughts and ideas, but we have collaboratively experienced the future with our physiology and our entire nervous system. We have built a physiological relationship with that future.

As we practice being in that future with our physiology through group discussion, envisioning, reflection, and time-lining, we become more comfortable with making it real through actionable innovations.

MindA INNOVATION

1.0 iG Idea **Generator**

2.0 iD Idea **Developer**

3.0 iA Idea **Accelerator**

A Process for Generating Coherent Ideas & Developing Actionable Innovations.

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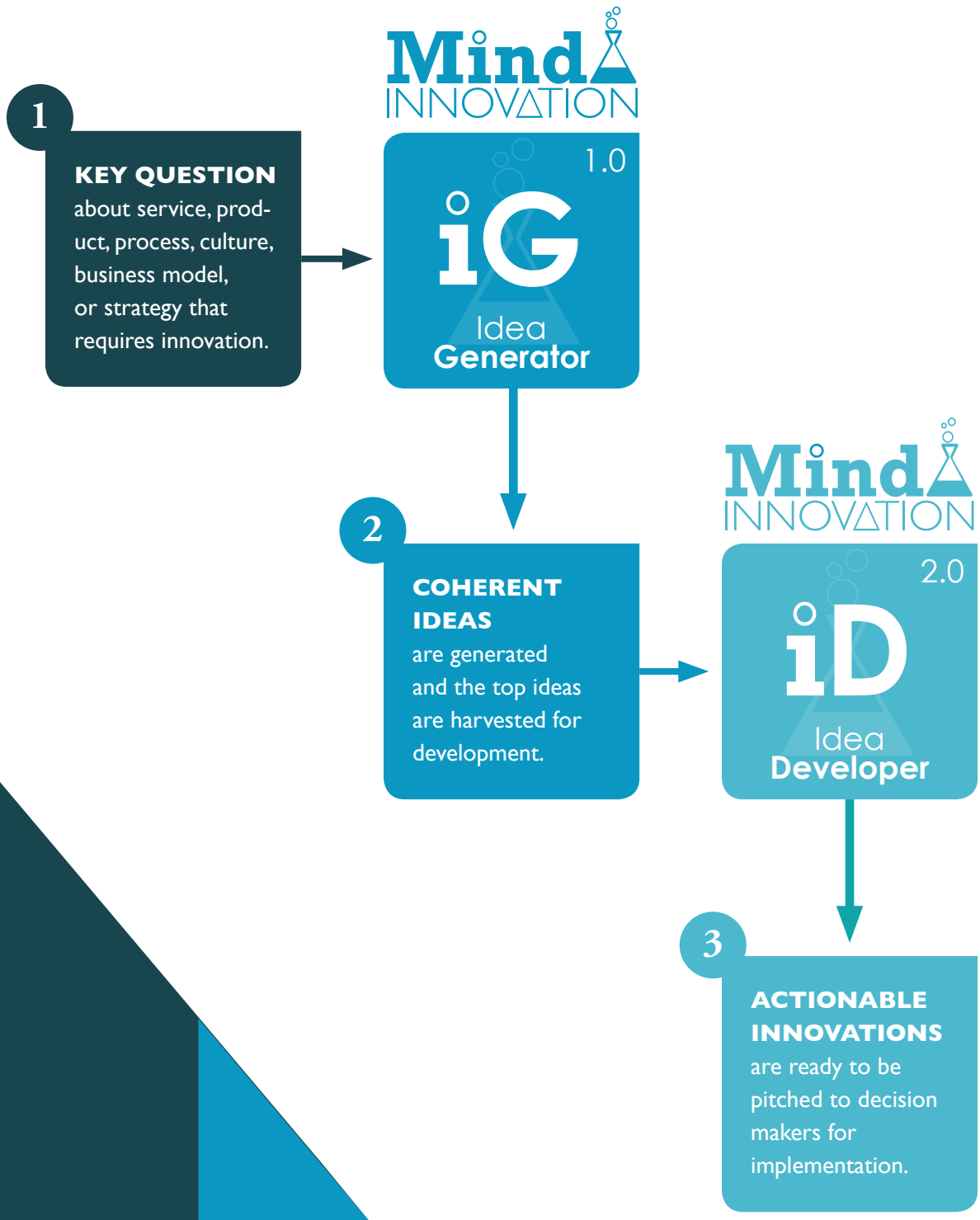
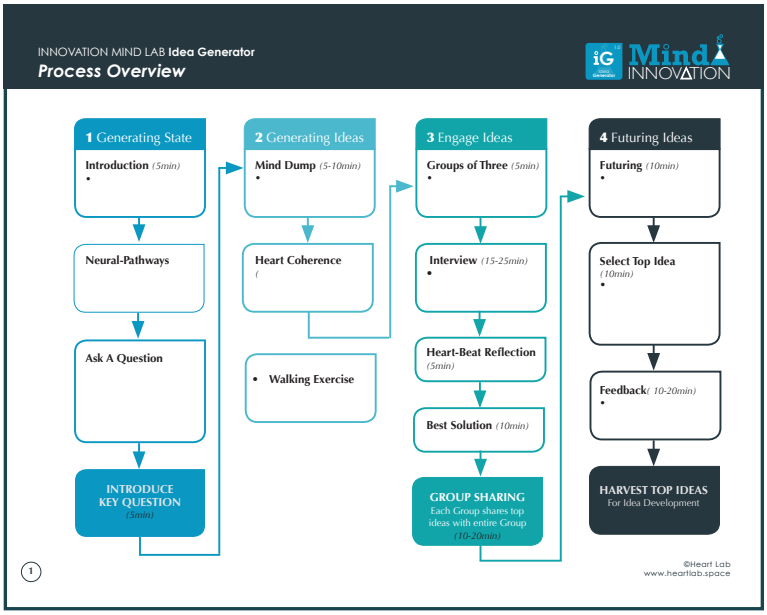
INNOVATION PROCESS



