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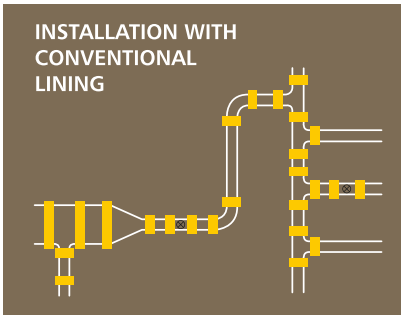

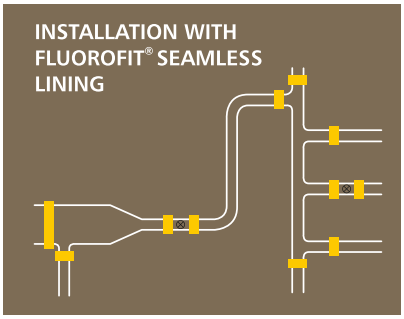

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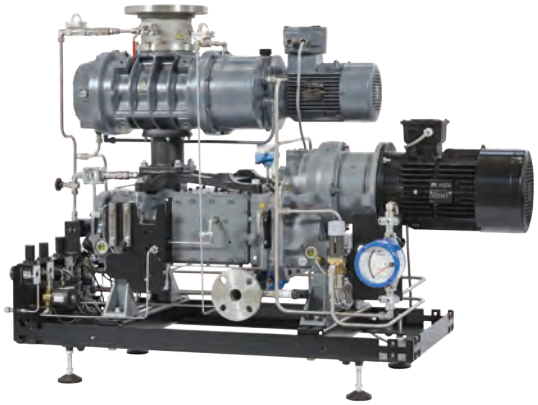

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Biocon Enters Prestigious Dow Jones Sustainability Emerging Markets Index

Kiran Mazumdar-Shaw, Executive Chairperson, Biocon and Biocon Biologics

Bengaluru, India: Biocon Ltd an innovation-led global biopharmaceuticals company, announced it has been selected to be in the Dow Jones Sustainability Index (DJSI) in the Emerging Markets (EM) category for its progressive Environmental, Social and Governance (ESG) practices, which underscore its commitment to the larger goal of sustainable development.

Biocon made a formal submission for Corporate Sustainability Assessment for its listing on the DJSI for the first time this year and made it to the DJSI EM Index with a Total Sustainability Score of 45 as against an industry average of 18, achieving a 93rd percentile position.

It is among the Top 15 companies from India and one of the 12 companies from the Pharmaceuticals, Biotechnology & Life Sciences sectors to be featured in the index for 2021. A total of 360 Indian companies were invited to participate in DJSI in 2021.Sustainability has been among Biocon's topmost priorities since inception and both Biocon and Biocon Biologics are committed to provide insights into their ESG performance to their stakeholders.

Kiran Mazumdar-Shaw, Executive Chairperson, Biocon and Biocon Biologics, said, "Our business purpose is focused on delivering health equity by providing affordable access to life saving and essential medicines to patients across the world. Our entry in the DJSI Emerging Markets Index is a testimony to our responsible and sustainable business practices and our philosophy of putting equity and equality at the center of everything we do. The DJSI Index provides an important yardstick for Biocon and Biocon Biologics to measure sustainability performance and continuously improve reporting on ESG to address the growing interest of our global stakeholders."

HRS PSL Showcases at CPHI P-Mec 2021 In-Person Event for Pharma Sector

New Delhi, India: HRS PSL has recently participated at P-mec 2021 at Noida from 24th – 26th November 2021. This is the first in-person event by Informa Markets post pandemic. P-MEC/ CPHI is the Asia's biggest event related to pharma machinery, technology and ingredients industries. The event was with all pandemic safety

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A wide range of customized heat exchangers have been engineered by HRS especially to meet the demands of the pharma industry continuously throughout the pandemic, including many of the vaccine manufacturers and their associate sectors for the time sensitive and ever increasing demands of the market. This has enhanced customer's trust in HRS technology and design and manufacturing capability. HRS PSL's offerings meet industry demands in India as well as across the globe.

P-mec was a good opportunity to meet and catch up with business associates from Pharma and healthcare sectors. Many of our esteemed customers like Alchem Laboratories Corporation, Ami Lifescience, Bharat Rasayan Ltd., IOL Chemicals, Biocon, Ajinomoto Bio-Pharma Services, Anjan Drug Private Limited, Rakshit Drugs Private Limited, Syngene International Limited etc .have visited the stall and shown great deal of interest in our energy efficient range of heat exchangers and systems. During the show HRS has featured their energy efficient heat exchangers and heat exchanger based systems which plays an important role in bringing green transformation in pharmaceutical industry.

KAISHA Packaging Achieves Supplying Seals for 2 Billion Doses of COVID Vaccines Globally

Rishad Dadachanji, Director, KAISHA Group of Companies

Mumbai, India: Leading pharma-packaging firm, KAISHA Packaging, has accomplished new heights in the fight against COVID-19. The company has successfully provided over 2 billion doses worth of flip-top aluminium seals used for packaging COVID

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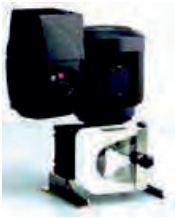

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vaccines. The seal is used as closures for injection vials during the vaccination drive and is as such an essential part of the vaccine package ensuring tamper-proof delivery. This is especially relevant for fulfilling India and the world's current vaccination drive, especially given the need for successive booster doses considering the ever-changing nature of COVID.

KAISHA Packaging has been a constant and biggest supplier for these seals to all the vaccines available in the Indian market and abroad. To ensure a consistent supply of vaccines and plug any shortages or gaps, the company managed to arrange and stock an extremely large volume of raw material. Not only did KAISHA Packaging successfully manage this challenge, it also expanded its capacity by over 450 million pieces to reach the overall capacity of 1.2 billion pieces per annum over the past year, which was unprecedented.

Rishad Dadachanji, Director, KAISHA Group of Companies, shared, "This is a testimonial of our commitment to support India's vaccine drive and developers with the best packaging solutions. As a pharma allied sector company, we have worked hard to ensure no gaps remain in our supply chain to ensure a consistent supply of vaccine seals. We are proud to have provided seals for over 2 billion vaccine doses so far. Under the current circumstances of ambiguity around the COVID pandemic, Kaisha is well-prepared to rise up to any supply challenges."

KAISHA packaging was established as a premium manufacturer of pharmaceutical closure systems for vials as well as speciality plastics for pharmaceutical use in 2003. The company has since revolutionized the way that aluminium seals are manufactured in India.

Encube Ethicals Enters Indian Consumer Market with Soframycin®

Mehul Shah, Founder and Managing Director, Encube Ethicals,

Mumbai, India: Encube Ethicals, a leading manufacturer of Rx and OTC skincare products globally, has entered in the Indian consumer market with its recent acquisition of Soframycin® from Sanofi. Encube is entering into the Indian B2C market for the first time and will be setting up a PAN India network, leveraging and building on Sanofi's existing network. With this acquisition, Encube is taking its first step towards addressing the Indian market with its own labelled products. Currently, the brand is sold through a network of more than 3000 distributors and 550,000+ retailers

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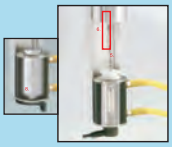
Viscosity Standards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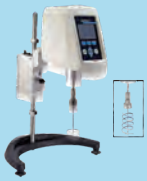
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RHEOLOGY VISCOSITY TEXTURE IN-LINE POWDER MOISTURE GAS

across the country, and it is already well entrenched in the Indian household and minds.

Mehul Shah, Founder and Managing Director, Encube Ethicals, said, "We will leverage our world-class large-scale manufacturing and a robust distribution network to make the product available across the country, in the remotest corners. It is one of the most affordable options available and enjoys the trust of prescribers, distribution partners, retailers, and patients alike. We are building a portfolio and you will see this franchise grow in near future."

Over the coming months, Encube will be unfolding a series of initiatives including investing in sales and support manpower, branding and communications campaigns, digital outreach, and awareness programmes, which will help the brand not only further enhance the mindshare of consumers but also grow the topline for the company.

