JUST AS HUMAN INTELLIGENCE IS MEASURED USING IQ, SOON WE WILL BE ABLE TO MEASURE THE INTELLIGENCE OF ORGANIZATIONS USING "ORGANIZATIONAL IQ". HERE WILLIAM E. HALAL OFFERS A FRAMEWORK FOR UNDERSTANDING THE COMPLEX INTELLIGENCE WITHIN ORGANIZATIONS.

ORGANIZATIONAL

What is it, and How C

BY WILLIAM E. HALAL

Knowledge management (KM) has burst onto the management scene. Because it has seized the attention of managers so quickly, it was almost inevitable that some sort of period of confusion should follow. Managers have been named "Chief Knowledge Officers" without fully understanding the implications of such a title. This problem was highlighted when one CKO recently worried: "I'm trying to figure out if we should have a CKO and what the title actually means." Most would agree with the Gartner Group's definition that knowledge management is "an integrated approach to identifying, managing, and sharing an enterprise's information assets." But at a recent conference, further queries were raised about this definition. CKOs[1] posed the following questions:

1. How can the organizational infrastructure help KM?
KM takes place within a large, very complex system of organizational structure, IT networks, relationships, culture, and other forms of infrastructure. How should they be shaped to support KM?

2. How can we measure the benefits?
Like all management functions, it's hard to know if KM creates anything of value without defining its specific role and an evaluation system. Remember the adage: "If you can't measure it, you can't manage it."

3. How can we get people to share knowledge?
KM seems to be caught in a paradox. On one hand, we've convinced people that knowledge is of great value—yet we ask them to voluntarily share it with others. This runs counter to human nature.

I don't think we can address such troubling issues without understanding the broader framework within which KM must operate—the "Intelligent Organization." One of the biggest management challenges today is how to create a new breed of intelligent corporations specifically designed for a knowledge economy.

At George Washington University we've been studying the knowledge revolution for several years to define the cognitive functioning of intelligent organizations. So far we've developed a conceptual framework defining organizational intelligence (OI) based on a review of the literature and interviews with scholars and CKOs.

What Is Organizational Intelligence?
Just as human intelligence is measured using IQ, we

KEYPOINTS

1– Organizational Intelligence offers a broad conceptual framework. It allows CKOs to better understand the intricate complexities of managing an intelligent system.

2– "Internal markets" offer the same benefits as external markets: better decisions through price information; creative entrepreneurship; and accountability for results.

3– Cooperation is essential: it's now clear that knowledge increases when shared, thereby making cooperation economically efficient.

4– All human action is the outcome of the battle between ego and id. In organizations a similar conflict occurs between the formal leaders and the informal employees.

Organizational Intelligence is defined as the capacity of an organization to create knowledge and use it to strategically adapt to its environment. It's similar to IQ but framed at an organizational level. The mean is normalized at 100, so that an OIQ above 100 indicates a more intelligent organization, whereas one below 100 indicates a less intelligent organization. A higher OIQ doesn't necessarily improve performance, any more than a high IQ ensures success in life. Rather, it's the fit between OIQ and environment that determines performance.

INTELLIGENCE

n Managers Use it to Improve Performance?

plan to measure the intelligence of organizations using "organizational IQ" (OIQ) or "corporate IQ." Imagine knowing that GM has an OIQ of 85, IBM is rated at 105, and Microsoft at 120. Then assume that this metric could be used to diagnose specific management functions and suggest needs for improvements.

Organizations today are intelligent learning systems composed of educated people using complex information networks to adapt to a turbulent world. Our approach to understanding OI builds on the same approach used to characterize human intelligence. Figure One outlines our present understanding of the cognitive structure of OI, and Table One shows how its prominent functions compare with human intelligence. Let's begin at the bottom of Figure One to briefly explain how we think organizations behave cognitively.

