

Editor's Point – categorizing the Industry !

Many engineering industries of the day can't be classified in strict domains as Electrical, Electronics, Energy, Environment or Infrastructure. At times, it's difficult to get an overview and we carry the notion, what we see. It's like the description of an elephant by a group of blinds, who describe it according to the part of the body that they are able to feel.

Larsen & Toubro is described by someone as a Civil Construction company, because this is visible at many undergoing construction sites, while some of us may not be aware of the engineering feats of L&T in the field of Electrical & Automation, Heavy Engineering that includes Nuclear Power Plants, Hydraulics, Hydrocarbons, Shipbuilding etc.

TOSHIBA, a Japanese MNC is known for gadgets like laptops, colour TV etc, but the group describes itself as a diversified electric / electronic manufacturer that provides a wide range of products and services on global basis in 4- business domains: Energy, Social Infrastructure, Electronic Devices and Digital Solutions. Each of these has a vast spectrum of products.

Social Infrastructure concerns every citizen, especially for basic needs like Air and Water. While this issue gives just a glimpse of TOSHIBA, an interesting highlight is the reuse of printer paper.

Employability of engineering graduates is contributed by many factors and "LEARNING Beyond Syllabus" is one among them. This FREE publication contributes in a small way by introducing industry. Does it really help ? Feedback and suggestions are welcome at vngrover@gmail.com

TOSHIBA Corporation - a brief Profile



The Ministry of Engineering of Japan commissioned Hisashige Tanaka to develop telegraphic equipment in 1873 that led to setting up of a factory Tanaka Seizo-sho in Tokyo in 1875.

Another brilliant mind of the time Ichisuke Fujioka developed Japan's first arc lamp in 1878 while studying at Imperial College of Engineering (now Faculty of Engineering of the University of Tokyo). He is also called the Thomas Edison of his country. Fujioka established Hakunetsu-sha Co. Ltd. in 1890 to manufacture light bulbs in Japan. The two brains worked together for decades that ultimately led to the birth of TOSHIBA.



The history, thereafter, has several pioneering personalities, companies that changed names, merged and restructured to suit need of the time with a long list of innovative products like waterwheel-powered turbine generator, radio transmitter, Japan's first washing machine and refrigerators, world's first colour video phone, colour TV, double-coil electric bulb etc. to name a few. But the earthquake of 1923 brought a big disaster to the nation and the industry followed by the 2nd World War.

Though the second half of the 1950s witnessed rapid growth in the heavy electrical machinery, electronics and communications industry of Japan, the economic downturn after the oil crisis of 1973 posed another challenge that led Toshiba to invest heavily in R&D, because technology was considered the driving force behind business development.

It was in 1984, the abbreviated form "TOSHIBA" replaced Tokyo Shibaura Denki as the company's official name (in English, it was "Toshiba Corporation"). Subsequent restructuring of the business led to establishment of four autonomous Business Domains : Energy, Social Infrastructure, Electronic Devices and Digital Solutions. Details of each of these could be had at the link - <https://www.toshiba.co.jp/worldwide/about/business/index.html>

Social Infrastructure Business Domain

The domain covers -

- Public Infrastructure - water treatment plants; broadcasting; air-traffic control systems, security and automation systems;
- Building & Facility/ Offices & Stores – lighting, air conditioning, elevators, POS systems;
- Transportation and Industrial Systems - railway systems, Li-ion rechargeable batteries etc.

Among these, water management is crucial. Toshiba's water and environmental systems business started in 1972 offering electrical equipment and engineering services for -

Water Supply and Sewerage Treatment

Rainwater Drainage, Sea Water Desalination

Operation and Maintenance

Zero Liquid Discharge

Necessitated by growing water scarcity and water pollution, the concept of ZLD was apparently born in US in 1970s. Issues concerning high capital and operating cost of ZLD have drawn attention of researchers and companies dealing in the subject. The technology, however, is case specific depending on type of industry. But a combination of reverse osmosis (RO) and other processes has given a high hope of cost reduction. Herein a proprietary technology “*high efficiency RO*” (HERO) provides 90 - 95 % efficiency and reduces life cycle cost in comparison to conventional systems. For details refer to <https://pubs.acs.org/doi/pdf/10.1021/acs.est.6b01000>

TOSHIBA and its associate **UEM group**, an international water services company, are licensed users of the technology. The UEM Group had its origin in USA in early 1970s and has engineering centers in India and offices in USA, Trinidad & Tobago and Oman providing one-stop municipal and industrial water and waste water treatment solutions.

TOSHIBA TEC Corporation contributes to the understanding that every industry has unique workflow needs. Keeping this in view Toshiba developed customizable MFP (Multi-Functional Peripherals) and multipurpose BCP (Barcode Printer) products to make the job easier.

Since paper is created from water and wood—which are limited natural resources, any effort to reduce paper use eases the burden on environment and helps reduce the effects of global climate change.

The printouts that we take often have limited use (for say, one week). Thereafter it has to be either destroyed or stored that also needs more storage space.

Toshiba's Paper Reusing System—prints the document in an erasable blue toner, and the e-STUDIO RD301 which erases the documents for reuse—makes more effective use of paper.

Each sheet of paper can be reused 5-times, while the matter being erased can be digitally stored. This helps the user to ease the environmental impact. Instead of restricting your ways to use paper, this system reduces paper consumption by using it effectively. Thus Toshiba delivers on its promise of Together Information – a commitment to collaborate with clients to provide tailored, cost-effective solutions that meet your print, document management and content needs while helping to meet green objectives.

Developments in 3-D Printing

1. 3D printing technology has come a long way from being an experimental tool used to create roughly textured objects from plastic resins. Here's a look at how 3D printing has made it into industrial contexts, specifically aerospace. Visit the LINK : [3-D Printing](#) (courtesy All About Circuits)
2. Volkswagen is researching on metal 3d printing for tools and replacement parts on demand. [3-D Printing Aluminium Parts](#) (courtesy ASM International). Click on links to learn more.

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