Macsen Labs group's Methylene Blue Synthesis Process granted a patent

Delhi, India: The Indian patent office granted a patent to Achal Agrawal, a researcher and a pharma entrepreneur. The patent relating to the field of chemistry is titled "Novel Improved Method for Synthesis of Diaminophenothiazine Compounds". The patent concerns a novel process for synthesising the compound "Methylthioninium Chloride" or "Methylene Blue".

Methylene Blue is the first phenothiazine compound that was developed more than 140 years ago. It has a plethora of medicinal applications that have been under research since. The compound is already approved for treating a blood disorder called methemoglobinemia. Methylene Blue is currently under clinical trial for its experimental use in the treatment of Alzheimer's disease. In 2008, a Phase II clinical trial concluded that a purified form of methylene blue slowed cognitive decline in people with mild to moderate Alzheimer's disease. Antimalarial use of the drug has recently been revived. It is also being studied as a photosensitizer for non-invasive photodynamic therapy of cancers.

"I have been successfully using nebulized methylene blue for over a decade to treat lung infections and fibrosis for my patients. During the first and the second wave of COVID-19, I extensively used methylene blue based on my past experience. In low dosage, methylene blue works against COVID-19 as a prophylactic as well as a treatment for mild to moderate COVID patients when administered sublingually & through nebulization." Says Dr. Deepak Golwalkar, veteran Pulmonologist.

"Methylene Blue being such an old compound having a history of more than a hundred years is hardly available in required pharmaceutical grade and purity. Even in developed countries like the United States, there is only a single source of this life-saving medicine. It is really difficult to synthesize methylene blue in high purity because of the degradants formed during the oxidation process. Looking at a large

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EPC 2022 Engineering Procurement Construction | Refining Petro Chemicals & Corrosion Control 2022 | LAB ANALYTIX World Expo 2022 | Industry AUTOMATION & Control 2022 | PVF Pumps, Valves & Fittings WORLD EXPO 2022 | WaterEX WORLD EXPO 2022 | BOILERO World Expo 2022

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- Plant Machinery & Industrial Consumables
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- OEMs for Chemicals & Pharmaceutical Processing Equipment
- Metals & Metallurgy
- Bioprocessing Equipment
- Construction Services Providers
- Plant Maintenance Services Providers
- Logistics & Supply Chain Solutions Providers
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- Industry Automation (Process & Factory)
- Systems Integration & ERP Solutions Providers
- Water & Waste Water Treatment Consultants
- Environment Solutions Providers
- Waste Management Consultants
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- Fire & Safety Solutions Providers
- Material Handling Solutions
- Certification Bodies
- Welding Solutions
- Quality Health & Environment Solutions
- Analytical & Laboratory
- Packaging Materials, Machinery & Systems
- Business Consultants

FACTS & FIGURES - CHEMTECH WORLD EXPO 2019

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Scope for Specialty Chemicals World Expo 2022

- Agrochemicals Intermediates
- Adhesives & Sealants
- Agrochemicals & Crop Protection
- Bulk Drugs & Intermediates
- Enzymes
- Colorants, Dyes & Pigments
- Cosmetics & Personal Care Ingredients
- Hygiene & Cleaning Chemicals
- Laboratory Chemicals
- Surfactants
- Water Treatment Chemicals
- Catalysts
- Electronic Chemicals
- Flavours & Fragrances
- Contract Manufacturers

Scope for Biopharma World Expo 2022

- Materials Processing
- Pharma Machinery
- Pharma Ingredients
- Plant Engineering, Process Plants & Equipment
- Laboratory & Analytical Solutions
- Process Measurement & Inspection
- Sterilization & Clean Room Solutions
- Biopharma R&D And Manufacturing
- IT Solutions
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number of upcoming pharmaceutical applications of this compound, the new short process for yielding a high purity compound will be really beneficial for our industry.", says Mr. Achal Agrawal, CEO of Macsen Labs, and inventor of the patented process.

Yokogawa Develops Single Cellome System SS2000 for Subcellular Sampling

Tokyo, Japan: Yokogawa Electric Corporation announces that it has developed the Single Cellome™ System SS2000, a single-cell analysis solution that utilizes high-resolution images captured with a confocal microscope to automatically and accurately collect samples of specific cells and intracellular components. The SS2000 will be released in Japan, the US, and China in February 2022, with release in other markets such as Europe to follow at a later date.

Development Background: As the smallest unit of all living organisms, cells can greatly differ from one another; hence, there is a growing focus on single-cell analysis involving the isolation and handling of individual cells, as opposed to studying a population. In recent years, with improved analytical technology, it has become possible to analyze not only single cells but also specific molecules within them.

Single Cellome System SS2000

Understanding the characteristics and functions of cells and mechanisms for cell development is a very effective means for clarifying the causes of diseases, preventing them, and verifying the efficacy of new drugs. This is essential for drug discovery research and the development of precision medicine and regenerative medicine.

Conventional techniques for the analysis of intracellular components have typically involved the disruption and collection of heterogeneous cell populations, which does not allow for sampling at the individual cell level, so many components cannot be collected and essential information on cell location and morphology is lost. In addition, as this sampling is done manually, throughput is low, and it is quite difficult for even experienced researchers.

Utilizing Yokogawa's core imaging technologies that enable the real-time analysis of minute phenomena in live cells, the Single Cellome System SS2000 incorporates new technologies that automatically and accurately control sampling operations in order to support the

performance of cutting-edge life science research.

Features

Yokogawa confocal microscopy technology enables the rapid, minimally invasive imaging of living cells. Based on the high-sensitivity analysis of the high-resolution 3D images, the cells are automatically and precisely sampled using precise positioning technology.

Optimal selection of cells or regions within cells according to set criteria: The SS2000 analyzes images of a large number of cells within a target range and classifies them by using provided criteria such as cytoplasm area and nucleus size. It then identifies which cells are suitable for analysis and determines their sampling location. Utilizing criteria such as distance from the nucleus, image analysis can even identify optimal regions within individual cells.

Reliable sampling of target cells and components within individual cells: The SS2000 directly samples only target cells without detachment, retaining all positional and morphology information in the culture plate. Furthermore, the utilization of high-resolution 3D images and precise positioning technology enables the selective sampling of target organelles and cytoplasm.

Samples can be used for a broad range of analyses: The collected cells and intracellular components can be used for a broad range of analyses, including genetic analysis and mass spectrometry. The optimum and efficient collection of target samples improves analytical sensitivity. In addition, single living cells that have been sampled can be grown in secondary cell cultures.

Hiroshi Nakao, a Yokogawa Electric vice president and head of the Life Business Headquarters, comments, "The newly developed Single Cellome System SS2000 is a solution that will play a key role in future cell research. It provides the potential to understand not only the characteristics of single cells, but also the networks and communication between cells, allowing us to ascertain pathological mechanisms. In an era where more and more people are living to the age of 100, Yokogawa will accelerate the development and provision of solutions to protect lives, health, and safety."

Rezo. Ai Enables One of India's Largest Diagnostic and Healthcare Providers

New Delhi, India: Rezo.ai, India's fastest evolving AI-powered contact center, is assisting one of India's largest diagnostic and healthcare service providers with contact center automation. The diagnostic company found it impossible to meet client expectations, turn around patients being 10M per year, especially during the Covid-19 crisis, because of the manual operations, with a high volume of queries, low response rates, and time limits from overworked personnel. The AI-Powered Contact Center from Rezo.ai made a convincing argument for reviving the overloaded customer by providing an intelligent, patient-centric, and engaging approach. Their system

Dr. Rashi Gupta, Chief Data Scientist, and Co-founder, Rezo.ai

provides customized solutions based on the categorization and SOPs that have been developed whenever a touchpoint occurs, with a faster turnaround time.

The leading diagnostic healthcare center saw an unprecedented spike in customer base from multiple laboratories to deal with reports, samples, tests, appointments, payment alternatives, and much more. Rezo's email automation helped the provider to minimize employee workload, cost-effectively nurture customer connections, and increase response. Rezo.ai's platform employed intelligent routing to direct tickets to the appropriate agent or laboratory, as well as allowing users to track tickets, reopen outstanding tickets, and change ownership. Rezo.ai's highly efficient system recognized numerous intents and languages using backend APIs to categorize and subcategorize consumer queries automatically.