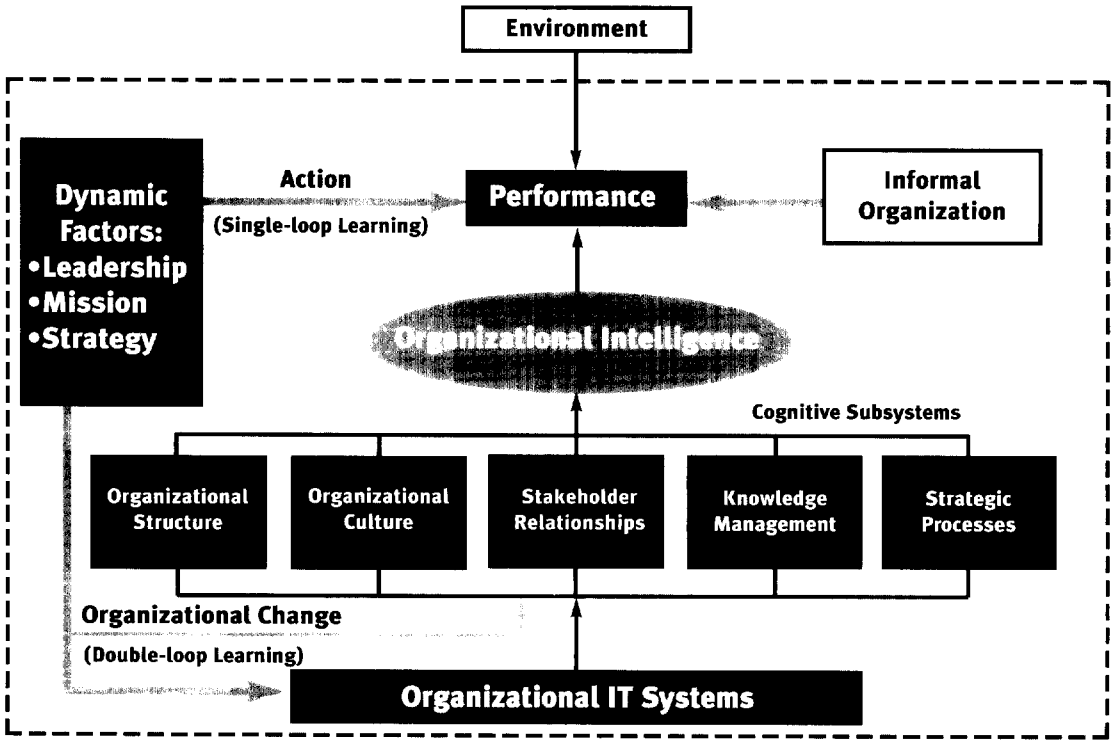
The Role of Information Technology

IT has obviously had a huge impact on modern organizations, but our study shows that it has no direct bearing on intelligence. Figure One on page 22 shows that information infrastructures are only effective insofar as they support the cognitive subsystems comprising OI, which we will explain in a moment. The most brilliant IT means nothing unless it fosters entrepreneurial behavior, collabora-

FUNCTION	HUMANS	ORGANIZATIONS
Measurement	Intelligence Quotient (IQ)	Organizational IQ
Information Technology	Personal IT Systems	Organizational IT Systems
Structure	Network of Nerve Cells	Network of Business Units
Subjective Filter	Personal Values & Beliefs	Organizational Culture
External Linkages	Social Relations	Stakeholder Relations
Knowledge Store	Memory	Knowledge Management
Strategy Formation	Problem-Solving	Strategic Processes
Direction	Ego	Leader
Guidance	Vision	Mission
Decision-Making	Choice	Strategy
Covert System	Id	Information Organization
Routine Decisions	Autonomous Nervous System	Policies & Procedures
Knowledge Gain (Single-Loop Learning)	Education & Action	Training & Action
System Improvement (Double-Loop Learning)	Personal Change	Organizational Change

TABLE ONE
EQUIVALENCE OF HUMAN AND ORGANIZATIONAL INTELLIGENCE

FIGURE ONE
HOW ORGANIZATIONS BEHAVE COGNITIVELY



tive working relationships, and effective knowledge sharing.

This crucial fact may explain the "productivity paradox" that baffles economists. Corporations have invested heavily in sophisticated IT over the past decades with few measurable gains because the underlying cognitive structures of large organizations have remained largely unchanged.

The Organizational Structures of Cognitive Performance

It's now generally understood that human problem-solving is derived not simply from "rational intelligence" but also from other facets such as "emotional intelligence." Similarly, we find that the problem-solving capacity of organizations is a function of more than one cognitive subsystem. The five organizational subsystems include:

- Organizational structure (who is authorized to make what decisions);
- Organizational culture (values and norms that guide action);
- Stakeholder relationships (the extent to which information is exchanged between diverse groups);
- Knowledge management (the type and amount of knowledge available); and
- Strategic processes (how this information leads to understanding and action).

All these subsystems serve essential purposes in the organization's cognitive functioning, and collectively they create organizational intelligence.

One subsystem involves KM, but the other four are equally crucial[2], and some are perhaps more important. Let's examine organizational structure and stakeholder relations in more detail as they are subsystems currently in a state of profound change:

Hierarchical organizational structures once limited decision-making to those in management, but sophisticated IT now permits flatter organizations that use employee knowledge to manage operations directly, quickly and effectively. MCI, Xerox, and

"ORGANIZATIONS ONCE LIMITED DECISION-MAKING TO THOSE IN MANAGEMENT, BUT INFORMATION TECHNOLOGY NOW PERMITS A FLATTER ORGANIZATIONAL STRUCTURE THAT APPLIES EMPLOYEE KNOWLEDGE TO OPERATIONS DIRECTLY."

