Future Role of Technology CIO

Devesh Mishra
Senior Technologist – Mount Sinai Health System
New York, USA

Abstract— **(This paper discuss the comprehensive understanding of the operational framework of the CIO and translate organizational and technology strategy into action)**

Keywords— CIO Leadership, Big Data and outsourcing; social, legal, and ethical issues; communications and selling business value)

INTRODUCTION

The ever-changing complexity of business and technology world has created a new dimension in the industry. Today, there is a need for a dynamic Chief Information Officer (CIO), whose responsibilities should not be just limited to technologies. Rather the CIO should be able to understand the potential of social, political, technological, cultural, behavioral and economic factors while building the foundations of an adaptive, secure, resilient and dynamic environment and a "value-center" organization.

THE CHANGING FACE OF MODERN CIO

According to Graeme Philipson, an industry veteran, The Term "CIO" came into existence in the 1980s. Over the period, the role of the CIO has evolved with changes in business structure and evolution of the digital world. Changing landscape in the technology world has transformed the role of the traditional CIO from the computing world to a more strategic organizational, collaborative and proactive resource than never before.

Today, CIOs face many challenges. Since IT plays an even more important role in core business strategy than it has in previous years, the CIOs must adapt, or they will get left behind. The modern CIO is expected to take on multiple responsibilities, including management of platforms and systems such as Data Analytics, Cyber Security, Talent Management, Business Integration, identifying trends, threats, and partners that align with business goals and objectives. Instead of being a back-office executive, CIOs must use their influence over new technologies to identify cost-saving opportunities or create additional revenue streams. CIOs, with their knowledge of modern technological trends, become CIO across the world are repositioning themselves with the concept of "Learn, de-learn, and re-learn" so that they can take the challenge of the future and valuable to their organization responsible for maintaining their company's competitive edge Leadership is not simply about you but it's all about growing others influencing others to change. It further requires vision, communication, empathy, strategy, inspiration, passion and relationship building. Extraordinary leadership is rooted in several capabilities: seeing before what others see, understanding before what others understand, and acting before when others act without any effective vision, there is no leadership. Furthermore, CIO has to learn about the company's culture, critical issues, shape an agenda for change, build relationships, create a coalition with stakeholders and make a decision based on key indicators- finance, operations and people. The overall process will create a solid foundation for the future.

Generic Expectations

- Articulate shareholder value.
- Effective marketing and media relations to secure early wins.
- Providing reliable assessments of potential mergers and acquisitions (M&A), explaining the company's mission, vision, objectives and open the door for collaboration and research.
- Participating in government, academic, and industry groups where there are opportunities to promote the company's reputation and to capture valuable data.
- Integrating technology-based initiatives and activities into the corporate strategy
- Setup the Enterprise Architecture (EA) council and create the roadmap for technology acquisitions and integration.
- Set up the data governance and cybersecurity compliance program in place to address security issues
- Create an effective Governance and Talent management framework.
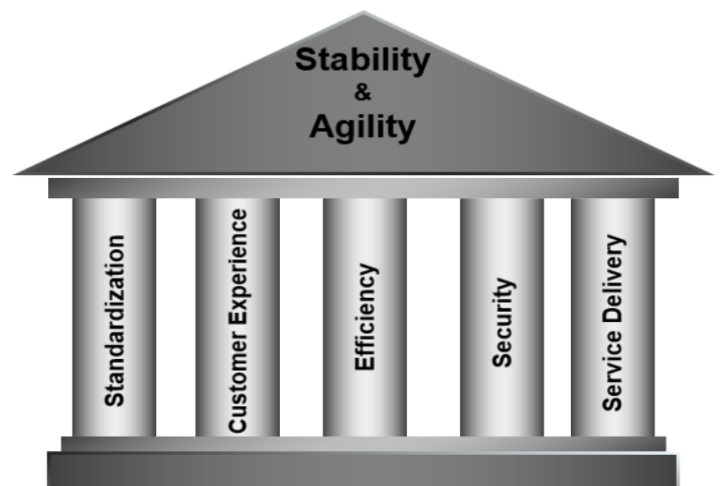
Envisioning the top ten priorities of modern CIO and understanding the key principles of Operating model, Enterprise Architecture, Demand-side, Supply-side leadership, and IT values which will set the stage for appropriate strategy, planning, and execution.