Dr. Rashi Gupta, Chief Data Scientist, and Co-founder of Rezo.ai adds, "When it comes to engaging with customers and creating a unique experience for them, Rezo.ai delivers strategic value to the healthcare sector. To train models from unstructured voice and text data, we use unique algorithms designed with next-generation technologies — AI, NLP, and NLU. These models are built to scale without a ramp-up phase, give a quick and consistent response to client inquiries, and save operational costs dramatically."

Most National Diagnostic Players to Deliver Double-Digit Revenue Growth in FY2022; margins expected to improve by 300-400bps: ICRA

New Delhi, India: The Indian diagnostics industry witnessed healthy revenue growth in FY2021 with Covid-19 related tests contributing to ~20-25% revenues, in turn supporting profit margins. During H1 FY2022, ICRA's sample set witnessed volume growth of 74% aided by a low base and spike in Covid-19 and allied tests in the second wave. This was in line with the active cases in India that touched an all-time high in May 2021, peaking at more than 4x the first wave peak. Despite regulated pricing on Covid-19 tests, better volume mix led to improved realization in H1 FY2022. Overall, the revenues of the sample set grew by 55% Y-o-Y in H1 FY2022; this is expected to moderate in H2 FY2022 on account of

Mythri Macherla, Assistant Vice President and Sector Head, ICRA

festive season and relatively lower pent-up demand.

Mythri Macherla, Assistant Vice President and Sector Head, ICRA, says "We expect revenue growth of its sample set to be 20-25% in FY2022. In line with sequential improvement expected in non-Covid revenues and consolidation of regional chains, revenue growth is estimated at ~8-10% in FY2023. Recent trends such as focus on digital brand building, improved offerings in bundled medical packages, changing consumer mindset towards organized players is likely to support demand traction for national diagnostic chains going forward."

The operating profitability margins (OPM) of the sample set improved to 32% in H1 FY2022 (as compared to 23% in H1 FY2021 and 30% in Q4 FY2021) given a lower base, operating leverage benefits from increased realisations and stabilized raw material prices. ICRA expects the OPM levels to improve sharply to 30-32% in FY2022 (as against 27.2% in FY2021). The same are expected to stabilize in the range of ~29-30% during FY2023 due to sector's focus on volume growth against the prevailing pricing pressures.

Macsen Labs Group's Methylene Blue Synthesis Process Granted a Patent from Indian Patent Office

Delhi, India: The Indian patent office granted a patent to Mr. Achal Agrawal, a researcher and a pharma entrepreneur. The patent relating to the field of chemistry is titled "Novel Improved Method for Synthesis of Diaminophenothiazine Compounds". The patent concerns a novel process for synthesizing the compound "Methylthioninium Chloride" or "Methylene Blue".

Methylene Blue is the first phenothiazine compound that was developed more than 140 years ago. It has a plethora of medicinal applications that have been under research since. The compound is already approved for treating a blood disorder called methemoglobinemia. Methylene Blue is currently under clinical trial for its experimental use in the treatment of Alzheimer's disease. In 2008, a Phase II clinical trial concluded that a purified form of methylene blue slowed cognitive decline in people with mild to moderate Alzheimer's disease. Antimalarial use of the drug has recently been revived. It is also being

studied as a photosensitizer for non-invasive photodynamic therapy of cancers.

"I have been successfully using nebulized methylene blue for over a decade to treat lung infections and fibrosis for my patients. During the first and the second wave of COVID-19, I extensively used methylene blue based on my past experience. In low dosage, methylene blue works against COVID-19 as a prophylactic as well as a treatment for mild to moderate COVID patients when administered sublingually & through nebulization." Says Dr. Deepak Golwalkar, veteran Pulmonologist.

"Methylene Blue being such an old compound having a history of more than a hundred years is hardly available in required pharmaceutical grade and purity. Even in developed countries like the United States, there is only a single source of this life-saving medicine. It is really difficult to synthesize methylene blue in high purity because of the degradants formed during the oxidation process. Looking at a large number of upcoming pharmaceutical applications of this compound, the new short process for yielding a high purity compound will be really beneficial for our industry," says Mr. Achal Agrawal, CEO of Macsen Labs, and inventor of the patented process. ■

Digitization Paving New Waves of Innovation in the Pharma Industry

The Pharma Industry has recorded strong growth in 2021. We wish to bring insights into the performance during current year & future plans of some of the leading organizations from the pharma industry ecosystem through interviews with the industry leaders for the readers of our magazine.

The December edition explores the implementation of Digitization across all stages of operations, fully integrating the supply chain, improving operational processes, making actions adaptive and responsive through Special section on "Digital Leap." Diving into the broad topic of Digitization and Innovation in the Pharma Industry.

How Digitalization Influenced Product - Packaging-Labelling

Prabir Das
Head of Packaging Technical Services, OSD (India)

The Product-Packaging-Labelling relationship is analogous to Automation-Digitalization-Communication relationship – practically inseparable from each other.

The product-people connectivity is very important in trust building process and success of a brand is largely dependent on this trust building. The packaging-labelling effectiveness is largely responsible to establish this connectivity with its communicative features. While some of the features on packaging and labelling

are visible and readable, there are features which are invisible and requires different tools to make it visible or readable to know the desired information. The purpose of including these features in packaging-labelling is either to promote the brand or to protect the brand or both. The basic packaging and its in-built design prevent product spillage, leakage, breakage and spoilage. Adverse external environmental conditions and external threats like theft, diversion, cloning are very common. Apart from internal operational controls, there are many external logistics controls too, to protect the product from these threats and challenges. Similarly, labelling helps to comply various regulatory guidelines through instructions for identification, storage, handling, dispensing and disposal. There are elements for branding too through text, color and graphics. A combination of packaging-labelling design and features take care of all these requirements to support brand promotion and brand protection.

Over the years industry has experienced difficult situations and responded with stronger designs and features to sustain and survive in the competition. Now, in this fenceless global business, when multiple technologies are available for easing the process of globalization, industry has responded well to compete in the global market. Quantity, quality and strict regulatory compliance are the need of the hour. Evolution in industrial automation and digitalization are strongly supported with revolution in communication systems. Most of the advanced features in product-packaging-labelling became feasible because of this automation-digitalization-communication system. This is how they are analogous to each other and also inseparable from each other.

These advanced value-added features are primarily two types.

Static / standalone / off-line category– Pilfer-proof / tamper-evident feature, covert / overt anti-counterfeit feature, brand promotion feature, Animated & Digital Graphic design features, etc.

Dynamic / connecting / on-line category – Serialization / aggregation (track & trace) feature, SMS / Web based verification feature, User interactive feature, etc.

Most of these features are adopted through advanced technologies – automation & digitization, wireless communication and hybrid technologies.

Brand promotion features – Text, Graphics, Decorative and Technical design features to enhance consumer appeal. Every product needs the packaging for

protection from the external environment and needs the labelling to communicate with the external world. It also facilitates brand positioning and brand promotion.

Packaging and Labelling are complements to each other. Labelling has 3 basic elements – Text, Graphics & Substrate.

Packaging (primary, secondary and tertiary) decides the substrate and its specifications. Substrates provide the base for the texts and graphics. While the text is for the brand / product identity and statutory compliance, graphics is for the product positioning or brand identity. Fonts, colors, embossing, hot stamping, different types of surface finish are common. Packaging & Labelling also contains many value added features to facilitate specific functions like ease in display, dispensing & disposal. Such features combinedly promote branding.

Tamper Evident features – Design or device to prevent pilferage or theft of the product from the original pack. Tamper Evidence is already an existing system, primarily to prevent theft and pilferage. There are 3 common systems currently being used for tamper evidence

(1) Use of tamper evident stickers, (2) Use of hot or cold glue and (3) Mechanical locking of the pack which leaves sign / proof when opened.

It also has challenges like use of an additional sticker or glue and related application units on the packaging lines. Industry is using it for years to prevent theft or copying of the product-packs.

Anti-Counterfeit features – Design or device which prevents to replicate or cloning of the original product-pack. Some of the common anti-counterfeit features on product-packaging

Overt Technologies (visible features)– These are visible but difficult to imitate – Customized Holography, Micro Text, Color changing security inks / film, Security graphics, Random serialization, On-product imaging or numbering.

