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Integrating Traditional Management Systems with Emerging AI Technologies

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Abstract

This chapter dives into issues of integration of traditional management systems with the emerging Artificial Intelligence (AI) technologies. In recent years AI has emerged as a huge game charger across all functional sectors, changing processes, systems and transforming cultures across different regions of the world and across different organizations in various fields. The effects of AI on business process are highly visible, causing disruptions even to systems that one might term "digital", from the website designing to social media designing and virtualization, the business world is now faced with another shift in business remodeling, the advent of "Artificial Intelligence". Does the emergence of AI imply that all online or virtual systems must now be archived or extinct like dinosaurs? Historical perspective and theoretical arguments will pause arguments that in management one does not fix what is existing and working but on the other hand management theory advocates for building systems that are highly responsive and adaptive. The chapter discusses management systems from the traditional designs of information systems to process of building web strategies, to digital strategies and finally to the integration of AI technologies with traditional management systems. The chapter breaks down management systems and explains in detail what each

system comprises of and builds on through to the changes in technological trends that shift management processes, business activities and cause disruptions at both task environment level and context level. The implications of changes in the technological environment are interpreted into the fact that basic skill and knowledge of the historical perspective of management systems is critical for every manager and this chapter sets to explore concepts that modern managers need to understand to manage effectively in the AI era.

Keywords: *Management systems, traditional management systems, emerging AI technologies, Integrating management systems.*

Introduction

Trends in technology are ever changing, posing a serious challenge to modern managers to keep up with the dynamic trends. Aligning every management strategy to technological trends is highly critical for the survival of the organization; in the first instance almost 98% of all organizational activities are dependent on technology. The question is, just how far should modern managers go in understanding, accepting and utilizing it? The answer to this question should be that it is always never realistic to put a boundary to what non-ICT Managers must know about technology, after all it is a relevant skill in the execution of tasks. Technology influences decision making but it also drives the change in organizational culture, this is the reason why every manager in an organization needs to understand the opportunities it creates and the challenges it presents. Every organization develops its strategic plans and looks for the correct Information systems strategy that will support their plans, when they find it, they align it to their overall corporate goal. The implication of this means is that IT supports the strategic direction of the organization and that it is how implementation of the plans can be attained quicker. Technology is highly strategic to the process of management and needs to be understood clearly by modern managers. Technology gives organizations a competitive advantage and it also enables the organization to reduce its costs while maintaining high levels of efficiency. The effort of achieving tasks and goals can greatly be reduced through implementation of a good Information System (IS). Organizations work very hard in this section of management to be able to identify the technology which will give them a competitive advantage and ensure that they deliver their strategic plan effectively.

What is an Information System?

An information system is basically a collection of hardware, software, people, machines and procedures that deliver information to management for decision making. It is a critical component in an organization's structures and performance delivery. A good decision can only be made once managers have good information on which they base their decisions. This is the very aspect that isolates data from information; information is data which has been processed to make meaning to the person using it, while data is simply a representation of basic facts.

Table 1 Qualities of good information

Quality of information	**Explanation**
Timely	Information must be delivered in good time to be able to make the decision while it is relevant
Accurate	Good information must be error free to be able to deliver sound decisions for business growth
Reliable	This relates to the source of the information which must be completely trustworthy and depended on for the decision-making process
Complete	Managers must have information that is in full for them to be able to make critical decisions. Without all the pieces it is practically impossible to make the decision
Concise	This means that information should be summarized in the best way possible but includes all the relevant aspects needed for decision making
Understandable	The information should be in a form that the manager understands and not too technical for the decision maker

A good information system should be designed in such a manner that it includes good tools for comparison and scanning of external environments. Many expert systems and decision support systems are designed in this way but again many of them may not extend their capability to the extended environment. One critical issue to look at when designing or choosing an IS would be to ensure that it has good security for the protection of corporate data. The other important consideration would be ease of use, cost and perhaps integration. Many developers of software have tried to work very hard to ensure that they develop systems that include many applications in one and are highly Integra table with other systems.

