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The Corrugator

OFFICIAL MAGAZINE OF FEDERATION OF CORRUGATED BOX MANUFACTURERS OF INDIA

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Corrugator

“पर्यावरणरक्षणम्” परमो धर्मः

7th - 9th

January

2024

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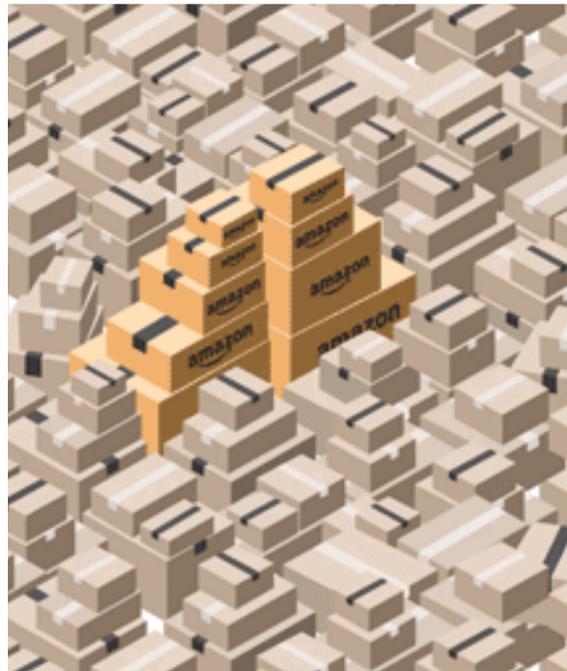
Growth vs. Fixed Mindset Nine Benefits

Innovation and Advancements in
Packaging Technology

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The Editor's Page



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R Suresh



Shlok Kedia

On Aug 23, 2023 crores of eyes were glued to the live streaming of Chandrayaan, Bharat indeed touched a new height of achievement on that historic day. We are always a step ahead when it comes to achievements, with G20 Bharat is taking the presidency of the first time reinforcing our ideology, our spirit of 'Vasudhaiva Kutumbakam' or 'World is One Family'. To add to that, now as our country is spreading its manufacturing wings, iPhones are also manufactured in Bharat. And irrespective of any commodity or manufacturing sector, packaging will always play a major role in almost every sector.

Be it any manufacturing industry like food industry, aerospace, automotive, or others, Innovation tops the client's requirement list over and above the product usual features. Innovation emerges from creativity, creating something new.

'Creativity is thinking up new things, Innovation is doing the new things'

And in this edition, we cover one such industry stalwart Haresh Mehta, MD - Jayna Packaging who is known for his innovations which arises from his creative approach which is truly out-of-the-box. In this edition, we also have touched upon ways to increase corrugated packaging sales, Innovation in packaging, entrepreneurial growth mindset, machine standards and more.

SinoCorrugated 2023 successfully completed on July 12-14, 2023 in Shanghai, China was attended by 100+ FCBM members to learn and update with latest technology and packaging trends in the Chinese, European markets.

WICMA Symposium 2023 this year carried the theme: Business Strategy for Growth. The symposium held on Sept 14-15, 2023 at Radisson Spa & Resorts, Lonavala got a great response from all 250+ delegates. Do not miss the details in our FCBM news column of this edition.

During Sept 24-26, 2023, FCBM delegation led by the R&D Chairman Ankit Agarwal, MD - Central India Packaging Pvt Ltd. embarked on a first of its kind, an Experiential Learning Mission (ELM) to Bangkok, Thailand.

We are glad to share that WICMA R&D Centre (WICMA Lab) is now an approved IMDG packaging testing centre in addition to the earlier milestone of NABL accreditation.

Conference team at GCBMA is all geared up to welcome all at our FCBM annual conference at Goa. Stay tuned for more details for CORRUMANTRA 2024 !

Happy Reading-Learning-Growing !

President's Desk



Dear Friends,

As the President of FCBM India, I want to emphasize a crucial matter. Our nation is experiencing rapid economic growth, but we need to adapt to the changing global landscape.

Today, conversations worldwide are focusing on sustainability, recycling, and the health of our planet. It's time for us to take these discussions seriously and create a roadmap for our country's future.