Covert Technologies (invisible features)– These are not visible with naked eyes – Invisible printing, Light sensitive printing, Embedded images, Digital watermark, Anti-copy or anti scan design, Laser codes.

Other features – RFID, Biological taggants, Micro taggants, Secured web link, Special (difficult to copy) printing / embossing on products (solid doses).

Authentication features – A tool or system to verify genuineness of the product and its ownership. This is the last action of an end-to-end solution wherein the end user participates to close the loop. Some of the common authentication

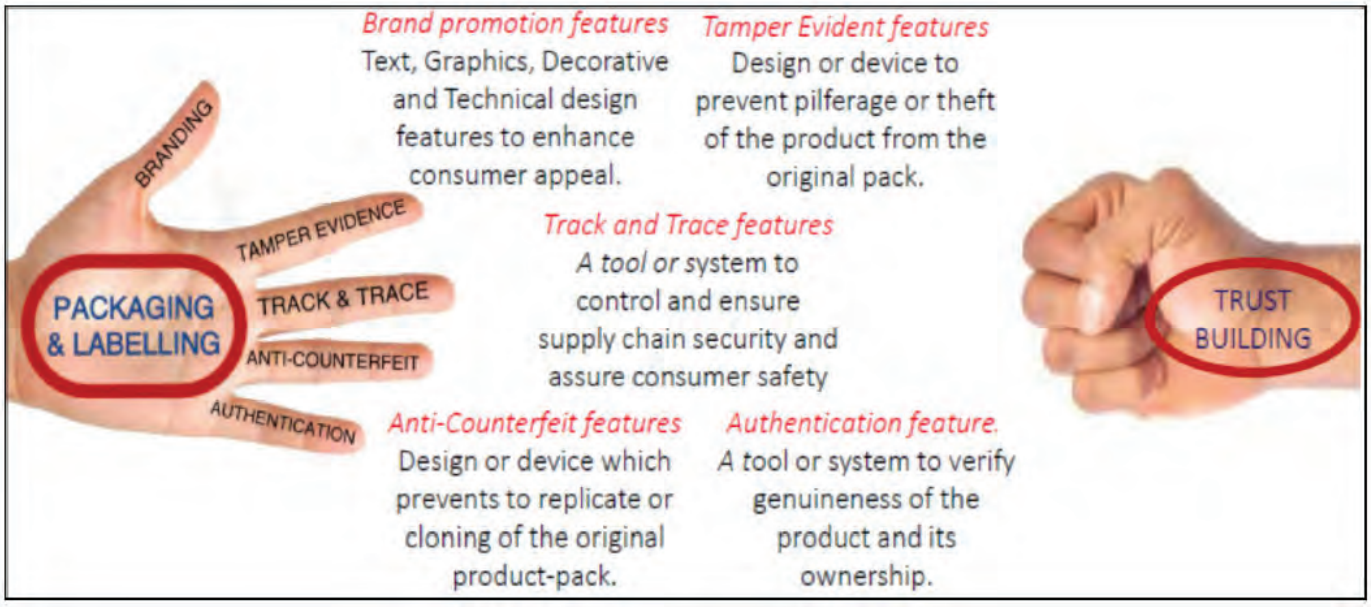
features are intricate design stickers / holograms, microprinting, use of different electronic tags / chips, SMS based communication link, web link through Wi-Fi connectivity, biometric codes, specific light sensitive prints / codes, mobile application-based codes, scratch & scan codes, and so on. Product level authentication features are also available, especially on solid dose formulations.

These features are often used as a single technology or as a blend of different technologies, involving other value-added features like, anti-counterfeiting, tamper evidence or even serialization. However, in all these cases customer education and awareness building is must through physical demonstrations or printed instructions.

Track and Trace features – A tool or system to control and ensure supply chain security and assure consumer safety. The Track & Trace feature was primarily introduced to monitor and control the movement of the goods across the entire supply chain.

This GTIN based technology uses unique serial no. on each trade unit / saleable pack. The GTIN & batch specific data (packaging level wise aggregated) is pushed to the network for verification and authentication by the regulators and agencies involved in the supply chain of the products.

Despite initial challenges, it has been broadly accepted and adopted by pharma industry not only to ensure supply chain security, but also to control counterfeit, pilferage and diversion. Pharma Industry across the globe is now aligned to make it a success with various cost effective, compact and compliant solution.



Automation-Digitalization-Communication has influenced and improved every stages of operations in the industry and it has been adapted to our changing lifestyle as well.

- **Evolution to Revolution –** Local to Global – Large wholesale pack to Small consumer pack.
- **Scaling Up –** Quantity with Quality – Consistency and Reproducibility.
- **Manufacturing and Packaging–** Testing and Releasing – Data management and Documentation.
- **Promotion and Protection –** Cloning and Counterfeiting – Theft and Diversion.
- **Storage, Handling and Transport –** Logistics and Distribution – Safety, Security and Traceability.
- Digitalization is a great support to Automation and Communication systems through Data and Information Capture, Data Transform, Storage, Processing, Transfer, Exchange, Retrieval, Integrity, Transparency and Compliance.
- These help to optimize cycle time, space utilization and convenience. It enhances speed to all the business processes. Quality and Compliance are well ensured with Transparency and Integrity. It also strengthens the Communication system.

There are many basic tools to support this Automation-Digitalization-Communication relationship. Over the period these tools have been fine-tuned for their practical applicability. Such tools help to build different custom-made programs, which directly or indirectly facilitates the operations, conversions, controls and communications.

This is how Product-Packaging-Labelling relationship is strengthened with the help of advanced tools and technologies. Often multiple tools and technologies are blended to get a customized hybrid model, which are more powerful than a single technology.

Across the world packaging professionals always try to find customized solution to support brand protection and brand promotion with their knowledge in material science, conversion technologies, application feasibility and flexibility. Basic packaging materials vary from simple paper to complex composites, inclusive of metals, glass, plastics, and many more options. Accordingly, their conversion technologies also vary to finalize the design and process options. While doing so it is always ensured basic safety and security of the product-pack is maintained.

There are logistics challenges as well which covers multiple options like roadways, railways, airways, ropeways, pipelines and water routes. Each of these has their own hazards and challenges. Similarly, there are many external mandates like compliance to regulatory guidelines, benchmarking with competitors, obsoletion of technology, change in consumer behaviors, etc. Hence a good balance is required while designing and developing a product-pack which can sustain and survive longer in competition.

PRODUCT - Category of product, Physical, Chemical and Organoleptic properties, Shape, size, colour, Fragility, Sensitivity level, Bulk density, Viscosity, Flow properties."

PROCESS - Design, Flow, Scope of Automation, Standardisation and Harmonisation."

BRANDING - Pack Design, Graphic Design, Use of Smart Features."

LOGISTICS - Storage, Handling & Distribution, Mode of Transportation, Excursion Study, Shipment Study."

CUSTOMER - Domestic or Export, Demography, Convenience, Dispensing ease, Disposal ease, Authenticity."

COMPETITOR - Bench marking, Cost sensitivity, Uniqueness (USP)."

REGULATOR - Local rules & regulations, Environment friendliness, Child protection, Supply chain safety & security."

TECHNOLOGY - Availability & Adaptability, Cost-benefit analysis, Feasibility for hybridizing, Sustainability." ■

One Thing Companies Need to Get Their Digital Transformation Right!

