VISION PAPER • OCTOBER 2026

FROM BUSINESS CHANGE TO HEALTH CHANGE

From Repair to Resilience

The Eye as a Gateway to Systemic Health Leadership

A Vision Paper on Translating Biological and Organizational Resilience into a New Paradigm of Preventive Healthcare

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Independent intellectual contribution

Clean reading edition • Draft for review

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Abstract

Our healthcare system is predominantly a repair system. Despite extraordinary progress in acute care, surgery, and the treatment of disease, healthcare remains largely organized and financed around the management of existing illness. Prevention and long-term health promotion have not acquired equivalent strategic importance.

This Vision Paper proposes a shift from Business Change to Health Change: the institutional transformation of healthcare from predominantly reactive intervention toward anticipatory, adaptive, and continuously learning preventive medicine.

The argument builds on an intellectual continuity between the management principles developed in *Business Change als neue Management-Disziplin* (Fopp & Schiessl, 1999) and contemporary developments in systems biology, organizational cybernetics, and retinal biomarker research.

The argument rests on three theses.

First: Resilience can be developed and supported. Biological and organizational systems differ fundamentally in their mechanisms, but both depend on feedback, adaptability, and the capacity to maintain functioning under changing conditions. The intellectual connection begins with biology and cybernetics and extends to organizational design.

Second: Resilience requires timely and actionable information. The eye, particularly the retina, provides an unusually accessible window into neural and microvascular structures. Emerging retinal imaging research suggests opportunities for systemic risk assessment, provided that biomarker findings are clinically validated and integrated with established diagnostic pathways.

Third: Prevention is a management and governance responsibility. Its effectiveness depends not only on individual behavior or technological innovation, but on leadership, resource allocation, interdisciplinary coordination, appropriate incentives, and measurable patient outcomes.

The paper introduces the Health Change Resilience Loop: a proposed integration of five functions—Observe, Interpret, Act, Evaluate, and Learn—grounded in established cybernetic and learning-health-system principles. It also applies Stafford Beer's Viable System Model to the institutional challenges of preventive healthcare.

The central proposition is that early detection alone does not transform health. Transformation occurs when healthcare systems develop the capability to convert validated biological signals into timely, coordinated, evidence-based preventive action.

The eye may become an important gateway to such a system. Health Change describes the organizational transformation needed to turn that opportunity into measurable health benefits.

Keywords: Health Change, Business Change, Systemic Health Leadership, Resilience, Preventive Medicine, Retinal Biomarkers, Organizational Cybernetics, Autopoiesis, Viable System Model, Learning Health Systems, Healthy Longevity.

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1. Introduction: From Business Change to Health Change

A transformation challenge for the twenty-first century

Our healthcare system is predominantly a repair system.

Modern medicine has achieved remarkable results by diagnosing and treating disease, replacing damaged structures, restoring physiological functions, and managing acute health crises. These accomplishments remain indispensable.

Nevertheless, much of the system's institutional architecture continues to prioritize intervention after the onset of disease over the sustained maintenance of health.

The issue is not that medicine lacks preventive knowledge. Many preventive interventions are already established and effective. The challenge is that prevention remains insufficiently integrated into financing, organizational accountability, long-term measurement, and everyday healthcare delivery.

According to the OECD's *Health at a Glance 2025*, expenditure classified as prevention accounted for approximately 3% of overall health expenditure across OECD countries before the COVID-19 pandemic, temporarily increased during the pandemic, and returned to approximately pre-pandemic levels by 2023. Although expenditure categories cannot capture every preventive activity, this pattern illustrates the limited institutional priority historically given to prevention.

The resulting imbalance is more than a medical problem. It is a challenge of system design, strategic leadership, and organizational transformation.

The connection to Business Change

In 1999, Leonhard Fopp and I published *Business Change als neue Management-Disziplin: Wie der Chief Change Officer den Unternehmenswandel mitgestaltet*.

Our central concern was that profound organizational transformation could no longer be understood as an occasional corrective intervention. In an environment characterized by increasing complexity and accelerating change, transformation required explicit leadership responsibility, strategic direction, organizational capabilities, and continuous adaptation.

We argued for recognizing Business Change as a management discipline and explored the role of the Chief Change Officer in shaping organizational transformation.