In our industry, we must innovate, especially in packaging. It's unfortunate that our food packaging is still lacking in many areas. We need to explore new technologies and approaches to bridge this gap. I believe that involving professionals and educators is essential for our progress. Their expertise, combined with our industry knowledge, can lead to significant advancements.

It's worth noting that our country's per capita consumption of packaging paper is higher than in many developed nations. This presents both challenges and opportunities. We should focus on research, sustainability, and responsible consumption.

In conclusion, let's recognize the global changes and the need for sustainability. We must address the packaging issues in our nation proactively. Together, we can create a more sustainable and prosperous future.

Looking forward to meet all our members, affiliate industry stakeholders and friends at CORRUMANTRA 2024 at Goa.

Thank you for your dedication to FCBM India.

Jai Hind!

A handwritten signature in black ink, appearing to read 'Vineet Jain'.

Vineet Jain
President
FCBM

Industry Stalwarts Insights

Haresh Mehta, Director - Jayna Packaging Pvt Ltd

From a bird's eye view, how was your journey of 3.5 decades with Jayna Packaging?

My journey was excellent, exciting, and painful but I don't look at the negative side. Although we see achievements and success more, failures teaches us a lot in things, so never one should ever get disappointed by failures and look what the failure has taught.

I never imagined that I'd be doing all this innovative furniture and more, when I more than 3 decades ago. My father's factory Jayant Papers, a family business, were pioneers in corrugated box manufacturing in India then. I somehow couldn't see myself fitting the bandwagon of 10,000 other corrugators. However, without any formal education in design I started exploring & designing corrugated boxes and gradually started liking it too.

Innovation as the word itself says something new, how did you keep up your innovation index, avoid complacency, and kept on innovating?

Keep innovating, that keeps you going.. always.

I strongly believe every person is creative, the intensity varies. In your free time, try something new, you see a box lying around, cut it, try something new. Most of us are so busy in our routine production, operations, dispatch etc.. we mentally give up, saying Yeh mera kaam nahi hain, they don't really even give an attempt.

When you create something of your own and convince the customer with how it works and provides value, you get a confidence.

When we try something new, overcome challenges, learn and then start delivering value to customers, we can proudly say 'Yeh product mera hain', that's how you get conviction else you are just caught up in the rat-race.



Corrugated is such a beautiful medium, all those who visit my company, my office, see the beauty in the variety of corrugated designed products. People from other countries appreciate the design and its creativity, Indians minds still need to learn to appreciate creativity in designing products.

Whenever some new product goes hit in a market, everyone starts cloning it and that's how most of us don't think creatively. When you innovate, you build something by your own, of course with value addition to your customers, over and above their requirements, you get that confidence which boosts your morale to deliver better and hence to charge better. Not to mention the customer is happy with something new suiting their needs.

**Don't be stuck in the rat race,
'Believe in Yourself' and you can make wonders.**

Stick to your principles, stick to your quality. Else it'll always be a fight with cutting market prices for the same box delivered by every manufacturer.

Always be clear and educate your client with what you are supplying, create a trust. Always be transparent, but not in the pricing, that should be your prerogative, your choice. However, you can convey this when you have confidence in yourself and your product which is something different.

What are values that strengthen your business?

Clarity is the most important; you must educate your client what you are supplying to them and create trust. We must be transparent in the technical part but not with the pricing. I keep my pricing breakup to myself, it's my prerogative. You need to be always, clear and upfront with your customer. Always give **value addition** to your product, then only they can understand you and worth of your product.

How do you instil innovation in your team?

I give them a free hand, I'm not interested in cut-paste jobs. It all starts with their selection itself as a team member, understanding how creative they are, and yes, with a burning desire.

I strongly believe our mind, this human computer is much more efficient, so I start by asking the candidates to sketch with pencil and not a tablet or a laptop. It gives a clear understanding about the person's visualization and creative potential.

Learn everything by yourself, by experimenting. Even Suresh, my office guy who attends my guests serves them tea/coffee also tries something new,

it could be even a tea coaster but creating something on our own is a different joy, it motivates, build self-confidence and inspires us to do more and better.

Keep developing human resources, give them opportunities and space to try out new things.