The biggest challenge in modern management is to match the correct IS strategy with the missions of the organization. Trends in technology are ever changing and presenting organizations with numerous opportunities as well as the challenge of staying abreast of these changes. The new era in management is the digital era which basically means that operations for many businesses are incorporating the use of mobile technologies, social networks and interactive applications such as chart to conduct business. In modern business one can have access to information at any time and wherever it is following the development of reliable internet connectivity and advancement of mobile computing. Any organization that does not align itself with changes in technology eventually gets itself overtaken by its competitors and will soon fail out of the market. In human resource management for instance, character checks are carried out on people they want to employee by looking at social trends and activities on social networks such as Facebook and

twitter. In marketing the social network environment has reduced the costs of conducting research as information can easily be gathered using online research methods.
The basics of information systems and qualities of good information have been the foundations of data science and the shift to big data and data analytics. Without this basic understanding complex models for data analytics would not have been built. The digitalization of many business models is what gave birth to the need for digital strategies since once traditional businesses have moved to the virtual world then the next battle is "how do we fight even here". The concept of business even before the advent of digital platforms was "differentiation for sustainability" and this has continued even after taking the fight online.

Digital Strategies

One crucial element of contemporary management planning is **digital strategy**. It is the deliberate process of incorporating technology, such as social media, mobile apps, and websites, to improve service delivery and expedite internal management. Having an online presence is only one aspect of this strategic integration; another is coordinating digital initiatives with your company's overall objectives to increase productivity and effectiveness.
Fundamentally, a strong digital strategy makes sure that all of your company's online platforms, including its website and social media accounts, complement one another and help you achieve your goals. Creating a strong web strategy that places your goods, services, and business activities online is part of this. By doing this, you can make the most of your business's resources and guarantee that your target market can easily access your offers, which will ultimately improve results and provide you with a competitive edge.

Web strategies for organizations

Webs strategies define how the online resources will be configured to provide interactivity between the organization's services and its consumers. These will include linkages between social network pages and other chat systems and online applications. A good web strategy will include the development of dynamic web content which ensures that visitors to the site get as much as they can and also find it easy to navigate along with the contents. It also makes it easy for customers to search for information as it will be linked to the relevant databases and the most effective tools that can be used to retrieve pieces of information combined with different sources. Normally such interconnection is based on object oriented relational database systems that allow the ease of manipulation of data. Digital technologies give organizations a favorable competitive advantage when they can fully maximize and comprehend their digital strategy.
The steps to create an effective web strategy are as follows.

Web strategy process

i. Define purpose and objective of the website
ii. Develop revenue model
iii. Develop web concepts and content
iv. Link organizational strategies and goals to web strategy

v. Develop a web prototype
vi. Evaluate the prototype
vii. Test and validate the website
viii. Organize and conduct web launch
ix. Constantly advertise your website and review

Web strategies are very important as they provide guidance on how digital technologies for the organizations will be able to assist the organization to raise revenue to sustain itself. A website must be able to generate income for an organization which is profit oriented, it must allow for activities such as online payments, advertising for other business entities, effective search tools, wikis and other informative functions. This is the reason why before deciding on the implementation of any online or digital resource, organizations must first define the objective (Step 1) for implementing such technologies and then decide the revenue model for the website (Step 2). The revenue model is simply the method by which the organization will be able to generate revenue from online and digital resources.

Most companies use web resources as a powerful tool for planning; they put what are referred to as web trackers on their website so that they can monitor traffic on the website and make sound business decisions like where next they should hold the next sales promotion event. The information collected from a web tracker activity will review what pages visitors to the site are mostly accessing, from where they are accessing them from and what products or services, they are mostly interested in~ this type of data is known as click stream data. Developing the concept and content is a huge undertaking as it involves looking at a conceptual framework of how the website will look and function and what the content will be for the site. Designers and web editors must be sure to only have the relevant information to avoid crowding up the site with data that will not help them in the process of attracting new customers. Some companies look at it from the processes within the business model, to mimic the way the site will operate; this is in the case where the business wants to create a highly dynamic site.

A business model is defined as a way organization raises revenue to sustain itself, a web strategy must support the business model or concept for the organization. In the implementation of digital technologies and web strategies the web concepts must be linked to the business strategies (Step 3), once this is done activities of the digital environment will support the business strategies (Step 4). Developing a web prototype (step 5) involves creating a working model of what the actual website will look like and function, this normally will be done by software engineers and web programmers who will now convert the web concept into a working system. Testing and validating (Step 5) the website is finding out if the site does function and validating is finding out whether it does fit into the objectives and that it will deliver the intended purpose.