More than a quarter of a century later, I see a comparable challenge emerging in healthcare.

Organizations cannot secure their long-term viability merely by repairing operational failures. Equally, healthcare systems cannot achieve sustainable health outcomes merely by becoming more effective at treating disease after it has developed.

Both must develop the capacity to anticipate, adapt, coordinate, and learn.

After a long illness, I fundamentally changed my view of systems.

My personal experience reinforced an intellectual question that had accompanied my professional work for decades: What makes a complex system capable of preserving its essential functions, adapting under pressure, and recovering from disruption?

In organizational management, we call this capability resilience. In biology and medicine, analogous questions concern homeostasis, allostasis, adaptation, physiological reserve, and recovery. These concepts are not identical, but they address a shared problem: how complex systems maintain viability under changing conditions.

This connection has become especially relevant through the vision advanced by Dr. Sylvia Paulig. Her VISION PAPER™ No. 1, *The Eye as a Gateway to Systemic Health*, proposes expanding the role of ophthalmology from a specialized discipline concerned with vision toward an interdisciplinary interface for preventive medicine and healthy longevity.

My contribution begins where this medical vision encounters an organizational question:

How must healthcare systems be designed and led to translate earlier biological insight into better and more sustainable health outcomes?

This is the central question of Health Change.

2. Thesis 1: Resilience Can Be Developed — Biological Principles and Organizational Viability

The ability of living systems to adapt to change is not a mystical state.

It depends on multiple interacting mechanisms through which organisms respond to disturbances, maintain essential functions, recover, and adapt.

Organizational resilience likewise depends on capabilities that enable institutions to perceive changing conditions, coordinate their activities, allocate resources, and adjust their behavior.

These biological and organizational mechanisms are different in their physical realization. Nevertheless, they offer important functional parallels.

The biological origins of systems thinking

Maturana and Varela showed that living systems are autopoietically organized: they produce and reproduce themselves through the operations of which they consist.

Autopoiesis describes the organization through which living systems continuously maintain and reproduce the network of processes constituting them. It should not be equated directly with resilience, learning, or the achievement of health. Rather, it offers a fundamental account of living-system organization and autonomy.

Stafford Beer's work in organizational cybernetics developed a related, but distinct, understanding of viability. His Viable System Model, elaborated in *Brain of the Firm* (1972; expanded edition 1981), drew extensively on cybernetic and neurophysiological thinking to describe essential management functions within organizations.

The contributions of Beer and of Maturana and Varela emerged from intersecting traditions in biology and cybernetics. Their historical relationship should not be reduced to a simple, linear transfer of one theory into the other.

What connects them is a deeper question: How can complex systems preserve their identity and functioning while responding to changing environments?

The distinction between autopoiesis, viability, and resilience

Three concepts are essential to this argument:

- Autopoiesis describes the self-producing organization of living systems.
- Viability describes the capacity of a system to maintain its essential existence and functioning under changing conditions.
- Resilience describes the capacity to withstand, recover from, or adapt to disturbances without unacceptable loss of essential functions.

These concepts overlap, but they are not interchangeable.

A living organism is not a business organization, and organizational management cannot be applied directly to human physiology. Biological adaptation involves processes such as metabolic regulation, neuroendocrine signaling, immune responses, and tissue remodeling. Organizational adaptation involves decision-making, communication, governance, learning, and resource allocation.

The productive connection lies not in claiming that these systems are identical, but in identifying transferable principles of feedback, coordination, adaptive capacity, and responsiveness to the environment.

From biological inspiration to organizational learning — and back to healthcare

Biology has long inspired organizational theory. The challenge proposed here is to complete an interdisciplinary learning cycle.

First, biological and cybernetic principles inspire models of organizational viability.

Second, organizations develop practices and institutions that translate these principles into coordinated action under conditions of uncertainty.

Third, healthcare can examine which of these organizational practices are useful for designing services, incentives, responsibilities, and learning processes that support biological health.

This is not a claim that management techniques can directly modify cellular resilience. It is a proposal that management knowledge can improve the conditions under which evidence-based medical interventions are identified, coordinated, evaluated, and sustained.