We give our team members freedom to think and make what they come up creatively. Most of them are afraid to try new things as they are scared of making mistakes. I encourage them and not be worried about making mistakes, how would you learn otherwise? And it's never a failure, it's always a learning, a step towards success.

As an entrepreneur, as a businessman, don't get mad at your people if they make mistake while trying something new, you too once did mistakes likewise. Otherwise, you are not an efficient businessman, managing your team members.

Most of our employees have rejoined after getting a job elsewhere. Freedom is one of the things they've experienced here, which probably they might not get in most jobs.

How was your journey with FCBM?

FCBM is doing a fantastic work of bringing all Corrugators together on one platform, it's a big task. I feel unfortunate that I cannot contribute much to the work that they are doing, however I try to contribute with whatever little knowledge I have.

How Amazon learned to cut its cardboard waste

Pioneering web-based PackOpt tool has resulted in an annual reduction in cardboard waste of 7% to 10% in North America, saving roughly 60,000 tons of cardboard annually.



In a world of ideal sustainability, every customer order received by Amazon that required a box would ship in a box tailored precisely to the size of its contents to minimize cardboard (corrugate) waste for the customer and maximize the efficiency of order fulfillment.

But with an ever-changing catalogue of hundreds of millions of items and multiple items often shipped in a shared box, this dream scenario would require a near-infinite range of box sizes standing ready at Amazon's fulfillment centers (Fcs).

While Amazon works toward producing right-sized boxes for each shipment, the current solution to minimizing waste is to furnish every fulfillment center with a limited suite of cardboard box options. These suites vary depending on the type of items being fulfilled. For example, some Fcs are focused on shipping single or multiple items that have been sorted automatically by robots and packed by Amazon associates.

In North America, single items shipped from sortable Fcs that require a box, with some

exceptions, are typically shipped within one of a finite number of box sizes. Multiple items being shipped together are packed into a box drawn from a different suite of boxes that are designed for a larger and heavier payload.

Another type of FC, known as non-sortable, deals with larger items that require oversized boxes — patio furniture, for example — and these Fcs need yet another suite of boxes.

The question that Amazon has addressed with increasing success over the past few years is this: Given the items typically shipped in a particular Amazon region, marketplace, or FC, what is the optimal box suite?

That answer has now been embodied in a pioneering web-based tool called PackOpt that is being embraced by Amazon managers all over the world.

By the end of 2022, about 90% of all boxes shipped by Amazon will be sent from an optimized box suite. In North America, applying PackOpt technology has resulted in an annual reduction in cardboard waste of 7% to 10%, saving roughly

How Amazon learned to cut its cardboard waste

60,000 tons of cardboard annually. In emerging countries such as Singapore, PackOpt has delivered more than double that percentage efficiency.

Matrix revolutions

David Gasperino, an Amazon principal research scientist, led the technical development of PackOpt, which is helping Amazon's stakeholders to not only minimize the amount of "air" shipped to customers, but also helping Amazon deliver on its Climate Pledge commitment to reaching net-zero carbon emissions across its business by 2040.

Arriving at the perfect suite of boxes is incredibly difficult, says Gasperino, partly because the number of possibilities is enormous.

To imagine the challenge in the simplest terms, first picture a matrix 100+ million rows deep — these represent shipments over a time period within a given region. Each of the 20,000 or so columns on the matrix, meanwhile, represents a candidate box of various dimensions that might become part of a suite of boxes.

"To create an optimal set of boxes, you need to select a small subset of columns to pack all of the shipments, and those columns must lead to the smallest overall box volume when you sum it all up," explains Gasperino.

It is a hard challenge — literally.

"This problem belongs to a theoretical class of problems called 'NP hard': essentially, no one knows if there's a really efficient algorithm to solve them," says Renan Garcia, a principal research scientist who helped to design PackOpt's optimization framework (NP Hard is the same class of problem as the infamous "traveling salesman problem").

The sheer size of the matrix is a challenge, says Garcia. "The matrix that you need to build is so big, you can't even store it in memory."

The team addressed this computational tractability issue in several ways. First, to simplify the problem their approach narrows the range of candidate-box dimensions to 2-inch increments in any direction before the first phase of iterative

improvements, reducing the initial set of candidate boxes into the hundreds.

