

The quest for quality and productivity in the age of AI

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"The age of AI presents both opportunities and challenges for quality, productivity and sustainability. By embracing a holistic approach that considers the ethical, environmental, and social implications of AI, we can harness its power to create a future where quality of life is enhanced, resources are used sustainably, productivity is significantly improved, and the planet is protected for future generations. The quest for quality, productivity and sustainability in the age of AI is not just a technological endeavor; it is a societal imperative and thus calls for a greater understanding of quality, reliability, productivity and sustainability to create a brighter and greener future for the global humanity".

The love for quality at an affordable cost has all along been the motto of agro-industrial society that focuses on conformance of quality based on well defined systems of quality assurance including benchmarking of quality standards. The concept of quality over the years has itself undergone a major change as we entered into the era of globalization and liberalization of the economies of the world. It allowed production in one country, with materials, components and sub-assemblies from various countries integrated into the design and production. Productivity on the other hand focuses on the efficacy of the production systems, capabilities and innovativeness of its people and effectiveness of its management. Sustainability demands a great commitment to preservation of natural resources while meeting the increasing demands of both production as well as consumption in the world of expanding horizons of marketing and businesses. Collaboration and integration has become the way of life for producing world quality merchandise for marketing around the world. The quality assurance revolution was greatly facilitated by ISO 9000 series of global quality assurance systems that helped the development of SOPs to facilitate common quality conformance cutting across national boundaries. Today we need to take along with our quest for quality, productivity and sustainability to serve the interest of production and profit but also people and the planet.

New Imperatives of the New Age:

The quality and production systems worked well till recent times of 21st century but the increased understanding of the nexus of quality, productivity and sustainability required that the quest of quality to be necessarily integrated with safety, reliability and sustainability. Increased automation and accelerated growth of technology innovations have created new compulsions of shrinking product life cycle and technology obsolescence while at the same time demanding producing quality products at an affordable cost with production systems complying with the calls of energy conservation, Zero Defect Engineering and also Net Zero Emissions. Teamwork cutting across specialties, negating boundaries of continents and involving innovative and inspired minds from around the world for collaborative design and integrated manufacturing required robust supply chain management and quality assurance at all levels of supply chain management. In addition, we need an added focus on quality of services including delivery, installation and quality of service for maintenance. Further, together with quality assurance at all levels of supply chain, today's production systems require sustained focus on energy conservation, effective waste management and total cost management.

The Age of AI - New opportunities and Challenges for Productivity Management:

The age of Artificial Intelligence has arrived, and we all have already taken a deep plunge into adaptation of AI in all our work and professional endeavors. This has brought great opportunities and created a level play field for all nations of the world where talent pool of inspired minds of people can harness the power of AI and make great headway for growth and development. However, AI has brought new challenges alongside infinite opportunities to innovate and achieve more from less and with increasing focus on recycle, reuse and remanufacturing under the newer production and marketing systems. These challenges shall be more pronounced as we shift to a new era of sustainable development based on

circular economy of tomorrow that shall open opportunities for translating waste into wealth and making the Vedic proclamation "Everything Goes Back to Where It Came From" come true. This will open new grounds for zero waste manufacturing alongside with responsible consumption and utilization of goods and services by people around the globe.

The quest for quality and increased productivity in the age of AI need to be thus necessarily integrated with sustainability and care and concern for people and planet Mother Earth. We need to reimagine newer systems of design and production conforming to the requirements of quality, reliability and sustainability, assuring increased productivity on one hand and Zero Waste and Zero Emission production systems, on the other.

The Way Forward:

Realizing the full potential of AI for quality assurance, increased productivity and sustainability requires a concerted effort from researchers, businesses, policymakers, and individuals along the following pathways:

- i. Investment in Research: Continued investment in AI research is needed to develop more efficient, robust, and ethical AI systems. Further, increased investment in pathbreaking scientific advancement and game changing technology innovations akin to making circular economy work is needed.
- ii. Developing Standards and Regulations: Clear standards and regulations are needed to ensure the responsible development and deployment of AI. In addition, new standards for waste management, reclamation of precious metals, recycle and reuse of waste are to be put in place.
- iii. Promoting Collaboration: Collaboration between researchers, businesses, and policymakers is essential to address the challenges and maximize the benefits of AI for enhanced quality, increased productivity and sustainability.
- iv. Education and Training: Educating and training the workforce on how to use and interact with AI systems is crucial for successful AI adoption for increased productivity and sustainability.
- v. Ethics and Professional Moral Codes for use of AI: Tomorrow's AI applications and system on chips should incorporate ethics and professional moral codes as an integral part of AI software and hardware that shall prevent misuse of AI and assure quality and reliability of systems and services.

In summation, the quest for quality and increased productivity is to be integrated with the quest for sustainability. The age of AI presents both opportunities and challenges for productivity and sustainability. By embracing a holistic approach that considers the ethical, environmental, and social implications of AI, we can harness the power of AI to create a future where quality of life is enhanced, productivity is enhanced, resources are used sustainably, and the planet is protected for future generations. The quest for quality, productivity and sustainability in the age of AI is not just a technological endeavor; it is a societal imperative and thus calls for a greater understanding of quality, reliability, productivity and sustainability to create a brighter and greener future for global humanity.