"LEADERSHIP IN THE DIGITAL AGE"
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INTRODUCTION

New Social Structures Are Generating New Leadership Styles

Different epochs produce different kinds of leadership – with different patterns of hierarchical authority, different skill sets and attitudes, and different institutional incentives. Societies today are experiencing significant changes potentially as far reaching as the transition from agricultural to industrial societies. Today's epoch is in the early stages of a transition from an industrial based society to a post industrial, digital society, and leadership patterns are beginning to reflect that transition.

The new society -- variously called information society, knowledge society or networked society -- is marked by four key structural changes reshaping leadership [Masuda; Bell; Castells]: rapid and far reaching technological changes, especially the digitalization of information and communications technology. (ICTs); accelerated globalization; a shift toward knowledge as the central factor of production (i.e. from brawn to brains); and more distributed, less hierarchical organizational forms with greatly accelerated movement within and across organizations and sectors. In this highly dynamic environment, leadership innovation and adaptability are critical, especially the leader's capacity to channel the right knowledge to the right people at the right time in the right place.

As a result, a post industrial digital age style of leadership is emerging characterized by stronger horizontal linkages among elites across different sectors and even different countries, especially government leaders, private entrepreneurs and executives, researchers and civil society leaders.

Of course, there are caveats regarding the spread of digital leadership. First, there are timeless, universal characteristics of leadership that remain important today, such as passionate commitment, focus and discipline, charisma, and other features identified by observers of leadership over the ages. [Weber, Bennis] These have not been supplanted but they co-exist in a different mix with other factors. Second, the new leadership will vary somewhat from country to country, culture to culture, and sector to sector, most visible in economically advanced societies and in the information and communication technology (ICT) sectors.

The new societal conditions are eliciting new forms of leadership necessary to launch and sustain the transitions toward more knowledge intensive societies. Leadership in the Digital Age needs new *attitudes*, new *skills*, and new *knowledge* gained through unique professional *experiences* responsive to the societal features identified above.

Leadership in the Digital Age

We must distinguish between two related but different leadership categories. The most inclusive is "*leadership in the digital age*", which refers to leadership in any institution or sector embedded in the broader transitions toward a more knowledge intensive society. All leaders whether leaders in health, the arts or in manufacturing must be aware of the new constraints and opportunities ICTs provide, and use them effectively. The second, "d*igital leadership"* refers to leadership in the core sectors of the knowledge society – the three 'C's of computing, communications and content (broadcasting and print), and now multi-media. The two styles of leadership are closely - many leadership innovations originated in the core ICT sectors and diffused from there, such as the use of website portals to link customers and suppliers.

Digital leaders can be defined functionally by their contributions to the transition toward a knowledge society. These include awareness building, resource mobilization, operational leadership and structural leadership. Awareness building leaders convince sections of the population to attend to the new ICTs as resources that can help them achieve their goals. Resource mobilizing leaders convince social actors to obtain and deploy valuable resources to spread ICT more widely, whether money or high level political support. Indeed, mobilizing an effective pro-diffusion political coalition is an essential element of digital leadership and leadership in the digital age more broadly. Leadership is also expressed through operational activities, whereby leaders, often in government or private companies, actually provide and manage the hard and soft infrastructures, and the applications, at the core of the knowledge society. When some notables are able to convince audiences that the information revolution is not only about using ICT tools but shifting toward a new kind of distributed, digital society, they are engaging in structural leadership.

Digital leadership innovation is not static but changes through time. (cf. Rogers) Since technology innovation is so highly dynamic the mix of leadership skills required also changes. For example, the Internet industry passes through pre commercial, commercial, competitive and consolidation phases. Each has a slightly different mix of leaders interacting across the public, private, research and civil society sector. [Wilson] First driven by campus and think tank-based leaders in the research and development community, later in the commercial and competitive phases leadership initiative shifts to entrepreneurs. In each phase the technological, political and resource challenges are rather different and demand different mixes of leaders. In the early period of the transition awareness building and resource mobilizing skills are useful. In later period, operational skills are especially valued. In Silicon Valley, the development, manufacture, commercialization and marketing of silicon chips and the personal computer was variously led by such leaders as William Hewlett (Hewlett Packard), Andy Grove (INTEL), and Steve Jobs (Apple Computer).