GENERATING COHERENT IDEAS

10X The Quality of Ideas



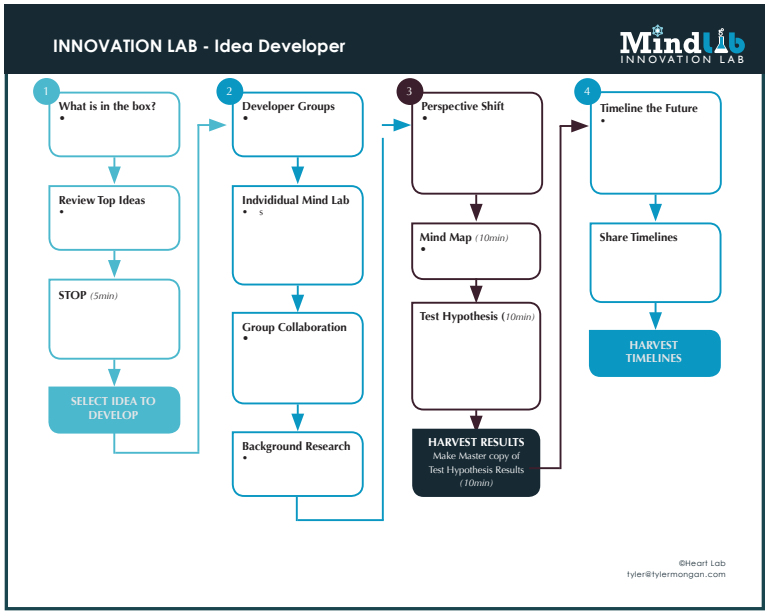
The Innovation Mind Lab (IMLab) Idea Generator is a process for generating coherent ideas around a key question. The type of questions can be directed towards innovation of a service, product, process, culture, leadership, future of the market, or business model. By the end of the IMLab Idea Generator process teams have harvested the best coherent ideas from the group.

Organizations using the IMLab process report increase in quality of ideas, increase in ideas they have never thought about before, and increase in confidence that it is productive and valuable to develop the idea further.

DEVELOPING ACTIONABLE INNOVATIONS

Mind INNOVATION iD 2.0 Idea Developer

Shorten The Time From Idea to Action



The Innovation Mind Lab (IMLab) Idea Developer is a process for developing coherent ideas into actionable innovations. Using a process of group coherence, group interaction, two-directional thinking, value assessment and alignment, idea pitches and futuring timelines, teams develop innovations that are ready to be evaluated by decision-makers and can be taken action on immediately.

90% of participants using the IMLab process report that they would use it again within their function and 82% said they would recommend the process to other members in the organization. Organizations report having a clear path to the innovation and have decreased the time required to take action on innovative ideas developed in the IMLab.

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