The core of this resilience is the same in both cases: self-regulation instead of external control, adaptability instead of rigid repair, prevention instead of downstream intervention.

More precisely, both domains benefit from the appropriate combination of local adaptive capacity, reliable feedback, and coordinated responses. Neither biological health nor organizational resilience is achieved through self-regulation alone: external support, specialized intervention, and centralized action remain essential under certain conditions.

The leadership challenge is to determine when autonomous adaptation is sufficient, when support is needed, and when intervention becomes necessary.

This leads to the first principle of Health Change:

The goal is not to eliminate disturbance or avoid every disease. It is to strengthen the conditions that allow individuals and healthcare systems to maintain functioning, respond effectively to emerging risks, and recover when health is disrupted.

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3. Thesis 2: The Eye as an Early Warning Interface — Resilience Requires Actionable Signals

If resilience is the ability to adapt in time, then every resilient system – whether organization or organism – requires an early warning system that detects changes before they become irreversible.

For healthcare, however, detecting a signal is only the beginning. Its value depends on whether the signal can be interpreted reliably and used to improve a clinical decision or health outcome.

The parallel to organizational resilience

A company that reacts only once the crisis has already occurred is not resilient – it is reactive.

True organizational resilience manifests in the ability to detect weak signals early: declining revenues, shifting customer needs, internal friction.

Successful organizations do not merely collect these signals. They establish processes for evaluating their relevance, deciding when intervention is justified, assigning responsibility, and assessing whether their actions produce the desired results.

Signals without decisions generate information. Signals connected to effective action create adaptive capacity.

The same distinction is fundamental for preventive medicine.

Why the eye offers an important opportunity

The eye is not an isolated organ. It is a window to the body's systemic processes.

The retina and optic nerve are embryologically, structurally, and functionally extensions of the brain.

The retina provides non-invasive access to neural tissue and a directly observable microvascular network. Its vascular structures share important physiological characteristics with microvascular systems elsewhere in the body, including the brain and kidneys, although they are not anatomically identical.

Fundus photography, optical coherence tomography (OCT), and OCT angiography (OCTA) enable examination of retinal structures, neural layers, and vascular characteristics with increasing detail.

This creates the possibility of identifying ocular features associated with systemic cardiovascular, metabolic, and neurological conditions.

Recent studies support this research direction. Julian and colleagues (2026), for example, linked deep-learning-derived ophthalmic imaging features with cardiovascular and neurological traits through a multi-omic analysis. Agrawal and colleagues (2026) reviewed opportunities for combining artificial intelligence with multimodal retinal imaging for early risk stratification.

These findings are promising, but their interpretation requires scientific precision. Many reported relationships are associations or predictions of risk, rather than direct measurements of disease mechanisms or proof of clinical benefit.

Predictive performance and the interval between imaging and clinical events vary between conditions and studies. A universal prediction window of three to seven years cannot be inferred from the current evidence.

From retinal features to validated biomarkers

The emerging research landscape includes several potential applications:

- Cardiovascular and vascular risk: Retinal vascular characteristics may contribute information relevant to vascular health and future cardiovascular outcomes.
- Neurodegenerative conditions: Retinal neural and vascular changes are being investigated for associations with disorders such as dementia and Parkinson's disease.
- Metabolic conditions: Retinal abnormalities may reflect consequences of diabetes and systemic metabolic dysfunction.
- Biological aging: Retinal imaging features are being investigated as potential indicators of age-associated physiological changes and disease risk.

Proposed connections with chronic systemic inflammation, mitochondrial dysfunction, or accelerated biological aging require particular caution. These processes cannot generally be considered directly or definitively measurable through standard retinal imaging alone.

Research biomarkers should therefore be distinguished from clinically validated diagnostic or screening tools.

The eye may become an integrative source of additional health information. It should not be presented as a universal sensor capable of independently diagnosing systemic disease or measuring an individual's overall resilience.

The bridge to Dr. Paulig's vision

Dr. Paulig's VISION PAPER™ No. 1 formulates precisely this framework: the eye becomes a Gateway to Systemic Health, an access point for preventive medicine and healthy longevity.

Her perspective invites a broader understanding of ophthalmology's role in interdisciplinary healthcare. It suggests that insights derived from the eye could contribute to preventive risk assessment beyond conventional eye disease management.

