

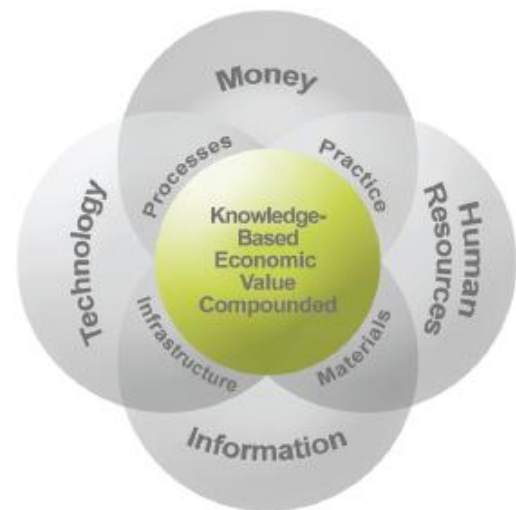
THE KNOWLEDGE AGE: KNOWLEDGE, KNOWLEDGE WORKER & INFORMATICS SYSTEMS THAT IMPROVE RETURN ON INVESTMENT DRAMATICALLY

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As society continues to race into the knowledge age, CTIS and its affiliated nonprofit organization i-Bharti Foundation (iBhF) have built consulting practices and products that serve the purposes of moving our society towards that direction. CTIS' EnSURE™ framework and knowledge worker consulting services has been able to deliver clinical trial research and management informatics with the ability to apply Earned Value Management (EVM) and ensure a positive Return On Investment (ROI). CTIS has coined and copyrighted the term “Economic Value Compounded” to explain this phenomenon. The following is information about the knowledge society paradigm shift, its purpose and value, definitions of key terms and important principles to follow, which can result in higher outcomes and ROI to the society.

The two core assets with the proven potential to provide enormous economic growth are human resources and information. These elements are driven by the ability to integrate, converge, and develop major assets such as technology, infrastructure, finance, processes, materials, and best practices/standards using informatics systems that help to increase knowledge. That increased knowledge can then be utilized by human resources to improve efficiency, productivity, quality, and effectiveness – an overall series of events that contribute to improving the outcome, economic value, and ROI.

If we examine society's journey over the last 250 years, we begin with the Agriculture Age, where the primary assets were infrastructure (land, water) and resources (both human and materials derived from soil, such as gold and silver). The economic engine was driven by the deployment of labor (human resources) and the basic economic value was generated in proportion to the scale of infrastructure and human resources.



As society moved into the Industrial Age about 150 years ago, machines and technology became increasingly important assets and human resources growth was dubbed as the Division of Labor, bringing about a broad range of employment opportunities and adding new types of jobs as well as substantial economic growth. The term “economic value-added” was invented during this period. Within the last 50 years we have transitioned into what is considered the Service Age and have consequently seen further expansion of economic growth. As a result, there has been an expansion in the economic value. Concurrently, manufactured goods and materials, along with the use of newer technology, have generated newer jobs and further boosted economic growth. Finally, the last 25 years represents the beginning of the Information/Knowledge Age. This new era holds the possibility of exponential economic growth due to the availability and access to the right information at the right time, with the right human resources in

place. This access is developed through informatics systems and applications using business processes, organizational reengineering, and integrating the traditional core assets of finance, technology, materials, processes, best practices, standards, and infrastructure.

Informatics mechanisms enable us to transform data into thought leadership by implementing a conversion process that involves data to information, to knowledge, to knowledge libraries, to acumen capacity, to wisdom and finally, to thought leadership. One can go up the process ladder or join in the middle, both ways, or come in top down, depending on one's background, education, experience, expertise, ability to teach and the client's requirements, maturity, capacity, and their internal business model.

The key knowledge terms and their brief definitions in context to the project are as follows:

Infrastructure

Includes hardware, software, and other technologies needed to store, archive, or host the data, information, knowledge, or knowledge libraries in an accessible secure, robust, standardized, and compliant environment.

Commercial Off-The-Shelf (COTS)

These products assist in building data, information or knowledge systems/applications in an operating environment; among many others, COTS products include data, document, search or workflow engines as well as analytical, graphical, and interface tools or middle layer tools and desktop, laptop, and handheld devices that facilitate output. They also come in many proprietary sources or open source and one uses a particular source based on the client project requirements.

Data

This includes identifying the right sources of data; collecting data through acquisition mechanisms via electronic medium; assuring data integrity, quality, and reliability; validating the data for project context; integrating data with other valid information; organizing data into a data management framework; and storing the data in robust and standard electronic repositories. This is generally known as the Electronic Data Capture (EDC) process or mechanism.