Key Principle

"(Expertise+ facts) x (Strategic Insight+ influence) = Strategic Relationships"

ENTERPRISE ARCHITECTURE (EA)

Today, Enterprise Architecture (EA) has become a critical element in the process of creating values by aligning the core business functions, processes, information systems, and services — with its business goals and strategic decisions. It is becoming increasingly evident that maturity of an organization's EA efforts can have a significant positive impact on business value in several areas, including decreased operating costs, improved speed-to-market, reduction of complexity and risk, and add values of overall technology effectiveness.

Enterprise Architecture (EA) is an incremental method and guiding principle that create a foundation for business execution. EAs orchestrate successful execution by defining the process, roles, and governance for each business outcome. EA further provides the long-term view of a company's process, system, and technology so that individual process can build capabilities. There are four stages to this process: Business Silos, Standardized/Unified technology, Optimize core, and Business modularity.

CIO LEADERSHIP (DEMAND-SIDE & SUPPLY SIDE ASPECT OF CIOS)

It is important for the CIO's to understand the fundamentals of environments and buy-in from fellow executives and stakeholders. To understand further, leaders must know about the operating model.

Supply-side leadership is all about delivering results that are valued by enterprise leaders. The CIO needs to build high performing teams by nurturing and manage talent, use an effective risk management process and communicate success to shareholders. This concept further talk about five critical roles of IS organization, for instance, IT leadership, architecture development, vendor management, business, and technology advancement. In addition, it is important to keep the lights on but at the same time creating an innovative environment for the high performing talents are equally important so that they can learn, grow and evolve. At the same time, recognition of an individual or team accomplishments is equally important to nurture talent. Furthermore, managing the risk from the enterprise and IT perspective would be crucial growth and sustainability.

COMMUNICATING AND SELLING BUSINESS VALUES

Conversion Efficiency, a concept suggested by Weill, clearly talks about the effectiveness with which investments in IT are converted to useful outputs and the Lucas Garbage Can Model provides a framework that managers can use to evaluate an investment potential for return in both economic and non-economic terms and in the process. For instance, when trying to explain the value of IT infrastructure of investment, we should be communicating user in terms of efficiency gain rather in IT terms (CPU, RAM, and increased storage capacity)

The business context for the value of IT can be summed up simply:

- IT creates value by running the business at the best possible balance between cost and performance.
- IT grows the business by ensuring capacity and capability
- IT can transform the business by enabling new value propositions for new customer segments.

SOCIAL, LEGAL, ETHICAL AND COMPLIANCE

We have seen many examples of ethical and legal violation across industries for instance – In a case of Volkswagen pollution case when a software engineer was sentenced to 40 months in prison for his role in helping Volkswagen evade pollution control rules. In addition, data-breach disclosure case at Yahoo and many more. These stories suggest powerful reasons for companies to do the right thing. So it is important for the CIO to understand and nurture the team to avoid such complications.

Compliance and regulations risk has been considered to be a moving target and one of the important variables for Industries, so it is vital for the institutions to understand the risks and comply with regulations. In the case of healthcare industry where failure to comply with applicable laws and regulations such as (HIPPA, PHI), including federal and state health care program requirements (ACO, MU2), or with the requirements of this Code of Conduct policies and procedures, or to report violations or suspected violations, could pose significant risks to patient care. Examples of consequences to institutions and/or staff for non-compliance include exclusion from participation in federal and state health care programs, such as Medicare and Medicaid; criminal and/or civil fines and penalties. Furthermore, adhere to the Code of Conduct framework for employees, partners (i.e. vendors, contractors, consultants, etc.) and volunteers are vital for successful business operations.