Information Champions, Information Revolutions and Information Conservatives

In the early days of the information revolution in the developing world like Brazil and China countries, these 'information champions' (Wilson) shared certain personal and professional features. In the Internet sector, many sprang from families in the professional middle class, the children of doctors, engineers and teachers, neither very rich nor very poor. Many in the first wave studied abroad and returned 'home' imbued with the distributed, bottom up and democratizing spirit of the Internet. Back home leaders like Nii Quaynor in Ghana or

Edward Tien of China championed more open, liberal access to knowledge, doing battle against government information conservatives who fought to retain their own top down, centralized visions.

Individual Attributes

Digital leaders are distinguished from non-leaders by their different combinations of skills, attitudes, knowledge and their professional and personal experiences. Leadership must be driven by unique *attitudes* appropriate for the distributed, digital age. Digital leaders must be flexible and adaptable, and possess wide intellectual curiosity and a hunger for new knowledge. They must be willing to see value in sharply different perspectives, and be comfortable with uncertainly, and like all leaders at all time, must possess true passion for what they do. They look globally for solutions and challenges, and also hunger for constant learning and insist on constant learning from their collaborators and followers. They maintain a more egalitarian and results oriented approach than earlier leaders needed.

A list of necessary *skills* would include the capacity to build coalitions and forge communities of interest; to multi-task; to remain focused on one's own priorities even while seeking common ground with leaders in other sectors. Substantive knowledge is especially important in the knowledge society, including knowledge of how the new technologies function. Leaders must also know what they do not know, and know how to get that missing knowledge by mobilizing their own social networks. These new combinations of skills, attitudes and knowledge requires new patterns of experience, especially personal movement across different sectors in jobs where the emergent leader is forced to engage with people from different professional and demographic backgrounds. Through all these cross-border shifts, successful leaders are able to develop and sustain a moral compass to guide their behavior.

Skills, attitudes, knowledge, experiences and ethics fit together in a mutually reinforcing 'package' for successful digital leaders.

THEORIES OF LEADERSHIP IN THE DIGITAL AGE

Literature on leadership in the digital age has been only partly successful in capturing these complex, distributed, cross-sectoral dynamics. Most of the work on what is called 'e-leadership' is written about business leadership (Annunzio). They produce action-oriented analyses and actionable recommendations designed to promote a new kind of relationships in firms and markets. A much smaller number of works trace the early leadership contributions of scientists and engineers, typically through histories of scientific innovation and breakthroughs.(Abbate) With some exceptions mainstream (Cleveland) 'leadership studies' have not yet appeared covering the complex interactions among the many non-business and business stakeholders in the transitions to the knowledge society. Some scholars offer frameworks based on social capital or network analyses, such as Wayne Baker. Yet the leading theories of the 'knowledge society' remain too static, too macro, too a-political and conceptually underdeveloped. Needed is a new framework that demonstrates both the transitory and contingent nature of these changes in the substance and style of ICT digital leadership, as well as its emerging continuities and underlying patterns.

The Quad: A Conceptual Framework for Digital Leadership

One way to advance the field is by situating the study of leadership in the context of the four sided interactions that occur across the institutions and sectors most directly involved in the technical and sociological innovations of the information revolution. These encompass government officials, private entrepreneurs, civil society leaders and senior researchers. In the shift toward a knowledge society, countries and communities where four sided "Quad' relationships are more robust, predictable, balanced and interactive are more successful in effecting a sustainable transition; those with weak "Quads" have weak transitions. The cross sectoral "Quad" leadership model overcomes the limits of other explanations because it links macro structural phenomena to micro behaviors and to the meso level small group interactions out of which new digital leadership patterns emerge. The Quad model also draws attention to the ways individuals and groups employ the new distributed, interactive technologies to mobilize the necessary skills, knowledge and attitudes required to create and sustain the more distributed, interactive social leadership networks for the digital age.

Other Themes and Issues in Digital Leadership

The newness of the networked, knowledge society and digital leadership means there remains much to be explored in study and practice. *Leadership and institutionalization* is a critical area of investigation. Max Weber speculated about the relationships between charismatic authority with its sharp personal appeal to those followers who experienced it most immediately, and the development of lasting institutions that can preserve the sense of purpose. How do the first 'generation' of digital leaders preserve their vision through institutions that persist over many generations? This is especially a challenge in developing countries LDCs, institutions are weak by definition. *Generational dimensions of digital leadership* are also important issues involving possible differences in leadership styles, substance and perhaps capabilities as well (Bennis). Cross cultural differences in digital leadership is also a critical subject in a globalizing world.

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