here was a period when the
view of organizations as mecha-
nistic entities served us well and led
to significant increases in production.
From the time of Henry Ford through
the remainder of the Industrial Age,
organizations benefited from
the learning gained from this perspec-
tive. Today, however, the speed and
complexity of the business
environment has forced
organizations to take a dif-
ferent approach. Indeed,
those that wish to thrive
must be able to adapt to
changing conditions,
similar to how living
organisms evolve in
response to environmental
changes.

The concept of organizations as
living systems is not new. Extensive
work, particularly in the area of systems
thinking, has brought this perspective
into the limelight. By exploring some
of the more elegant biological models
from our own human physiology,
we can gain insight and generate “new”
ideas for managing our enterprises.
This article will consider five different
processes from human biology and will
propose practical ways in which the
characteristics of these models may
have applications for organizations.
In addition, I offer questions for further
dialogue as a foundation for further
learning in teams.

Neural Networks
In the human brain, intelligence and
learning are closely related to the
number and types of interconnections
between neurons. As new learning
takes place, connections are modified
to incorporate new intelligence. In
addition, the more a particular
learning is reinforced, the
greater the strength of the
connections between key neu-
rons.

Margaret Wheatley
observes that, to
foster greater
health for a living
system, we need to
find ways to “…connect
it to more of itself” (Margaret J.
Wheatley, Finding Our Way: Leadership
for an Uncertain Time, Berrett-Koehler
Publishers, Inc., 2005). The implica-
tion for organizations is that collective
organizational intelligence, as well as
the speed of organizational learning, is
directly related to the number of
interconnections among the members
of that group and with outside enti-
ties. As a result, learning in “silos” is
less desirable than learning that is
shared.

Another implication, related to
Daniel Goleman’s social intelligence
theory, is that shared intelligence will
facilitate “high-road” cognitive
responses to challenges rather than
“low-road” responses that are driven
by emotion (Daniel Goleman, Social
Intelligence: The New Science of Human
Relationship, Bantam, 2006). In other
words, the automatic stress response of
both individuals and organizations can
be overidden by higher-level func-
tions, and more thoughtful adaptations
can be made. The ability to do so,
however, depends on the degree to
which this higher-level awareness
exists. In organizations, this capability
springs from the power of relationship.

Questions for Dialogue
• How often do we tend to rely on
“low-road” or “knee-jerk” responses
to events? How do these responses
serve us well, and how might they
not serve us?
• How well does our organization
share new learning and intelligence?
• What synapses (connections) and
networks exist, and what connections
need to be established?
• How do we currently manage the
sensory inputs (internal and external
information gleaned) to our
organization?
• What space and process currently
exists for scanning these inputs?
• As new teams are created or as new
individuals enter the organization,
how are they connected with the
necessary “neural networks” in a
purposeful manner?

Endocrine Feedback Loops
The endocrine system provides us
with a biological example of how
feedback loops are used effectively in
the human body. The prototype loop
that is most frequently referred to
involves the relationship between the
pituitary gland (located in the brain)
and the thyroid gland. The thyroid
gland is responsible for the produc-
tion of active thyroid hormone,
which has a number of effects on
metabolism. Patients with an excessive
production of thyroid hormone will
experience a hypermetabolic state
resulting in heat intolerance, sweating,
weight loss, rapid heart rate, and other
symptoms. On the contrary, as one
would expect, an underproduction of

TEAM TIP
At a team retreat, spend several
hours reflecting on how to apply the
lessons from human physiology out-
lined in this article.
thyroid hormone causes a slowing down of many functions, resulting in cold intolerance, weight gain, slow heart rate, constipation, hoarseness, and other symptoms.

The secretion of thyroid hormone is regulated by another hormone, thyroid stimulating hormone (TSH), produced by the pituitary gland. The pituitary gland “senses” the amount of circulating thyroid hormone and, if it is low, increases the amount of TSH produced, thus sending a signal to the thyroid to produce more. Conversely, if excessive thyroid hormone is sensed, then a reduced amount of TSH is produced, sending a signal to the thyroid gland to reduce production. Feedback loops such as this, as well as more complex ones, are numerous in the body. Blood pressure regulation is another example that relies on a number of interrelated loops.

For organizations, systems thinking tools and approaches are a natural way to adapt these models for practical use. Organizations with a results orientation, and those with a focus on continuous process improvement, are likely already using these tools. However, even if an organization is not involved in this work or does not have a systems-based approach designed into its processes from the start, there are practical opportunities to begin doing so immediately. Ensuring that up-regulation or down-regulation of processes takes place based on the results achieved and aligning resource allocation with the up- and down-regulation is an achievable first step for many teams.

Questions for Dialogue
- What are the most essential core processes for your team or organization, and how do you currently examine and adapt to the results of those processes?
- What feedback loops currently exist in your organization, and what loops should exist but do not?
- How does up-regulation or down-regulation occur in your organization based on value and results?
- How is the process of resource allocation consciously tied into these feedback loops?