EMOTIONAL INTELLIGENCE (EI) FACTOR FOR THE CIO

Evolving and changing the landscape as of result of social, economic, political conditions has put immense pressure on the CIO to know their strength and weakness. Strengthening an emotional intelligence takes commitment, discipline, and a genuine belief in its value. Emotionally intelligent leaders are far more in tune with the overall feelings and motivation levels of their teams and individuals on their team, based on this recognition they can adjust their management and communication style to ensure they achieve the highest overall performance. Emotional intelligence is an ability to recognize and understand emotions in yourself and others, and your ability to use this awareness to manage your behavior and relationships. Daniel Goleman, the author of, "Emotional Intelligence," argued that non-cognitive skills could be as, or more, important than IQ. Additional research confirmed that people with higher IQs outperform those with average IQs only 20 percent of the time. Even more interesting was the data that reported people with average IQs

outperformed those with the highest IQs a stunning 70 percent of the time. This fact illustrates how the smartest person in the room is not necessarily the best person to lead and manage the department.

OUTSOURCING AND BIG DATA

CIOs often take the route of outsourcing to justify the cost, time and fulfill business requirements but it depends upon operating model and requirements. For instance- Companies based out at the US supporting the global call center operations may not fulfill all requests from the US from the cost management perspective but at the same time, Product Development Company may not follow the same approach because given the nature of the business.
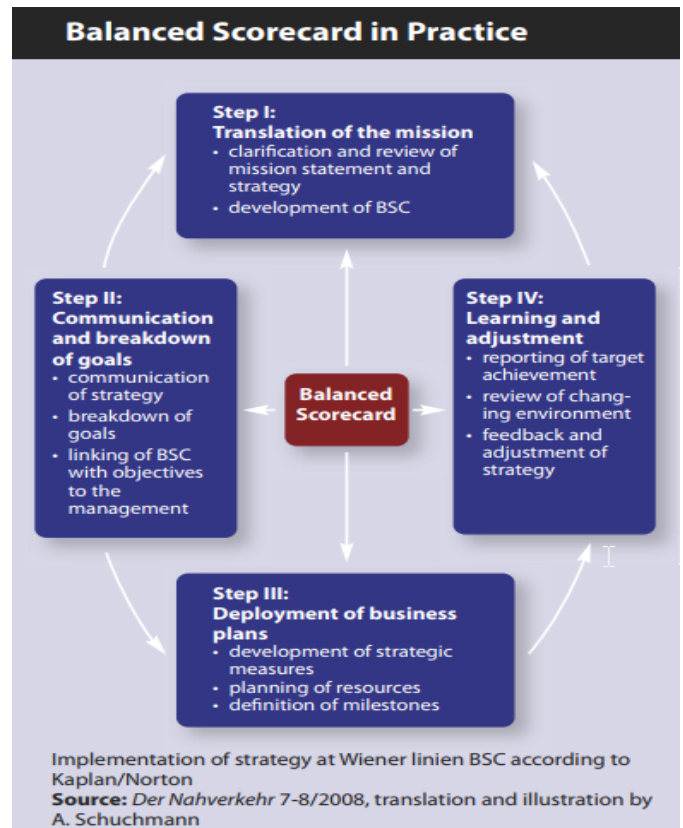
Today, many organizations use the power of data to gain a competitive advantage, innovations or gain efficiencies. According to the recent CIO Survey, an astounding 72 percent of the respondents within the financial services sector alone believe that big data has a positive impact on their rate of innovation. Not only in the financial industry but the healthcare industry is completely transforming the patient care. But at the same time, it is data breach is growing at an unprecedented rate than ever before. For example-One of the recent breach when Colin Powell's emails were compromised and posted on public domain (DClinks.com) for everyone to read. So it is important for the CIOs to have effective data management and governance plan to support the business.