After the optimizer discovers the best candidates in this "coarse" set of boxes, it will take those best prospects as a starting point and search again, this time using 1-inch dimensional increments, and so on toward finer dimensions.

"Theoretically, the algorithm will converge on a high-quality box suite no matter where you start," says Garcia.

The team also employed process parallelization across multiple computational cores to break the problem into smaller chunks.

"Multiple cores can be doing this in parallel, exploring alternate solutions. And every so often they communicate their best solution back to each other," says Garcia. The result: PackOpt can solve in minutes what previously took weeks of computation time.

3D Tetris

PackOpt for box suites shipping single items launched in 2018. A year later, an enhanced version was capable of identifying the best box suite for shipments containing multiple items in the same box.

For this iteration, the team added a high-performance algorithm that very rapidly determines how the different items to be delivered together can be configured to fit inside a candidate box — think 3D Tetris. PackOpt also knows, for example, that foldable or compressible items such as clothing can easily be slotted in around other, more solid items.

In theory, this meant packing more items into better-fitting boxes. But did it work in practice?

"One of our colleagues, Neb Getaneh, designed and conducted studies in the Amazon Packaging Lab to quantify the impact of packaging boxes with less air due to size and fitting algorithm optimization," says Gasperino. "And we did not see any degradation in packing performance."

But creating a clever algorithm doesn't automatically translate into real-world impact.

"There are many different steps that must happen

How Amazon learned to cut its cardboard waste

between solving this optimization problem and actually delivering optimized packaging to our customers' doorsteps," says Gasperino. "We needed the regional packaging leads all over the world, who aren't scientists, to quickly understand how to use PackOpt and to see the economic value in it for themselves, and eventually become the champions for packaging optimization."

Democratizing the tool

Ease of use would be critical in the push to democratize the tool.

"PackOpt's algorithms have about 25 different parameters and they're all scientific in nature," Garcia says. "We didn't want the user to worry about that kind of thing, so we abstracted these parameters away, behind the scenes."

Gasperino and team also partnered with AWS ProServe consultants to design and build a streamlined web app to democratize use of PackOpt. The resulting user interface is simple, essentially requiring two inputs: historical shipment data of the region aiming to optimize their boxes, and the dimensions of the boxes in their current suite.

"PackOpt will then simulate how well your products fit in your current boxes, giving you a total cardboard weight, box utilization rate, and packaging volume — among many other metrics — and compare those metrics with an optimized box suite," says Chris Collins, a support engineer who helped develop the PackOpt web tool.

If a significant improvement is revealed, there is an immediate business and sustainability case for optimizing that suite with boxes of more appropriate dimensions. PackOpt can also identify if increasing the number of box options in a given suite will boost efficiency significantly as well as automatically track savings after teams have deployed their suite.

"The savings tracking function was developed to help stakeholders quantify the impacts of their optimized box suites in a scalable manner," Collins explains. "This function could also be used to help the stakeholder keep their finger on the pulse of the optimized packaging suite,

knowing that if the savings metrics begin to fall off it could signal to the team the need to re-optimize the current package selections."

Another of the key metrics PackOpt reveals is air per shipment.

"It's understandably a hot topic with Amazon customers who receive an order with too much air in the box compared with the item itself," says Collins. "PackOpt helps improve our customer experience by really driving down such shipments."

The word gets out

PackOpt has been embraced in fulfillment centers around the world. After proving the tool's operational effectiveness in North America, Amazon Japan was first to show a keen interest and develop its own box suite.

"The products going through our Japan FCs are different to those going through North America's, so there's no reason the box suites should be the same across those two regions," notes Gasperino.

"Using PackOpt has simplified my team's work significantly," says Myles Lefkovitz, a customer packaging experience manager in Tokyo. "We've been able to accomplish things that simply wouldn't have been possible without it and driven down our packaging costs."

Use of the tool quickly spread around the world at the regional level. But such is the power and flexibility of PackOpt, it is increasingly being used at a more granular level by Amazon stakeholders, says Collins.

"In India, for example, customers' purchasing behavior, and the items purchased, vary vastly across the country, so managers at Amazon India have used PackOpt to tailor bespoke box suites for each fulfillment center."