I see an important opportunity to connect this vision with the principles of organizational change.

Retinal imaging can provide information. Clinical expertise must interpret its significance. Evidence-based interventions must address actionable risks. Follow-up must establish whether those interventions achieve meaningful benefits.

Only then does a diagnostic opportunity become part of an effective preventive system.

The difference between early detection and effective prevention

Earlier detection is not automatically better prevention.

A useful preventive pathway must demonstrate that identifying a risk earlier can lead to an action that improves outcomes relative to established care.

Without this connection, screening may produce false-positive results, unnecessary investigations, overtreatment, increased costs, and avoidable anxiety. It may also create false reassurance when relevant disease risks are not detected.

The World Health Organization therefore emphasizes that screening must be evaluated as a complete pathway, including confirmation, treatment, follow-up, benefits, and potential harms—not merely as an isolated test.

This distinction becomes the second principle of Health Change:

The value of an early warning system is not determined by how much information it produces, but by its demonstrated ability to support timely, appropriate, and beneficial decisions.

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4. Thesis 3: Prevention as a Management Task — Health Requires Strategy, Governance, and Leadership

Prevention is not an individual act of discipline, but a systemic management task.

What holds true for organizations also holds true for health: change succeeds only when it is strategically planned, resourced, made measurable, and continuously led.

Individual responsibility remains important, but it cannot substitute for reliable services, healthy environments, equitable access, and coherent institutional incentives.

The management parallel

Organizations have long learned that profound change does not arise from appeals.

A company seeking to secure its future formulates a vision, derives clear goals from it, allocates resources, defines metrics, creates incentives, and establishes a leadership culture that rewards long-term thinking.

The same organizational capabilities are needed if prevention is to become a durable operating principle of healthcare rather than a secondary activity dependent on individual initiative.

Healthcare professionals cannot be expected to deliver integrated long-term prevention if organizational structures, funding arrangements, information systems, and performance indicators primarily reward isolated episodes of treatment.

The transition from Business Change to Health Change

In *Business Change* (1999), the challenge was to move organizational transformation from an occasional intervention toward a recognized and accountable management discipline.

Health Change proposes a comparable transformation: prevention must become an institutionally supported capability of healthcare systems.

This does not mean placing a conventional corporate management model above medical judgment. It means making explicit the organizational responsibilities that allow clinical evidence to be translated into coordinated, person-centered care.

Five responsibilities are particularly important.

Vision and strategy. The goal must not be the absence of disease alone, but the preservation and strengthening of health, functioning, adaptive capacity, and quality of life. Dr. Paulig frames this aspiration through healthy longevity: extending health span rather than longevity at any cost.

Measurability. What is measured can inform management, but not everything that can be measured is clinically useful. Appropriate indicators must include patient outcomes, function, quality of life, risk reduction, equity, and possible unintended consequences. Retinal biomarkers may contribute where their additional value has been demonstrated.

Resource allocation. Investment must support effective prevention, primary care, early intervention, and interdisciplinary coordination without neglecting the essential functions of acute and restorative medicine. The objective is not the indiscriminate transfer of expenditure from treatment to screening, but better allocation according to demonstrated health benefits.

Leadership and culture. Prevention requires accountable leadership across public policy, healthcare organizations, insurance systems, professional disciplines, and communities. Incentives should support long-term value rather than unnecessary activity or fragmented interventions.

Adaptive capability. Healthcare systems must continuously evaluate new knowledge, learn from outcomes, and adjust protocols and resources. This combines professional judgment and patient autonomy with institutional responsibility for safety, quality, and improvement.

Why leadership matters

In management, strategy becomes meaningful only when it changes decisions, responsibilities, and resource allocation.

A hospital can publish an ambitious prevention strategy while continuing to reward exclusively short-term procedural activity. An insurer can promote healthy living while failing to support effective longitudinal care. A healthcare organization can invest in new diagnostic technologies without creating pathways to interpret or act upon their results.

In each case, the failure is not necessarily a lack of scientific knowledge. It is a failure to convert knowledge into organizational capability.

Health Change therefore requires more than a new medical vocabulary. It requires a change in governance.

A possible new leadership responsibility

Our earlier work explored the Chief Change Officer as a role for guiding enterprise transformation.