Johnson & Johnson are now "bottom-up" companies in industries rife with change, so they organize knowledge workers into self-managed units, free to

choose their strategies, employees and methods. Many companies now convert staff units into profit-centers that operate as "suppliers" or "consultants" serving "internal clients." Even the U.S. Government is being reinvented into a performance-based entrepreneurial system.

These "Internal markets" offer the same benefits as external markets: better decisions through price information; creative entrepreneurship; and accountability for results. ABB's 4,500 independent profit centers have become a model of internal markets, as have Hewlett-Packard, Motorola, and Lufthansa[3]. Of course, such structures increase the likelihood of mistakes, but this is considered a fair price to pay for the enhanced problem-solving capacity they offer.

"TO MANAGE EXPLODING COMPLEXITY AND CONSTANT CHANGE, EXECUTIVES ARE MOVING DECISION-MAKING DOWNWARD TO FREE UP THE SKILLS, CREATIVITY, AND VISION OF ORDINARY PEOPLE."

Stakeholder relations link the organization to its main power centers. If managers are harsh with employees, customers or suppliers, communication channels become blocked and distorted. Good working relations, however, enhance the vital flow of valuable ideas.

For instance, the rush to create strategic alliances has been driven by the mutual exchange of technology and access to markets. Many firms such as Raychem, Intel, and Motorola share power with workers because it improves performance. Trusting client relations permits better understanding of how to improve sales. Microsoft, Netscape, and America On-Line have formed complete economic ecosystems to unite suppliers, manufacturers and distributors. Some companies, such as GM Saturn, The Body Shop, and IKEA unite all these groups into complete "corporate communities" that work together effectively.

What explains this wholesale move to cooperation? It's now clear that knowledge increases when shared, thereby making cooperation economically efficient. Stakeholder collaboration is not social responsibility or business ethics, it's a competitive advantage.

We think these trends indicate that organizations are in the throes of a profound economic revolution. To manage exploding complexity and constant change, executives are moving decision-making downward to free up the skills, creativity, and vision of ordinary people. Meanwhile, we are also witnessing a burst of collaboration as the benefits of pooling knowledge into productive exchanges are being discovered.

These trends release untapped knowledge in economies. In system terms, decentralized organizations are fanning an information explosion by releasing the raw energy of employees, while cooperation is intensifying the flow of information through this network of countless small enterprises. It's the resulting gains in the velocity, volume, and value of knowledge that are now electrifying the globe.

The Dynamics of Leadership, Strategy, and Learning

The five subsystems of OI can be thought of as the intellectual power of an organization, the "engine" that drives problem-solving and adaptation to the environment. The higher the level of OI, the greater the intellectual power.

The role of leaders can be seen as directing this intelligent power into action. In other words, they "engage" the engine of the organizational vehicle and "steer" it into the future. In contrast to the relatively fixed nature of OI, leadership and strategy are dynamic factors because they can be changed at will. Lou Gerstner quickly redirected the slumbering intelligence of Big Blue upon taking office.

This helps us better understand what constitutes organizational learning. Learning can be achieved by training, but it's most effectively gained through action. Training lacks the immediacy of actual problem-solving and may not be suitable for future tasks. But when the organization is engaged in solving a tough issue there's little doubt that important lessons have to be learned and stored in the corporate memory.

In contrast to this "single-loop learning", "double-loop learning" occurs when leaders decide that the intellectual engine itself is inadequate. Unlike human IQ, OIQ can be improved if the organization devotes sufficient time and resources to restructuring its cognitive subsystems.

The hidden reality of work life is what really goes on in the "informal organization": peer opinion leaders; bootleg practices; and the communication grapevine. Just as the subconscious mind prevents humans from behaving in an entirely rational fashion, these covert aspects of the informal organization often subvert formal directions.

Here we see the powerful insights provided by comparing organizational intelligence with human intelligence. Human action is the outcome of an ever-present battle between the rational control of the ego and the confusing impulses of the id, while in organizations a similar conflict occurs between formal leaders and the chaotic world of the informal underground. Reconciling these two sets of demands is an enormous task, but to miss this insight is to engage in the fantasy that knowledge management is a strictly rational matter.