Organizing and conducting a web launch (Step 6): This activity is more of a promotional marketing activity than anything; we obviously want to ensure that our site gets a good rate of hits from its visitors so that we can commercialize and enable other businesses to advertise on our site. This may involve distributing materials to be used as promotional mix for the site. One strategy that has been used before is to print mouse pads, calendars and shirts visibly on them so that they can work as awareness avenues for the site. Online promotion of websites and offline

promotion activities need to be put in place to popularize the online resources. This means that regular reviews (Step 7) of the web activities become part and parcel of the website manager's job.

Social networks are an effective way of managing the corporate image and marketing aspects of organizations. There are close to two billion people in the world today on social media such as Facebook and twitter, this provides an opportunity for the organization to exist in the digital environment. Digital environments can be described as the use of internet technologies and computer networks to create an online 'place' for the existence of services and products. Companies involved in internet marketing make use of location-based technologies and data mapping applications to increase their market share and reduce traffic to their physical locations. Planning strategies is an important undertaking for management, and this means that managers must ensure that they adopt systems that can easily be adaptive to changes in the environment. The environment in the digital era is highly dynamic and causes shifts and disruptions. Technologies constantly evolve and business models change to embrace new trends; the reality is that organizations and businesses that have not yet registered their presence online are becoming extinct just like dinosaurs.

Information systems to Data Science

Information systems traditionally were designed to simply deliver information to management for decision making, but in the data era this has tremendously changed, placing emphasis on big data applications and digital analytics. The concept of big data places demands filtering the relevant facts that managers must focus on for them to manage effectively and this automatically gives birth to the need for the development of data analytical tools that are used to make sense out of data and still be able to deliver information for management decision making.

Micheal Porter and others predicted changes in the way environmental data is collected and analyzed almost a decade ago and they built models such as Porter's diamond models and the five forces that are still effectively being used in the analysis of immediate environments and context environments, but these have now been enhanced with online models and analytical tools that can capture data instantaneously. Online competitive analysis is now possible through tools such as Google Analytics, Hashtag tools and brand24, which are becoming very dominant in the package of tricks for every modern manager. The basics of just collecting data and then making decisions is slowly being overtaken by live systems that can collect traces of clickstream data from online sources and automatically analyze it without building manual complex formulars to make sense out of data.

Websites are now being integrated with social media platforms as these seem to also be overtaken by the latter that has now become an effective tool for marketing, information gathering, information dissemination and analytics. Organizations through their managers must now create methods of justifying expenditure for online presence and calculate returns on investments for shifts from brick and mortal type of business models to digital models. The skills of modern managers are also shifting from "crack the whip" to "click a button". In this era one can imagine

a manager who cannot use digital platforms or make sense out of digital data, a true dinosaur about to lose their job.

Data analytics to Social Media Business

Many writers such Efthymios Constantinides have argued that Web 2.0 technologies were the foundations for the creation of social media and eventually these are responsible for the phasing out of the 4th Industrial revolution and ushering the world into the 5th Industrial revolution which will be dominated by Artificial Intelligence and Robotics. While many companies built dynamic websites using models discussed in this chapter, these eventually have been overtaken by social media which seems to be the most acceptable online platforms for modern edge business. Facebook in many places of the world leads to the most populated social media platform with over a billion followers on it globally. There is a need now for integration of the past with the present since many other popular platforms such as Tik Tok and Instagram are revolutionizing business models.

The URL days are transforming into social media accounts and pages with full multimedia and live streams making it possible for organizations to build complete paperless structures and virtual businesses with no need for physical business locations. Web strategies are still relevant, and websites are still useful as they provide more platforms for placing detailed information and blogging. However, there is absolute need to integrate traditional business models with new digital trends in order to remain relevant.