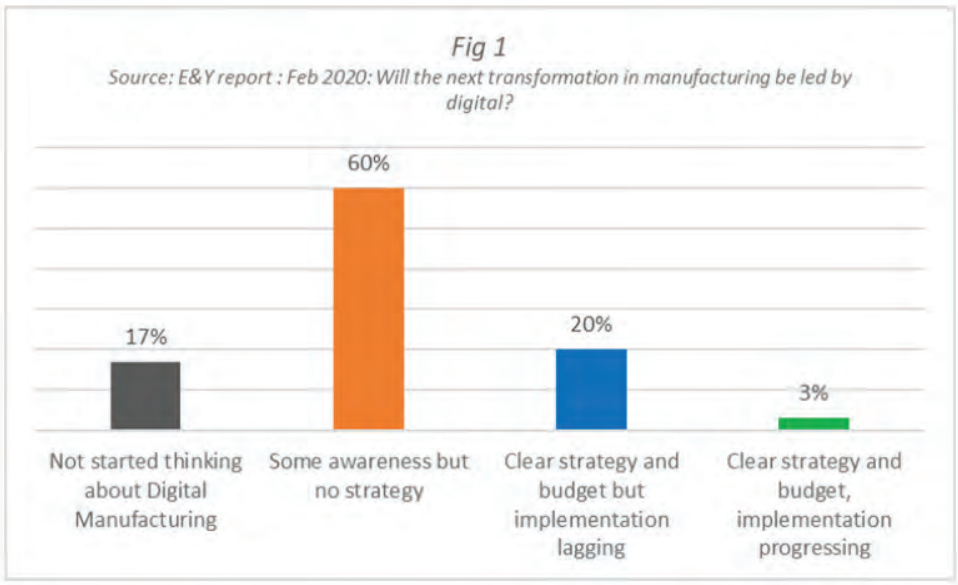
Ashutosh Parasnis
Founder
NewBox Consulting

Digital Leaders transition through a series of steps that usually require time. Skipping steps creates only the illusion of speed and never produces a satisfying result. Digital Business is here to stay. The manufacturing sector uses terms such as Industry 4.0 or Smart Manufacturing. For non-manufacturing sectors, it is simply Digital Transformation.

This trend is evident from the significant upswing of digital adoption. And yet various reports indicate that the progress is not as imagined. Fig 1 depicts the progress in the manufacturing sector. It's because despite implementing digital practices, companies do not achieve the critical maturity that delivers real business results. So what is missing? How do companies achieve success?

Let us look at a couple of success examples, one from manufacturing and the other from the services sector.

Bharat Forge is India's leading Forging company with global operations. Their Industry 4.0 journey started a few years



ago through workshops to build a strong understanding and strategy. They then decided to connect shop-floor machines with enterprise systems, by deploying sensors, automation and analytics. A technology platform was chosen for this purpose.

A key area that needed attention was enabling employees and overcoming resistance to change to the new way of working. More than 70% of the effort went into managing this change.

By crafting their journey carefully, they have achieved 15% improvement in OEE along with energy savings and revenue improvement. Their journey continues as they explore opportunities to connect more factories, deploy additional technologies and drive business excellence.

- The other example is from SME service industry. A few years ago, one of my clients was challenged with stagnant growth and wanted a strategy review.

We approached the situation using a protocol we have developed. After identifying the firm's objectives of the desired future state, we reviewed their then business model. The analysis of their offerings, customers and operations, revealed new insights.

A major insight was the absence of technology leverage. Armed with these insights and their years of experience in the industry, a roadmap was developed, including the bold step to adopt technology. Thus began their Digital Transformation journey.

After communicating the new strategy to all stakeholders, they chose to automate a business process that would boost their employee productivity while improving client interaction. Workshops were conducted as needed. The outcome within a year of implementation was revenue growth and improved customer stickiness.

Misjudging the 1st step: The secret is in the Protocol

If we look at Fig1 and the case studies, it is clear that following a protocol was the key to Digital Success. Most companies are either overwhelmed with the vast scope of Digitalisation or are tempted to implement technology straight away. However, digital transition is not merely about connecting machines or automating processes. It's a paradigm shift in how we organize, manage, and approach business. Without a deeper understanding, it will not work. And almost every company needs assistance from outside experts to understand and design the roadmap.

Beyond the Digital Leap

One can safely say, the two companies took the Digital Leap. It is interesting to note what happened subsequently.

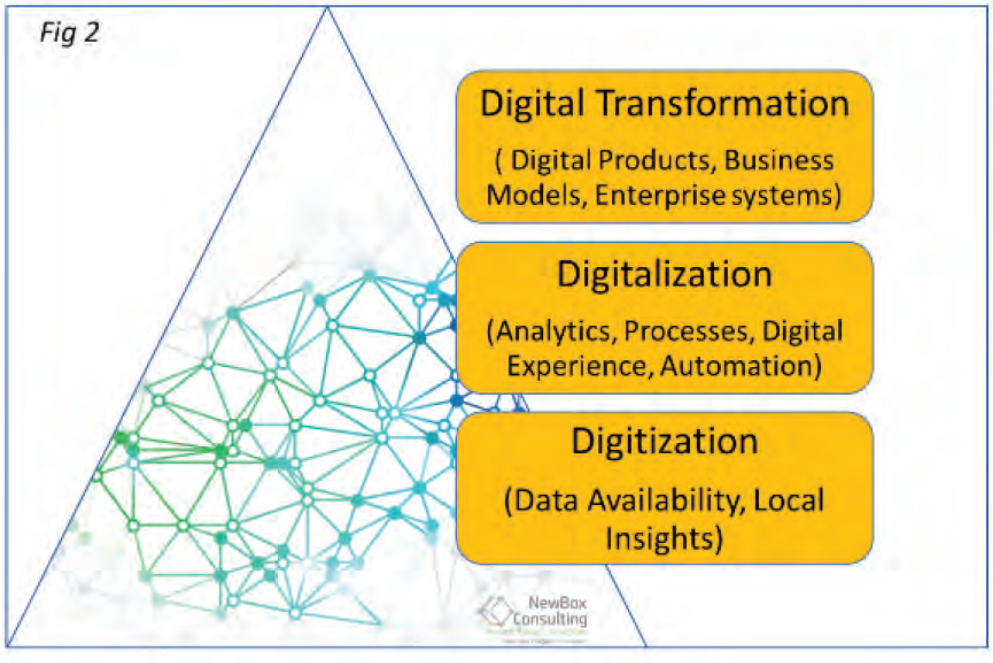
Successful companies are not satisfied with the Digital Leap. They are prepared to run the Marathon.

The systematic approach coupled with a refreshed mindset and skills helped to discover many more opportunities for both companies to improve operations, innovate products and processes, drive better customer experience, employee health and safety, and so on.

Initial small successes motivated people to work on complex projects that needed time but had to be executed quickly. It can be likened to a Sprint, than a leap. Having done that over a couple of years, they are now reshaping their business model itself. Something that we call Digital Business Transformation. Reaching this phase can be likened to a Relay Marathon.

Keep in mind these differences

Digitisation is when you convert a physical artefact into a digital one and speed up local analysis.



Example: Collect product test data and store it in digital form.

Digitalisation is about improving a process with the help of stored data and additional technology. For example, the ability to digitally search and retrieve digital test records with a certain keyword, image or value, over a time period and analyse them.

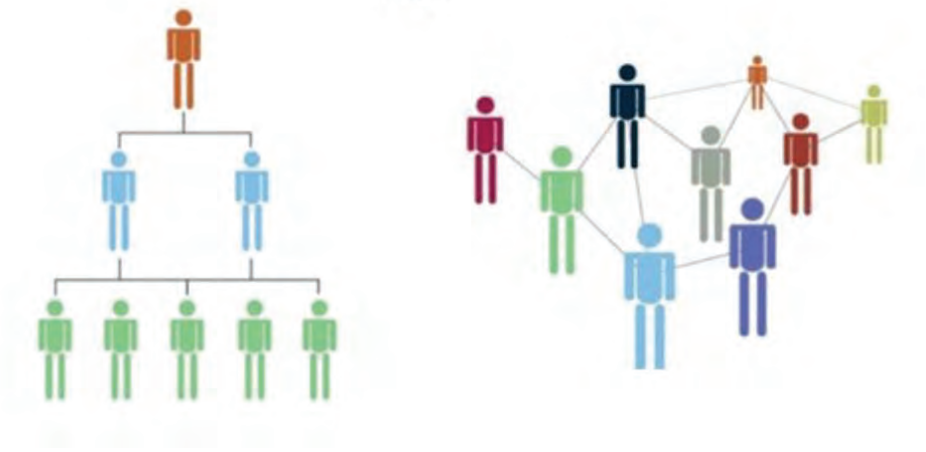
Digital transformation is about refreshing the business model itself to leverage the advantages of digitalisation. For example, processes that can automatically collect product performance data during production and on the field, for remote monitoring and management.

Moving from Digitisation to Digitalisation is relatively easy when executed thoughtfully. While the market is flooded with multiple digital technologies, the four essential areas to focus on are Sensors, Automation, Data Analytics and Networking.