"Packaging optimization is a crucial part of Amazon's commitment to The Climate Pledge and reducing waste on behalf of customers," says Alex Hartford, business lead for packaging optimization. "In a company the scale of Amazon, even seemingly small optimizations in material

How Amazon learned to cut its cardboard waste

reduction make a big impact not only in terms of carbon impact, but also on Amazon’s ability to lower our cost structures and spin the Amazon flywheel.”

In addition to different Amazon regions selling different products, as much as a third of a given region’s Amazon catalogue might change from one year to the next, meaning the product profile is forever changing. Moreover, new packaging types — such as recycled padded mailers or poly bags — also affect the optimal box suite. As a result, PackOpt’s monitoring mission is ongoing.

Its creators envision how the technology could usefully spill over to the wider Amazon.

“Amazon itself is a nested packing problem, right?” says Garcia. “You put customer orders inside boxes, you put boxes inside tote bags, you put tote bags inside trucks ... We have storage facilities of all shapes and sizes, and we need to optimize the dimensions of all of these.”

In fact, Renan has begun applying the underlying PackOpt concepts to related applications throughout Amazon. For example, he has partnered with colleagues from Last Mile Transportation to redesign Amazon Robotics pods for outbound packages in sortation centers.

The team developed a local search framework to solve this more challenging nested packing variant (products in packages, packages in bins, and bins in pods) which generates designs requiring 33% fewer pods and leads to more efficient use of precious facility space.

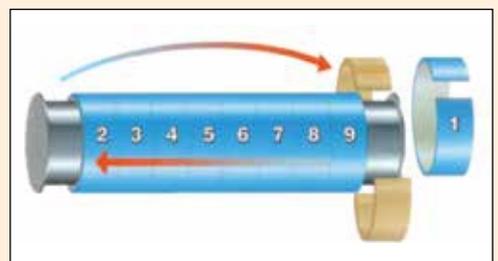
“This sort of optimization opportunity exists throughout our supply chain,” says Hartford. “It is critical that we look at other parts of our network to see where we can apply both the fitting algorithms that we’ve developed and the optimization tools.”

Source: amazon.science



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Growth vs. Fixed Mindset: Nine Benefits and How To Develop One

As an entrepreneur, you're always on the learning path, figuring out how different parts of your business operate, from finances to marketing to sales. You can either stick to your strengths or strive to improve your knowledge in all areas - the difference between a growth vs. fixed mindset.

38% of entrepreneurs credit their success to self-discipline, and a growth mindset can help you stick to your guns while reaching for your goals. You learn to accept constructive criticism, embrace failures as opportunities, and challenge yourself to grow everyday.

What is the difference between a growth and fixed mindset?

A growth mindset means viewing intelligence as a constant work in progress. A fixed mindset, on the other hand, regards intelligence as stable and unchangeable. An entrepreneur with a growth mindset strives to improve their areas of weaknesses, while one with a fixed mindset sticks with what they know.

What is a growth mindset?

A growth mindset is the belief that you can improve upon your abilities and talents with effort and time. Entrepreneurs with a growth mindset think they can better themselves in areas they struggle in by learning. This can look like:

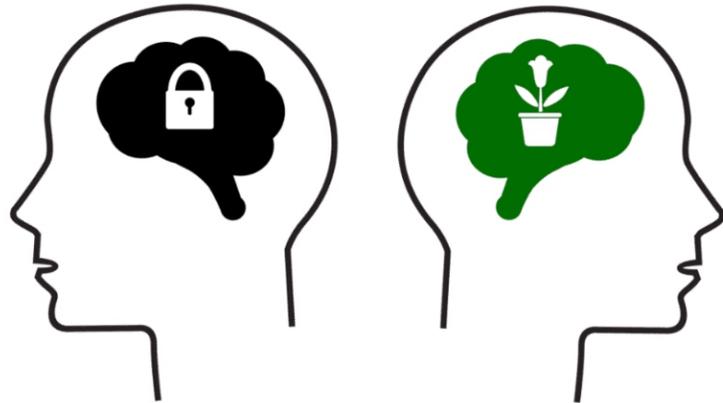
- Taking classes
- Watching video tutorials
- Reading educational articles
- Finding a mentor
- Scheduling time for learning

As an entrepreneur, you likely know your strengths and weaknesses – and adopting a growth mindset means approaching your weaker

areas with confidence. This might mean watching videos on accounting if you struggle with finances, or figuring out how to work with Canva if you often avoid marketing.