The Fit Between Intelligence and Environment

To fully grasp the complexity of OI, we finally turn to the relationship between intelligence and the organization's environment. At the strategic level, leaders direct OI to solve problems presented by a changing environment. But higher OIQ does not necessarily improve performance, any more than a high IQ ensures success in life. Rather, it's the fit between OIQ and environment that determines performance.

The Five Organizational subsystems include:

Organizational Structure; Organizational Culture; Stakeholder Relationships; Knowledge Management; and Strategic Processes.

To illustrate, McDonald's probably has little need for highly-educated workers, entrepreneurial structures, and sophisticated knowledge repositories. In economic terms, investments in raising this company's OIQ may waste resources because McDonald's faces a relatively simple task of making hamburgers. Thus, the challenge facing CKOs is to find that optimal level of OI suitable to the task.

How can Managers use OI to Improve Performance?

IQ accounts for roughly 50 percent of the differences in human success and something similar should be true of OIQ: roughly half of corporate performance seems attributable to structural intelligence, with the rest determined by dynamic factors. Just as people may not use their intelligence to succeed, organizations may not employ their intelligence without good leaders, clever strategies, and a favorable environment.

Measuring the components of OIQ can also determine their relative contributions to performance, thereby providing detailed diagnostics showing which systems are strong or weak. A low OIQ could thus be traced to some particular problem such as a hierarchical structure. As well as providing measurement and analysis of OI, this framework also offers insights into how organizations should be redefined to assist KM.

Design Organizations on Principles of Knowledge Economies

We think effective KM today requires redefining corporations from the old hierarchical, profit-centered model to the enterprise and community model outlined above. We now see that modern economies are driven by knowledge rather than capital, making most of today's management systems obsolete.

Multi-division profit centers are common, but any resemblance to enterprise over top-down control generally stops there. Divisions are often as large as Fortune 500 companies, staff units are usually cost-centers with monopoly power that often interferes with those doing useful work, and the operating freedom of managers is severely restricted. Business people would be aghast to see governments treat small business with this logic of central-planning, because we know that it obscures KM, halts creativity, and undermines motivation.

If we hope to bring economic reality into business, units should be small, self-managed internal enterprises held accountable for performance. Otherwise, how are executives to know where value is being created? How do we know if resources are allocated wisely? To seriously improve the use of knowledge, CKOs cannot avoid getting into this arena. Information provided by such basic economic functions—measuring value creation; allowing competition to set prices; knowing where resources will be most productive; etc.—are at least as important as our present focus on managing knowledge assets wisely.

In terms of external relationships, the firm should no longer regard itself as solely a profit-making system because this places it in conflict with economic actors whose support is as essential as shareholders'. The fact is that modern business creates value out of the intersecting interests of its employees, customers, and other stakeholders. Cooperating with these groups is now essential to the creation of knowledge, so CKOs should be moving corporations toward the emerging concept of corporate community.

Define KM as an Internal Consulting Service

The key to solving the measurement problem lies in understanding the structural change to an enterprise model sketched above.

The value of any management support function lies primarily in the service it provides for its internal clients—those who must put KM to use in improving their performance. Donna McNamara at Colgate-Palmolive says "Who cares about intellectual resources if they're not making a difference in business results?" The test of effectiveness should be the willingness of operating managers to pay for KM, just as they do for external consultants.

If CKOs are serious about defining a viable role for KM, then, they should voluntarily transform their units into self-supporting consulting services paid by line units. It's a great challenge, but there's no better way to clarify the value of the KM function. Other staff functions that have made this change find that it invigorates their operations.

"ONE OF THE BIGGEST MANAGEMENT CHALLENGES TODAY IS HOW TO CREATE A NEW BREED OF INTELLIGENT CORPORATIONS SPECIFICALLY DESIGNED FOR A KNOWLEDGE ECONOMY."

Economic Incentives Encourage Knowledge-Sharing

A similar approach can resolve the paradox of sharing knowledge. Present concepts like creating a corporate culture that makes knowledge-sharing part of performance evaluation is certainly important. But there's simply no substitute for rewarding the exchange of valuable knowledge with economic incentives.

Organizations like Arthur Andersen have developed sophisticated knowledge systems based on a business model that is an extension of the services offered on the internet. Soon, anyone throughout the organization should be able to offer data through the corporate intranet, automatically receiving micropayments for each viewing. Upon seeing that a colleague earned US$20,000 for publishing a hot report, for instance, it's easy to imagine a flood of sharing.

OI May Become as Important as IQ

To sum up, OI offers a broad conceptual framework. It allows CKOs to better understand the intricate complexities of managing an intelligent system, to evaluate performance of the system in fine detail, and guide a more effective definition of the KM function. We think the perspective of OI may do for knowledge management what IQ did for human intelligence.

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