A comparable responsibility may be needed within future healthcare systems: leadership accountable for aligning preventive strategy, clinical evidence, organizational processes, resources, and measurable outcomes.

This need not imply the creation of another executive title or administrative hierarchy. Depending on the institution, the responsibility could be assigned to an existing leadership function or an interdisciplinary governance body.

What matters is clear accountability for translating prevention from aspiration into practice.

The third principle of Health Change is therefore:

Prevention becomes strategically effective when it is embedded in the decision-making, incentives, capabilities, and accountability structures of the healthcare system.

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5. The Health Change Resilience Loop — From Information to Adaptive Action

The three theses converge on an essential question:

How does a healthcare system transform an early biological signal into a sustained improvement in health?

I propose the Health Change Resilience Loop as a conceptual framework for connecting preventive diagnostics with clinical decisions, organizational coordination, and continuous learning.

The model integrates five established functions of feedback-based and learning systems. Its proposed contribution is their application to the transformation challenge described in this paper, particularly the integration of retinal insights into preventive care.

1. Observe — Recognize relevant change

The system collects information that can contribute to understanding an individual's health status or risk trajectory.

Such information may include clinical examinations, medical history, blood pressure, laboratory measurements, functional assessments, relevant behavioral and environmental factors, and—where supported by evidence—retinal imaging.

Observation must be proportionate to clinical need and should avoid collecting data without a defined purpose.

2. Interpret — Convert information into meaningful knowledge

Biological signals must be evaluated in their clinical context.

An observed retinal feature may represent normal variation, an existing ocular disorder, a risk association, or a finding requiring further assessment.

Interpretation therefore requires validated methods, uncertainty assessment, and appropriately qualified professionals.

The central question is not simply whether a deviation exists, but whether it meaningfully changes a clinical decision.

3. Act — Initiate an appropriate preventive response

Where actionable risk has been established, the system supports an evidence-based response.

Depending on the circumstances, that response may involve established preventive treatment, lifestyle support, risk-factor management, further investigation, specialist referral, or a decision not to intervene.

The intervention must be adapted to the individual's preferences, circumstances, and overall risk profile.

4. Evaluate — Determine whether the response works

Outcomes must be assessed against meaningful objectives.

Has the intervention improved established risk factors, functioning, quality of life, or clinically important outcomes? Were there avoidable harms? Was the process accessible, efficient, and acceptable to the patient?

Where appropriate, longitudinal measurements may support evaluation, but an improvement in a biomarker must not automatically be treated as evidence of improved health.

5. Learn — Adapt the system

The resulting evidence informs future decisions.

Successful approaches can be refined and responsibly scaled. Ineffective or harmful interventions should be modified or discontinued. New findings can inform updated protocols, professional education, resource allocation, and patient communication.

The cycle then returns to observation, incorporating what has been learned.

The decisive distinction

The five functions create a sequence:

Observe → Interpret → Act → Evaluate → Learn → Reassess.

This proposed loop is not a new biological law. It is an organizational framework informed by established cybernetic feedback concepts and the literature on learning health systems.

Its purpose is to connect the sensing potential of modern diagnostics with the institutional capabilities required to produce better preventive care.

The eye becomes one potential input into a broader learning process rather than the central controlling instrument of the body.

This leads to the core proposition of the paper:

The next transformation of healthcare will not be achieved by earlier diagnosis alone, but by developing the organizational capacity to convert validated biological signals into timely, coordinated, and continuously improving preventive action.

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6. The Viable Health System — Translating Stafford Beer's Model into Healthcare Governance

The Health Change Resilience Loop describes how information can become action and learning. Stafford Beer's Viable System Model offers a complementary perspective: how must an organization be structured to perform these functions reliably?

Beer's model identifies five interacting organizational functions necessary for maintaining viability in a changing environment. These functions need not correspond to five departments or executives.

For preventive healthcare, I propose the following conceptual translation.

System 1 — Operational care

The primary activities are delivered through general practitioners, ophthalmologists, specialists, nurses, allied health professionals, public health services, and coordinated care teams.

These actors identify risks, deliver care, support patients, and respond directly to health needs.

Effective healthcare transformation must preserve their professional competence and appropriate operational autonomy.