Coordinated Capability Building

As an organisation moves through the various phases- from Leap to Sprint to Marathon- one thing needs to be borne in mind. Success depends on people. As a result, the mindset and skills of staff across levels need to be elevated in an orderly fashion.

Fig 3



Beyond the digital skills, employees will need additional skills such as customer behavior, complex problem solving, systems thinking, collaboration and Innovation. The reason is that in a digital world, businesses are viewed as interconnected functional blocks or a System. Whereas traditionally, companies are used to work in silos.

This change is critical to make the Digital Transition. One option is to replace people with redundant skills with those having new skills. However, that is not desirable since existing performing employees are a company's best asset. Their knowledge about products, processes, challenges and culture is invaluable. Companies too are reluctant to let go of employees from a social perspective. Resort to external

hiring when the skill is totally new or speed is essential, but remember it is not easy to find new talent in the market. So, give yourself enough time to upskill current employees or hire new ones. This is all a part of getting well prepared.

Conclusion

Companies should run the Digital Transformation Marathon the right way. Prepare like a marathoner – systematically. The detailed S.T.E.P protocol deployed in our projects is an example. Size of the business does not matter. What matters is understanding the relevance of digitalisation to the business. You don't have to make high investments from day one. You can ramp them up as you progress. Invest in people to leverage technology benefits.

When Digital and Innovation strategies are integrated with mainstream Business strategy, opportunities to reduce cost, boost productivity and revenues and improve customer experience emerge. ■

Developments and Discovery in Modern Drug Research

Manni Kantipudi
CEO
Aragen Life Sciences

How has the sector of R&D applications and discovery evolved over the years and what are the strategies utilized by your company to stay competitive?

The Pharma R&D outsourcing industry has been growing at a good rate and there is a fundamental shift in the industry's approach towards drug discovery research. Client organizations are increasingly looking at outsourcing as a 'go-to' strategy. With significant capital flowing into the life sciences industry, every company, whether a large pharma or young biotech, has externalization as the key component of its growth plan. There are two main reasons that is driving this change. Firstly, with technological advancements, there are newer approaches evolving in modern drug discovery and development for both small molecules and biologics. Secondly, customers are not very keen on setting up new labs with large footprints that cost both time and money. Their focus is on speed while leveraging the scale and expertise of the contract service providers to drive innovation and product

development. This paradigm shift in partnering for innovation has brought the pharma companies and CROs closer. The CRO/CDMO market has thus been growing consistently over the past few years, and R&D outsourcing is now seen as a 'must have' than 'good-to have' strategy.

Aragen offers end-to-end integrated discovery-development- manufacturing solutions for small molecules and biologics. Today, we have evolved as a 'partner of choice' for more than 450 global customers across pharmaceutical, biotech, animal health, agrochemical, nutrition and performance chemicals industries. Driven by our purpose – 'In every molecule is the possibility for better health' – we have been making systematic investment in strengthening our service offerings, expanding our delivery capacity, improving our operational efficiencies, and extending our geographic footprint. Aragen US, our US arm focusing on biologics solutions, has established itself as a strong player in cell line development and is now forward integrating into manufacturing. We have further expanded our campuses in Hyderabad and Bangalore by setting new labs for offering chemistry, biology, analytical and other services. We recently acquired Intox Pvt Ltd., a Pune-based pre-clinical CRO offering GLP certified safety assessment services. This will further expand on Aragen's end-to-end integrated discovery and development solutions. On the operational front, we are continuously investing in digitalization and automation across the organization inorder to improve processes, enhance productivity, reduce turnaround time.

What are the major challenges as one of the leading providers of outsourced discovery, and how have you addressed it?

One of the key challenges is to ensure that we have access to relevant talent pool who can deliver to the high standards that our customers have come to expect from us. We have been able to attract talent globally given our pedigree and credentials as a 'Great Place to Work'. We foster an environment that drives innovation and brings out the best of our scientists' talents and productivity. Our emphasis on a safety, IP and an equal opportunity employer differentiates us from the competition. We also believe that government support in terms of incentives/SOPs to companies offering R&D services will go a long way in attracting more investment and infrastructure to this industry.

What are some of Aragen Life Sciences' prudent competitive advantages within the Indian CRO industry?

Aragen's focus is on driving innovation and accelerating our customers research programs from concept to commercialization. Some of our key competitive advantages are:

Access to world-class infrastructure and scientific talent in cutting edge technology to drive innovation.

Strong IP and no conflict of business interest. We collaborate and not compete. We do not have any internal programs, nor are affiliated with any pharma company. We do not invest in pre-clinical or clinical assets, nor share in equity with our partners. Our business model is purely based on offering our solutions to advance our customers' programs in the value chain.Robust project management system to ensure that our customers have visibility on the progress of their projects; a well-defined site strategy; scalability of operations to meet the requirement of clients.

Global operations: We have research and manufacturing facilities in US and India to cater to our global customers, delivering the same quality of output every time, location no bar.

Track record: We have consistently delivered for over 20+ years. With a customer base of over 450+ across the globe, our customer repeat rate of over 90% is a testimony to our commitment and relentless focus on customer centricity.

How has digitization and automation enabled your company to poise as a leading global player in drug discovery and development?

Aragen has a clear strategy for the digitalization of its solution offerings. We have leveraged IT to drive every aspect of our operations. Aragen's proprietary project management platform, XLRATE, provides our customers a seamless environment to interact with the project teams and get real-time access to project status. Digital technology such as Robotic Process Automation, paperless procurement process and logitracker helps in speeding up the supply chain processes, improve efficiencies, reduce errors. We have also implemented electronic lab notebooks (eLNB), electronic quality management systems (eQMS), Laboratory Information Management System (LIMS) and Chemwatch to improve operational efficiencies in the labs. HR E360, a customized digital tool, helps the HR team manage the entire life cycle of an employee and facilitates online interaction to resolve various queries and issues. These customized digital tools enable scientists to focus on their science, while teams from project management, logistics, procurement, quality, HR and

other enabling teams ensure program efficiencies, timely communications and rapid turnaround times. Our key differentiators are innovation, speed, scientific rigor, flexibility, and data integrity. We have also implemented many other IT-enabled tools like SAP, and Salesforce to help drive the operational efficiency of other enabling functions like Finance, Business Development, and Quality Assurance. ■

Future Growth Drivers for the Indian Pharma

Dr. R.B. Smarta
CMD-Interlink, Vice President (HADSA)

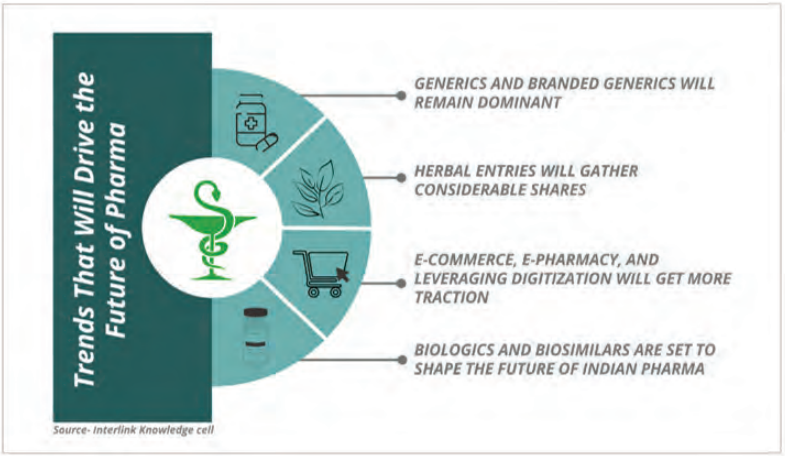
Although India is known as an 'emerging pharma market' in the global scenario, the last few years (and most importantly pandemic period) have been very crucial and aspiring for the country's pharma sector. As of 2021, the nation dominated about 60% of global vaccine production, served over 71 countries and has been established as the biggest vaccine producer worldwide. Being one of the top producers of generics and the highest exporters of the same, the nation is contributing to more than 20% of the global demands for generics by volume. These numbers are real and motivating at the same.