In the recent past an organization that had a website boosted a huge competitive advantage but soon almost every business and even individuals occupied that space and it became nothing to write home about. The real advantage now is in the number of visitors to your site and whether customers can use online payment systems to purchase goods and services and this has now given birth to concepts of E-commerce and E-Business which also are firm foundations for digital transformation. Social media brought about a different twist to business, it created environments for socialization regardless of location, soon we began to see business pages on platforms such as Facebook and even Recruitment and Human Resource dominated LinkedIn. Social media for a while seemed like the new media and that digitalization had reached its peak but in the blink of an eye Artificial Intelligence entered and the World has never been normal again.

Social Media to Artificial Intelligence

Social media has undergone a transformation thanks to artificial intelligence (AI), which has turned it from a basic networking tool into an intricate, data-driven ecosystem. For modern researchers who study the nexus of technology, marketing, and human behavior, this progression is a fundamental subject.

Academics acknowledge that AI is now the core technology behind contemporary social media platforms rather than only an add-on. Writers like Deepshikha Aggarwal and others highlight how AI has become a crucial tool for businesses due to its capacity to analyze large information, forecast customer behavior, and automate operations. This change enables previously unheard-of levels of efficiency and personalization. In order to provide a highly curated and customized

user experience, AI algorithms on social media sites like Facebook and Instagram, for instance, employ machine learning to examine user activity, including likes, shares, comments, and time spent on content. One important idea covered by academics like Eli Pariser in the context of media consumption is that this system, which is frequently referred to as a "filter bubble," customizes ads and material to personal tastes.

Predictive analytics is the foundation of the shift from social media to AI. Gowtham Sethupathi pointed out that merely possessing a lot of social media data is useless if it cannot be analyzed to forecast future behavior. By identifying trends in user data and offering insights that were previously unattainable through manual means, AI closes this gap. This enables companies to develop more successful marketing strategies and make data-driven decisions. AI, for example, may instantly analyze social media conversations to spot new trends and customer sentiment, allowing firms to immediately modify their content strategy to reflect what their audience is interested in now.

The nature of social media consumer interaction is likewise being redefined by AI. As various academic studies have noted, the usage of chatbots and virtual assistants driven by AI has automated customer support and made it accessible around-the-clock. Routine enquiries can be handled by these tools, which can also deliver immediate, tailored answers, enhancing the user experience overall and freeing up human resources for more difficult jobs. Users actively seek out media content that suits their own requirements, according to the Uses and Gratification Theory, which is consistent with this change. AI improves this process by making sure that the appropriate content, whether it be an advertisement, a product recommendation, or a customer support message, reaches the appropriate user at the appropriate moment, increasing their level of satisfaction.

Are Robots going to replace Humans

The project, which garnered considerable media attention, involved an artificial womb and a robotic nurse designed to monitor and care for embryos, with the aim of providing a safe, sterile, and monitored environment for the early stages of embryonic development, particularly for research and possibly future fertility treatments. The reports about a Chinese project that developed a robot to gestate a child for nine months are based on a misinterpretation of a real research initiative. Technology is not capable of "giving birth to a human."

The fact that AI and robotics are being used in a variety of industries is well known, and examples from the actual world show how revolutionary these technologies may be.

One of the best examples of robots replacing humans in previously human-intensive tasks is the automotive sector. Robotic arms are widely used by companies such as Tesla and Volkswagen for welding, painting, and assembling automotive components. These robots handle repetitive or hazardous operations with amazing speed and accuracy, cutting down on manufacturing time and improving safety. Human employment have not been replaced by this transition; rather, they have frequently evolved to include managing, programming, and maintaining the robotic systems.

Robots are being used in the hotel industry to improve client satisfaction and expedite processes. For example, a robotic dinosaur at the front desk of the Henn na Hotel in Japan greets visitors. While some of these robots carry bags to rooms, others manage the check-in and check-out procedures. Human employees may now concentrate on more complicated visitor demands, including problem-solving or individualized service, thanks to this automation.
AI and robotics are also being used more often in the healthcare sector. Hospitals across the world utilize Da Vinci Surgical Systems extensively to help surgeons do minimally invasive treatments. More precision and a steadier hand than are feasible with traditional surgery are made possible by the surgeon controlling the robotic arms from a console. To relieve the strain on nursing personnel and increase efficiency, robots are being designed to help with physical therapy, distribute medication, and even monitor patient vitals.

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