TRANSLATING STRATEGY INTO ACTION

Organizations face many barriers and challenges when they try to execute the corporate strategy. Some of the common challenges include:

- **Vision**: Lack of understanding and clarity among managers and employees about strategy
- **People**: Only a small portion of managers have some incentives regarding strategy and performance
- **Management**: Lack of communication between Leadership and line-level managers about strategy
- **Resource**: Lack of planning from the capacity management planning /budget perspective

Robert Kaplan, a professor at Harvard University and David Norton, a consultant from Boston put together a system that was able to measure a variety of activities throughout the organization: customer issues, internal business processes, employee activities and the concerns of shareholders. Under the Balanced Scorecard system, a company's financial results are "balanced" and interlinked with all of these perspectives. This scorecard was successfully adopted by a number of organizations and the results summarized in a book Balanced Scorecard, published in 1996. Since then many organizations have adopted the approach and shown how effectively there are fulfilling their missions.

Implementation of strategy at Wiener linien BSC according to Kaplan/Norton
Source: *Der Nahverkehr* 7-8/2008, translation and illustration by A. Schuchmann

STEPS THAT LEAD TO SUCCESS

- ***Building Consensus***: The creation and building consensus across the leadership team that is unified around the strategy is the most important prerequisite for a successful strategy. Getting the right people, in the right seats, will set the pathway for successful execution.

- *Customer service*- Translating strategy into actions starts with the customer experience and right feedback. During this process, it is essential for the leadership team to engage customers during the early stage of the game and seek constructive feedback.

- *Communicate the strategy*- Communicating the strategies across the workforce, key partners are the vital parameters for the successful execution. In addition, Transformational leaders have a sense of humility. They are constantly learning and listening to others

- *The Need for Repetition*- A leadership message is not a one-time event rather it's a campaign. The key is to reinforce the message as often as possible in formal and informal settings.

- *Continuous improvement*- Innovation and making improvements based on self-reflection and feedbacks.

- *Talent and People Management*- For every successful team, people are the key, and the kind of people we keep will decide the fate of the team and organizations Bringing the right set of people at the right time and further nurturing them should be the priorities for the leaders. Without the right mix of diverse people at the execution, the level can put the project in jeopardy. Transformational leaders further learn how to develop, empower, and mobilize networks. These networks allow for the emergence of movements, which often lead to social, cultural, and systemic change.

- *Rewards and Recognition-* Align the performance reward and recognition systems with strategy execution earlier in the process could bring a positive impact on the team. In addition to strategy, which itself is a powerful motivational force, people like to be able to see their individual roles in making a difference.

- *IT Governance -*IT governance is the process by which organizations ensure the effective evaluation, selection, prioritization, and funding of competing IT investments; oversee their implementation; and extract (measurable) business benefits.

- *Big Data & Data Security* Today data is growing at an unprecedented rate in the form of volume, velocity, and variety. The 3Vs have been used as a common framework to describe data and Business leaders across the industries
have been using the power of data for better decision-making, projecting trends, demands/forecasting, competitive edge, analyze consumer preferences, financial planning. CIOs now recognize the huge potential of big data and but one of the biggest challenges is the protection of personnel and consumers data. The ever-changing complexity of the digital and virtual world means information technology must shift from traditional analysis methodologies to more mature, forward-looking predictive analysis to remain competitive.

The CIOs who are most successful with big data are able to transform their businesses processes and decision-making technique with the data-driven approach but that success will not come from just collecting more and more data. Collecting and storing a significant volume of data is pointless unless you
Understand the business case and the relevance of data. For example, Healthcare companies may lose millions of dollars in revenue if the patient visits are tracked and claimed properly. So it is important for the CIOs to understand the business case, aligned the right set of people, appropriate process and
technology in place. Further, it is vital that CIOs access the level of maturity on data and analytics and identify areas for improvement. Big data, generally referred to a combination of structured and unstructured data. Together, these concepts are reshaping discussions but it totally depends upon the business case for example- In the case of social media relevance of unstructured data and insights make more sense compare to the growing volumes of electronic health data to improve patient care.

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