System 2 — Coordination

Prevention frequently fails at the boundaries between disciplines and institutions.

An abnormal finding may be recognized but not communicated effectively, or a referral may occur without an agreed follow-up responsibility.

The coordination function therefore includes interoperable information systems, shared clinical pathways, communication standards, referral processes, and mechanisms that reduce fragmentation.

System 3 — Operational governance and resource allocation

Leadership must ensure that resources, responsibilities, and standards support the effective delivery of preventive services.

This includes quality assurance, workforce capacity, reimbursement arrangements, organizational accountability, and evaluation of efficiency.

Independent auditing and assurance mechanisms—corresponding to the supplementary System 3* function in Beer's model—can help verify whether reported performance reflects actual clinical practice and outcomes.

System 4 — Intelligence, research, and adaptation

Future-oriented intelligence continuously examines emerging scientific evidence, demographic developments, technological opportunities, and changing population needs.

Retinal imaging research and artificial intelligence may contribute to this function by generating clinically relevant insights, subject to scientific validation and appropriate governance.

The objective is to anticipate changing needs rather than react only once existing care structures become inadequate.

System 5 — Purpose, identity, and ethical direction

The highest governance responsibility is to define and preserve the system's purpose.

For Health Change, that purpose is not to maximize diagnostic activity, medical intervention, or the quantity of collected data.

It is to improve health, preserve human functioning, respect dignity and autonomy, reduce avoidable suffering, and use resources responsibly.

System 5 must balance immediate clinical needs with long-term strategic objectives. It must also ensure that preventive innovation remains aligned with patient interests and societal values.

A critical limitation

The VSM provides an organizational design lens, not clinical proof that a particular prevention strategy will succeed.

Its application to healthcare should therefore be treated as a conceptual design hypothesis, to be examined through organizational research, practical implementation, and measurable results.

The importance of this model lies in making a fundamental issue visible: preventive medicine requires not only new technologies, but coherent relationships among care delivery, coordination, operational management, future-oriented intelligence, and ethical leadership.

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7. From Vision to Validation — A Responsible Implementation Agenda

A Vision Paper should not confuse a promising concept with an established clinical solution.

Its purpose is to identify a direction that can be examined, challenged, refined, and ultimately tested.

For this reason, I propose translating Health Change into an interdisciplinary research and implementation agenda.

A testable hypothesis

The integration of appropriately validated retinal risk markers into coordinated preventive care pathways may improve risk stratification, decision-making, and patient outcomes compared with established preventive care pathways alone.

This hypothesis must be evaluated for specific diseases, populations, clinical contexts, and interventions. It does not justify universal retinal screening for systemic disease.

An illustrative research pathway

Phase 1 — Establish clinical validity and feasibility.

Identify a specific, clinically meaningful use case. Evaluate measurement reliability, reproducibility, model calibration, external validity, and the additional predictive information provided beyond established clinical risk factors.

Assess whether the diagnostic information is understandable and actionable for clinicians and patients.

Phase 2 — Test an integrated preventive pathway.

Compare appropriately selected care pathways using established assessment alone versus assessment supplemented by validated retinal information. Where feasible and ethical, use a prospective controlled design.

Assess whether retinal findings alter decisions appropriately, improve referral quality, or lead to better implementation of evidence-based prevention.

Phase 3 — Evaluate clinical outcomes and unintended consequences.

Examine meaningful outcomes over appropriate follow-up periods, together with false positives, unnecessary investigations, anxiety, inequalities, and costs.

Risk prediction accuracy alone must not be mistaken for demonstrated clinical utility.

Phase 4 — Assess organizational viability and scalability.

Evaluate whether the pathway can be integrated sustainably into routine care, including primary care, ophthalmology, specialist services, reimbursement systems, and digital infrastructure.

Only interventions demonstrating acceptable benefits, safety, and value should be considered for broader implementation.

The necessary interdisciplinary partnership

This agenda requires more than ophthalmology and management science.

It calls for collaboration among ophthalmologists, primary-care clinicians, epidemiologists, systems biologists, public health experts, organizational researchers, data scientists, economists, patients, and policymakers.