As per a report, the Indian Pharmaceutical market has the potential to generate market revenue thrice than that of today in the next 10 years. The market value is estimated to reach around US $ 65 billion by 2024 and over the US $ 120 billion by 2030.

Let's have a look at certain promising drivers in the industry which will contribute to making these numbers realistic in the coming years-

Trends That Will Drive the Future of Pharma

Although the sector is fueled by various components in the market contributing



in varying proportions, Generic drugs are here to stay to drive the Indian pharma industry in 2022 and beyond.

Generics and Branded generics will remain dominant

The existing favorable environment for generics in India is going to get even more boost through the patent expiry of branded drugs which are worth about USD 240 billion. These drugs are expected to go off-patent in the next 4-5 years, creating an amazing opportunity worth around USD 5-6 billion for the Indian pharma sector.

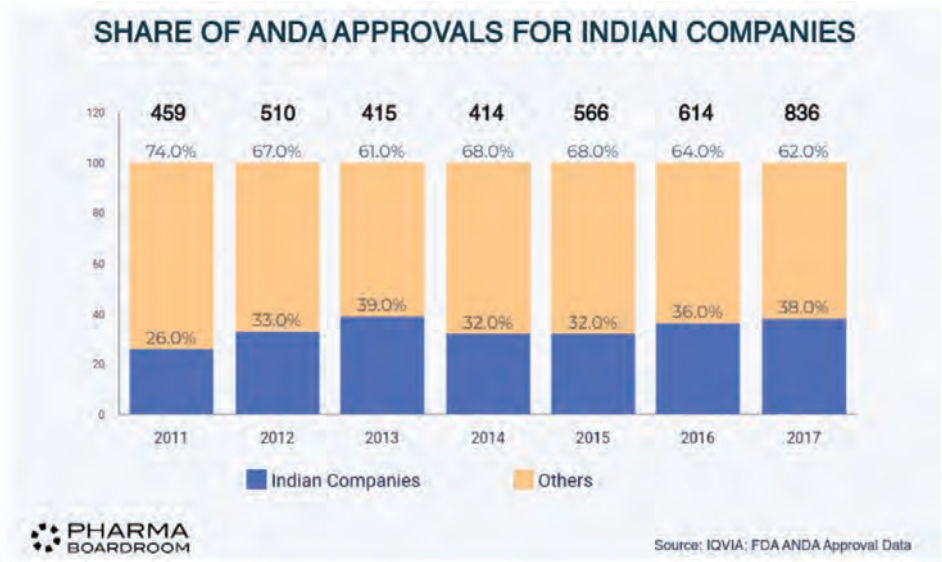
Moreover, the country's major Indian pharma players including Zydus Cadila, Cipla, Sun Pharma, and Dr. Reddy's are experiencing impressively increasing sales in this category. Cipla is expecting to cross the sales of USD 1 bn in this fiscal year in terms of domestic branded generics, or prescription business. Even though it's the same generics business, players are likely to play innovative owing to the immense competition in the market.

The future additional growth looks realistic looking at the Indian pharma companies' percent shares of ANDA approvals which are expected to go higher from 38 percent in 2017 to around 43-45 percent in the coming years (fig. 1).

Herbal entries will gather considerable shares

Although traditional knowledge has always been serving as a competitive edge for India, the Indian heritage of herbs and traditional medicines has received significant attention and acceptance in the past 2-3 years, domestically and internationally. AYUSH interventions and the willingness of pharmaceutical companies to explore the herbal basket are positively fueling the overall health market. Innovations are in the pipeline, no wonder phytopharmaceuticals are also being prioritized.

Consumer demand for green solutions and government facilitation



towards promotional activities, education, and research and development are giving rise to revolutionary opportunities for pharma players to expand in the Pharma-Nutrition segment.

The Indian medicinal plant market accounted for USD 56.6 million in 2019 and is expected to grow with CAGR 38.5% to USD 188.6 million by 2026, resulting in an emerging opportunity for pharma to dive into herbals.

E-commerce, E-pharmacy, and Leveraging Digitization

Generics and other pharma products are increasingly establishing on the E-commerce routes in India, a shift from pharmacy to E-pharmacy driving significant growth for the Indian pharma industry.

While experiencing a large-scale e-commerce disruption over the past decade, e-pharmacies have contributed approximately 2-3 percent (USD 0.5 billion) to the total Indian pharmacy sales in 2019 and are expected to grow at a CAGR of 44 percent by 2025.

Not only consumers are getting adaptable towards these E-commerce platforms, but investors are also showing good interest in them. To name a few, Medlife, 1mg, Pharmeasy and Netmeds are the leading players in this segment in India.

Improved availability and access to safer and affordable drugs are some of the elements through which e-pharmacies are disrupting pharma retails. Moreover, the Indian government's approach towards promoting these E-pharmacies through the Aarogya Setup Mitr portal on Arogya Set aap has greatly benefited the consumers and e-pharmacies during the pandemic. In the coming years, E-commerce platforms are going to get a big push owing to increasing internet penetration, shift towards organized channels, and changing disease profiles.

Moreover, the digital revolution is transforming every industry in the country. The pharma domain too has not remained untouched. Artificial intelligence (AI), Machine Learning (ML), Data analytics, Beyond-the-Pill are only some of the tools that are changing the dynamics of the current pharma world. Pharma marketing is experiencing a paradigm shift with these technologies.

Biologics and Biosimilars are set to shape the future of Indian pharma

The Indian Biological and Biosimilar market is at a nascent stage. However, it has a huge potential to boom the

pharma domain due to the willingness and positive attitude of the key pharma players. For instance, India has approved 98 biosimilar products, which is a global feat. Furthermore, 40 products are still at a development stage.

Biocon, one of the first companies to manufacture biosimilar origin products aims to generate over 7000 crores by 2022. Furthermore, it has also ventured into the US market by collaborating with Mylan. Similarly, 'Partnership models' are coming into existence easing the process of manufacturing and regulation. Cadila Healthcare-Intas, Lupin-Aurobindo are some of the examples.

Also, as mentioned earlier, in terms of vaccines production, the country's presence has been prominently felt in international markets and it will continue to dominate in the years ahead.

Looking at these opportunities, the Indian pharmaceutical dominance globally is quite evident. However, the path is filled with hurdles that might result in unexpected adverse situations if not handled strategically.

Possible Required Facilitating Factors

Following are some of the facilitating factors which could boost the Indian pharma industry efficiently and unstoppably-

Facilitation to strengthen domestic API production

One of the alarming concerns for the Indian pharmaceuticals is the over-dependency on other countries (particularly China) for various Key Starting materials (KSM) and Active Pharmaceutical Ingredients (API). Although government interventions can be seen in the form of PLI schemes and bulk drug parks, timely and effective execution is necessary to make efficient domestic API production a reality in less time.

Facilitations in terms of Drug Pricing Policies, R&D, and Regulations

The higher degree of facilitation from the government through conducive drug pricing policies and regulations can further boost the country's pharma sector.

Even though the country is leading in generics and vaccine development, its R&D sector needs a boost. Time constraints and low-profit margins are some of the reasons because of which there is a hesitancy in the market. Furthermore, it is essential to create

a regulatory framework favorable for innovation and research along with incentivizing investments for R&D. We must also aim to create an environment that is favorable for international companies to invest in our R&D, showing them our infrastructural and manufacturing capabilities.

Looking at the way ahead

As these Four growth drivers are important for the pharma industry, the industry should comprehensively look at the business from strengths of generics and branded generics, potential herbal medicines, a higher degree of acceptability towards E-commerce and digital marketing, and those who can invest, future drivers of biologics and biosimilar can be captured by them. ■

References:

- *Indian Pharmaceutical Industry_ https://www.ibef.org/industry/pharmaceutical-india.aspx_accessed on 24/11/2021.*

- *Sarthak Pradhan_ India's price control policy has destroyed drug manufacturers. This is how they can be saved_ https://theprint.in/opinion/indias-price-control-policy-has-destroyed-drug-manufacturers-this-is-how-they-can-be-saved/338095/_*

- *Top 5 trends for the pharmaceutical industry in 2021_ accessed on 24/11/2021. https://www.csint.com/resources/blog/top-5-trends-for-the-pharmaceutical-industry-in-2021_ accessed on 24/11/2021.*

- *Pharmaceutical Industry in 2021: Top 11 Pharma Trends_ https://www.avenga.com/magazine/pharmaceutical-industry-trends/_ accessed on 24/11/2021.*

- *ANANYA KOPPIKAR-MOORTHY_Understanding the coming challenges to India's pharma sector_ https://www.orfonline.org/expert-speak/understanding-the-coming-challenges-to-indias-pharma-sector-66556/_ accessed on 24/11/2021.*

- *Indian Pharma—Some Challenges and Acceptances_ https://www.drugpatentwatch.com/blog/indian-pharma-some-challenges-and-acceptances/_ accessed on 24/11/2021.*

- *Why pharma needs digital engagement now more than ever?*

Read more at:

https://health.economictimes.indiatimes.com/news/pharma/why-pharma-needs-digital-engagement-now-more-than-ever/83299938_ accessed on 24/11/2021.