Immunologic Memory and Modulation

The immune system has the task of protecting our bodies by attacking external threats (infections), while at the same time, not mistakenly attacking parts of the body or potentially beneficial processes. In order to do so, our immune systems develop an acute awareness of what is “self” and what is “non-self,” typically by identifying and recognizing the types of proteins and other molecules present on cell surfaces. Similarly, when the immune system encounters new threats, such as happens with a bacterial or viral infection, the system is capable of “learning” by developing the ability to “recognize” the characteristic proteins on the surface of these invaders.

Organizations would do well to ensure that organizational learning and memory are not kept local.

The ability to re-create the necessary antibodies that are specific for these external threats remains in place as a sort of “immunologic memory” and is the reason why immunizations work to protect us against diseases.

Organizations, too, can learn from this immunologic model. By developing a keen awareness of “self” versus “non-self” through purposefully eliciting shared values, purpose, and meaning, organizations foster a strong sense of cultural identity. When a company achieves this level of clarity, it establishes high levels of engagement and a strong foundation for shared learning. Along these lines, as an organization becomes clear about its self-identity, it improves its ability to identify and recruit new talent with shared purpose and values.

The aspect of “immunologic memory” has some interesting lessons for organizations as well. When one part of the body successfully fights off an infection, the knowledge of that particular event does not remain local. Instead, it is shared throughout the immune system. Similarly, organiza-
How quickly do we recognize and act when these arise?
• How rapidly do we currently sense and adapt to threats? What space have leaders created for this purpose? How does this process currently take place?
• How do we deal with innovation, especially when disruptive innovation arises (“adaptive mutations”)?
• How has “malignancy” harmed your organization? In these situations, what degree of resource depletion, uncontrolled growth, and interference with core processes have occurred as a result?
• How would we describe our own “organizational immune system”? How does local knowledge get distributed widely so that it’s assimilated into organizational memory?

Cellular Turnover, Rejuvenation, and Replenishment

The human body is in a constant state of renewal. Cells are destroyed and replaced when necessary, as the body is aware of stagnancy. The cells of your body today are not the cells that were there a year ago, and thus, the physical “you” today is not the same physical “you” from the past. Of course, “you” as a whole do retain your identity, sense of self-awareness, purpose, and values in the midst of all this constant reinvention.

For organizations, the implication is that constant renewal and “reinvention” is a necessary component for success. At the same time, the organization must retain ongoing awareness of core purposes, shared values, meaning, and other things that create a sense of organizational identity. Without the ability to continuously renew and reinvent, an organization loses its ability to adapt to changing conditions. Leaders must be attuned to this important process as worthy of ongoing attention.

Questions for Dialogue
• What areas of your organization are at risk for stagnancy? What signals are present?
• How does your organization currently take purposeful steps to re-invent processes?
• In what ways has your organization evolved as a result of continuous reinvention? How have core purpose, shared vision, and shared values changed, and how have they remained the same?

Cellular Communication

Cells communicate in a multiplicity of ways. Mediators, when secreted by cells, serve as signals to other cells and systems throughout the body. Cellular communication travels through multiple pathways and has redundancy built into it.

For example, when the body is under stress, it sends messages to multiple systems to react quickly to perceived threats. These same messages can also have unintended consequences in negative effects on the immune system, digestion, and learning.

Similarly, the messages sent by leaders and throughout organizations must take into consideration both intended and unintended consequences. A sense of urgency, for example, may be important in order to stimulate change, but organizations that find themselves stuck in this frame of reference for too long or in excess may find it difficult to foster learning and innovation. Consequently, leaders must develop a heightened degree of social awareness to assess the impact of messages that permeate the ranks.

Questions for Dialogue
• What modes of communication are used most often in your organization?
• How are your communications achieving intended consequences?
• What unintended consequences have you seen as a result?
• What level of social awareness exists within your organization? How might this be enhanced?

Conclusion

Living models have parallels in organizations, when one considers organizations as living systems. Five examples from human physiology, in particular, point toward potential ways to enhance the adaptability of organizations. These examples, along with the prescriptions they suggest, include:
• Neural Networks—enhance the number of interconnections within the organization, as well as between the organization and the larger system within which it exists.
• Endocrine Feedback Loops—ensure that the feedback loops relevant to an organization are up-regulated or down-regulated based on results, and that learning occurs along the way.
• Immunologic Memory and Modulation—learning from one area of an organization must be distributed widely, and organizations must be able to distinguish “self” from “non-self” in the context of shared purpose, vision, and values while at the same time allowing for “adaptive mutations” (disruptive innovation).
• Cellular Turnover, Rejuvenation, and Replenishment—continuous reinvention is necessary for organizations to adapt effectively.
• Cellular Communication—modes of communication within organizations can have both intended (adaptive) and unintended (non- adaptive) consequences, and a certain degree of social awareness must exist among leaders in order to achieve the right amount of impact without harming the organization.

The ability to adapt is one of the critical success factors for organizations existing in the complex, rapidly changing environments of today. The examples of ways in which the human body adapts can provide leaders with a framework with which to foster adaptability for their own organizations, while also laying a foundation for sustainability.

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