Such a partnership is consistent with Dr. Paulig's VISION PAPER™ initiative, which encourages the exploration of ideas crossing conventional disciplinary boundaries.

Its success would depend on combining scientific rigor with the willingness to reconsider established institutional structures.

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8. Ethical Responsibility — Prevention Without Excessive Medicalization

A system designed to identify more risks must also know when not to intervene.

Healthy longevity should not become an obligation to submit continuously to testing, optimization, or surveillance. Nor should individuals be held solely responsible for outcomes shaped by socioeconomic conditions, access to care, working environments, and other structural determinants of health.

Health Change must therefore be guided by several safeguards:

- Patient autonomy and informed choice, including the right to decline optional investigations.
- Clinical proportionality, ensuring that testing and interventions offer a reasonable prospect of benefit.
- Data protection, transparent data use, and appropriate oversight of artificial intelligence.
- Equity, so that preventive innovation does not disproportionately benefit already advantaged populations.
- Professional accountability, preventing automated risk scores from replacing clinical judgment.
- Continuous evaluation of harms, costs, and unintended consequences.

Preventive medicine should expand the capacity to live well, not expand medical intervention into every dimension of life.

The ultimate measure of success is not the number of biomarkers monitored, risks identified, or procedures initiated. It is whether people experience better health, greater functional independence, improved quality of life, and fewer avoidable adverse outcomes.

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9. Conclusion: From Repair to Systemic Health Leadership

The three theses of this Vision Paper lead to a common consequence: Our healthcare system must transform from a repair system into a learning, self-regulating system.

Such a transformation does not diminish the importance of acute and restorative medicine. It extends healthcare's responsibilities toward the earlier identification of actionable risk, effective prevention, and the preservation of health over time.

Thesis 1 demonstrates that biological and organizational resilience are distinct yet conceptually connected through feedback, adaptation, and viability.

Thesis 2 identifies the eye as a promising source of systemic health information while recognizing that clinically useful prediction requires rigorous validation and integration with established diagnostic pathways.

Thesis 3 establishes prevention as a leadership and governance responsibility requiring strategy, resources, coordination, accountability, and continuous evaluation.

Together, they support the Health Change Resilience Loop and the proposal to apply organizational cybernetics to the design of preventive healthcare systems.

This is where the intellectual trajectory from Business Change in 1999 to Health Change in 2026 becomes significant.

In 1999, the challenge was to recognize organizational transformation as a continuous management responsibility rather than an occasional response to crisis.

Today, healthcare faces a comparable challenge: to organize prevention not as a collection of isolated recommendations or diagnostic innovations, but as a coordinated institutional capability.

Dr. Sylvia Paulig's vision of the eye as a gateway to systemic health provides an important opportunity within this transformation. It proposes that ophthalmology may contribute additional insight into systemic health processes.

My complementary proposition is that the potential of such insight can only be realized when healthcare develops the organizational ability to interpret, coordinate, act, evaluate, and learn.

The eye may help us recognize certain risks earlier. But only a capable, evidence-based, and accountable healthcare system can translate that knowledge into improved health.

From this perspective, Healthy Longevity is not simply a scientific or technological ambition. It is also a challenge of organizational design, leadership, and societal responsibility.

The transformation from repair toward resilience will require a new relationship between medical science and management science—one in which the purpose of leadership is not merely to make healthcare institutions more efficient, but to make them more capable of supporting lasting health.

Twenty-seven years after *Business Change*, the next question is no longer only how organizations can anticipate and manage transformation.

It is how we can transform healthcare itself so that the preservation of health becomes as systematic, accountable, and evidence-based as the treatment of disease.

That is the vision of Health Change.

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Author and affiliation disclosure: Johann Christian Schiessl has no formal affiliation, employment, collaboration, financial relationship, or other institutional relationship with PAULIG EYE & HEALTH. He has an independent professional interest in and personal appreciation of Dr. Sylvia Paulig's work. This Vision Paper represents his independent intellectual contribution. He declares no competing interests related to PAULIG EYE & HEALTH.

Nature of the contribution: This Vision Paper presents a conceptual and interdisciplinary framework. The Health Change Resilience Loop is proposed as a synthesis and application of existing systems and learning principles, not as an independently validated clinical or organizational model. Its clinical and operational propositions require empirical testing.