- *https://pharmaboardroom.com/articles/indian-generics-in-the-usa-destined-for-more-success/*

- *https://economictimes.indiatimes.com/industry/healthcare/biotech/pharmaceuticals/cipla-expects-sales-of-branded-generics-to-cross-1-billion-this-fiscal/articleshow/87450072.cms?from=mdr*

- *https://www.careratings.com/uploads/newsfiles/26082021054232_Indian_Pharma_Industry_to_surpass_USD_60_billion_in_two_years.pdf*

- *https://www.ibef.org/blogs/high-demand-for-medicinal-plants-in-india*

- *https://www.investindia.gov.in/team-india-blogs/e-pharmacies-bridging-gap-indian-healthcare*

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Dellmeco AODD Pump for Reactor Sampling in API

As we know production quality control is the major concern for API plants due to stringent regulations and approvals. Reactor sampling is required throughout the various stages of reaction and at specified time intervals as a feedback mechanism. Sample taken from the reactor is sent to the laboratory to test and evaluate desired mechanical and chemical properties.

Generally, an opening with a control valve is provided at the top of the reactor. A small pump is sufficient for transporting sample liquid.

Desired Characteristics

Looking at the application we can make inferences that the pump should be able run dry under negative suction lift of 1 -3 meters if the vessel is at atmospheric pressure.

It may be required to pump corrosive and flammable liquid at elevated temperatures. Also the pump should be suitable for frequent start and stop cycles.

Benefits of Using AODD pump:

Lightweight, compact and single piece pumping solution, takes minimum space for installation.

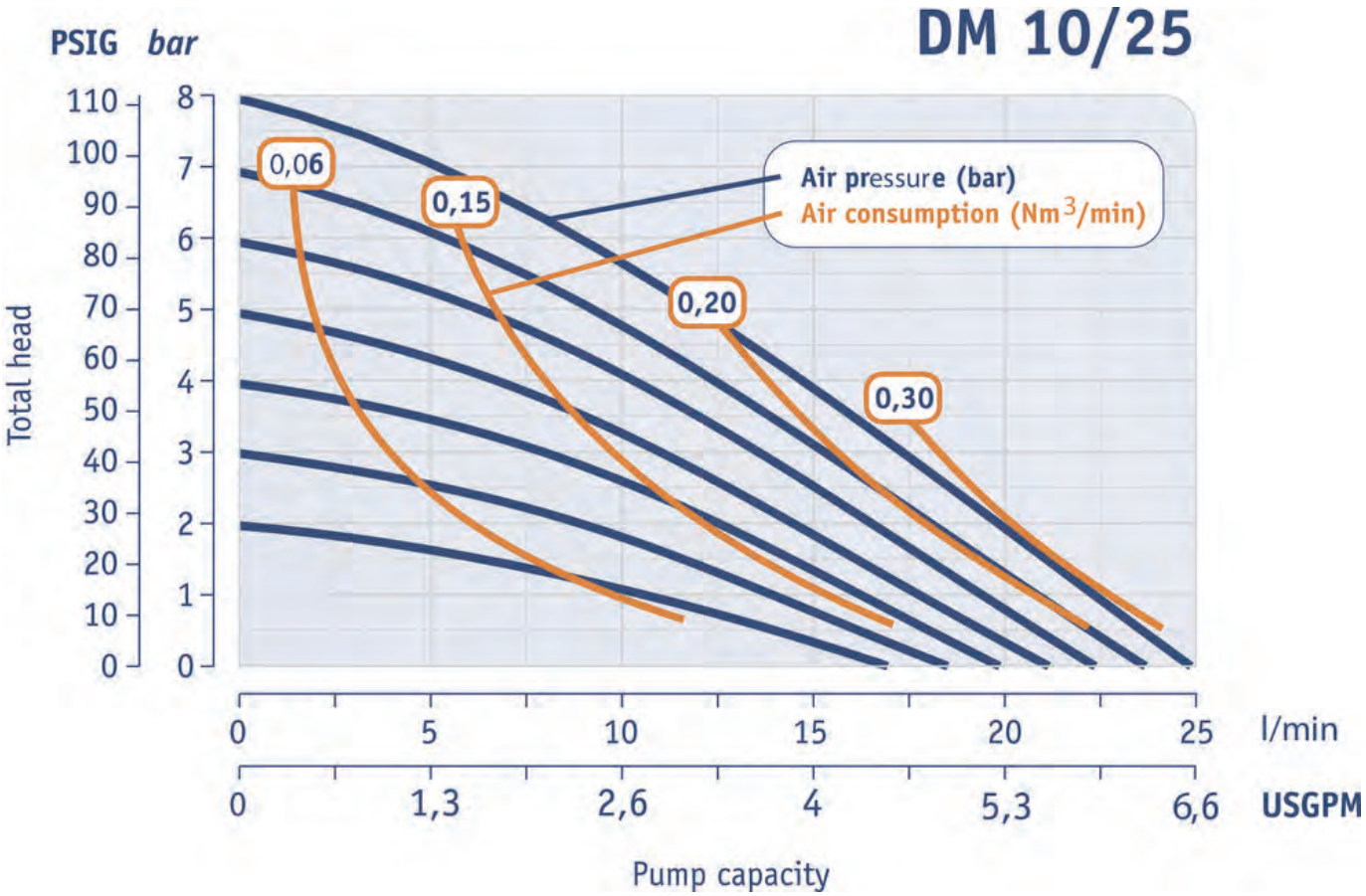
AODD pump can run dry, priming is not required, suction lift is up to 8 mwc

Sealless technology hence no chance of leaking hazardous chemicals.

ATEX certified, no motor and electric parts, inherently safe from electrical hazardous.

Gentle handling of liquid, pumping action does not introduce turbulence in the liquid, liquid with small solid particles can also be pumped

Flow rate and head can be easily controlled by throttling the air valve.



Why Dellmeco AODD Pump:

Many AODD brands are available in the India market, at different price points & in different materials of construction. However in the long run cheap & locally made pumps happen to be costlier due to operational cost (high air consumption and maintenance, build quality issues and premature failures)

Dellmeco is an established European brand having the global presence and reputable customers database. Dellmeco pumps are manufactured by CNC machining single piece of solid block plastic.

We recommend DM 10/25 ZTT for reactor sampling application. Dellmeco Model DM 10/25 ZTT is made from 100% conductive PTFE including diaphragm and ball valves. Pump has ⅜" BSP female nominal suction and discharge port. Theoretical flow rate is up to 25 lpm. The housing is built from conductive PTFE whereas the diaphragms & ball valves in the pump are of PTFE. The pumps are ATEX certified & capable of handling solvents, acids, corrosive chemicals & acid-solvent mixtures safely. Temp limit is till 90 deg C.

Dellmeco ZTT pumps are unique due to their suitability to almost all types of chemicals, a single pump can be used for handling the wide range of acidic, caustic and solvents solutions and flammable and non-flammable chemicals and mixtures. Having a common model across plant

reactors enables savings in spares, maintenance and downtime.

Case Studies

A leading API manufacturer is using Dellmeco DM 10/25 ZTT pumps across reactors at their Gujarat plant since past few years. Earlier different brands & sizes used in the plant caused unnecessary downtime & production losses due to frequent failures & mis-use by plant operators. Since switching to a single brand, size, material of construction all earlier issues have been resolved & the quality + performance of the pumps has been appreciated by the users. ■

For more information

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