Information

The ability of building a data management system following the universal service oriented architecture and rational unified processes (inception, elaboration, construction, and transition stages) through definition, design, development, and deployment steps. As a follow on to the EDC process provides information management, integration with other enterprise information, warehousing, analysis, reporting, and dissemination ability. These data management or data warehousing systems provide necessary data mining, intelligence, vital signs, performance, and critical path information for decision support to enable sharing, collaboration, and coordination functions among the project stakeholders.

Knowledge

The ability of human consulting services across all domain areas (subject matter experts, business analysis, program management, software development, infrastructure management, client relations, and others) that is needed for the project to integrate right information through data reporting, analysis, mining, vital signs, performance indicators, critical path review and collaborate with other stakeholders. This enhances the performance of their job, work product, value, delivery, and deadline for the project.

Knowledge Library/Known Knowledge Grouping

This includes electronic library of both longitudinal and vertical information elements needed by project stakeholders. When properly searched and utilized, it allows Knowledge Workers (KW) to improve their contribution to the project by not only improving productivity, efficiency, effectiveness, and quality, but also helping in reducing organizational fragmentation, bottlenecks (rate limiting factors), impact on change management, and delivering a better EVM and ROI.

Acumen

This is when the KW, generally a principal or an expert level person, has developed the ability to apply the known knowledge to a new project. It begins with the ability to customize client questionnaire, define the requirement in the inception stage, and have the ability to apply the knowledge. A KW with good acumen uses intuition and as a rule of thumb it supports this by utilizing quantitative information from the knowledge library for a successful outcome of the project and remains in a monitoring and troubleshooting role in other phases of the project.

Wisdom

Represented when a highly experienced, educated, and expert-level individual provides guidance across multiple projects. This highly experienced worker not only executes wisdom through building a good knowledge-based informatics solution by utilizing the knowledge, knowledge libraries, and other KWs, but also enables them to act as a troubleshooter, crisis manager, and a change agent to keep projects on track in order to meet their goals to provide outcome management and high ROI for both the client and service enterprise.

Thought Leadership

An expert KW with wisdom and acumen develops a transfer mechanism that offers training to other KWs as an excellent knowledge-based informatics solution and trains them to have acumen and wisdom. This in turn develops best practice, processes, and standard operation procedures and remains available for independent validation and verification functions.

Knowledge Worker (KW)

Knowledge Worker is a term used for human resources that provide consulting services or people who perform their job function with integrated expertise in understanding data/information, business process/best practice, domain knowledge and client requirements based on the knowledge developed by an informatics system. This mechanism creates all levels of KWs from support to analyst to senior to principal to expert across all necessary domains for the project. This allows them to make decisions that contribute to business process and organization reengineering that increases the efficiency, productivity, effectiveness, quality, outcome, and also saves time and money, ultimately delivering high project EVM and ROI.



KWs' principles in leveraging the value of knowledge and achieving a high ROI for a project based on informatics systems input. The ability to know what is changing, what is not, and to recognize that most things change on a periodic basis during the project lifecycle and these changes in the project framework may impact the commitment for the required outcome of a project.

The ability to let go of the desires or want to keep changing the project assets for short term crisis to meet the individual steps outcome. The alignment of these assets to see how they fit the overall goal and objective before making the changes.

The ability to stay true to the standards and conduct is required to work with the project team. Also the need to ensure that they have training and tools to perform their tasks and have access to right information and the capacity to collaborate.

The ability to avoid doing too many things to fix the project processes when operations do not go as planned based on short-term information. Develop an impact plan and test the changes before adopting.

The ability to recognize the change requirements and mechanisms to stop and realign the project, without too much impact to the processes and resources.

The ability to display tolerance with project human resources when things do not go as planned and also focuses on training and not replacement. The most important thing is to stay focused on the goal and provide the desired outcome.

The ability to build consensus and communication with stakeholders when changing project direction and outcome requirements and assure all stakeholders that business management processes will be complied with.

The ability to trust the monitoring mechanisms and having faith in ecosystem players and their commitment to project. Avoid doubting the project team and their talent.

The ability to be at ease with the day-to-day ups and downs and the changes in the environment of the project.

The ability to have confidence in both subjective (quick information, rule of thumb, top-down input) and objective (long-term pattern, bottom-up validated data) information in your knowledge systems and utilize both of them to validate change decisions.