What is a fixed mindset?

A fixed mindset is the belief that your set of skills and traits are fixed and cannot change. Those with a fixed mindset view their weaknesses as unchangeable, and that they cannot improve



themselves in those areas. This could result in someone:

- Sticking with what they know
- Refusing to try new things
- Dismissing attempts to learn as useless
- Leaning into their strengths
- Feeling intimidated by others' success

A fixed mindset can set up an entrepreneur for failure. Maybe collecting and understanding data isn't your strong suit, for example. But viewing your skill set as unmalleable stunts your learning and prevents you from developing new strengths.

Benefits of a growth mindset

1. You embrace failure as a learning opportunity

Most startups fail - but even when your company is doing well, you might fail to attract a big

Growth vs. Fixed Mindset: Nine Benefits and How To Develop One

investor, meet revenue targets, or hire the right people. In other words, failure follows entrepreneurs everywhere.

“Setbacks, mistakes, constructive criticism, perceived flaws, or challenges are seen as learning opportunities and not permanent negative characteristics of oneself,” says career coach Dr. Christin Roberson.

2. You feel more comfortable receiving feedback

A growth mindset can help you feel comfortable receiving constructive criticism from your peers and workers. Rather than taking a fixed mindset approach — which regards feedback as unhelpful — you take it as a challenge to improve yourself.

3. You increase your business acumen

Only 9% of entrepreneurs have earned a bachelor's degree in business, meaning they learn most of their business knowledge from working. This means entrepreneurs must take time to learn critical skills such as accounting or marketing, without a formal education. A growth mindset drives you to learn complex new skills, increasing your overall business acumen.

4. You feel more positive

A positive mindset and a growth mindset go hand in hand. A growth mindset means looking at more negative aspects of entrepreneurship, such as failure, in a positive light. You feel empowered to tackle challenges rather than dreading having to overcome them.

5. You improve your self-esteem

A fixed mindset entails doubting your ability to learn, which can impact your self-esteem. A growth mindset improves your self-esteem as it encourages you to view yourself as a sponge ready to absorb information.

6. You attract better colleagues and friends

Those with a fixed mindset tend to keep friends

and professionals with similar beliefs, which stifles their ability to grow. By adopting a growth mindset, you can attract people with different viewpoints who can challenge you.

7. You reduce your risk of depression

One in four entrepreneurs will experience some kind of mental disorder in their lifetime. Research shows that a growth mindset often shields against anxiety, stress, and depression. Those with a fixed mindset tend to regard mental health issues as part of their identity and therefore permanent. However, those with a growth mindset recognize symptoms as temporary and take steps to address them.

8. You improve your resilience

By maintaining a growth mindset, you foster resilient thinking. Your attitude protects you from caving to negativity, as your mindset views all setbacks as temporary.

9. You improve your business culture

As an entrepreneur, your mindset reflects in your business. When you adopt a growth mindset, you embed those values into your workplace. You might create more learning opportunities for workers or develop a culture that emphasizes learning from mistakes.

How to develop a growth mindset

Evaluate your current mindset

To develop a growth mindset, you need to evaluate your current state of mind. Ask yourself:

- How do you deal with failure?
- What do you do when faced with a challenge?
- Who do you turn to when dealing with setbacks?
- What are your strengths and weaknesses? How do you feel about them?

Jot down your initial thoughts and feelings. Then, take stock and figure out your current mindset. As

Growth vs. Fixed Mindset: Nine Benefits and How To Develop One

an example, you might realize you lean into negativity when something goes wrong, or you look for the easy way out of a challenge. You can use this information as a starting point to identify what you need to work on.

Seek constructive feedback

Over nine in 10 employees view constructive feedback as critical to growth. So, ask your employees, investors, and partners what you can do better in areas such as leadership or project management. You can even create a formal process to collect feedback by sending out quarterly surveys.

Take on new challenges

Make time to try new things in your professional life, which could include:

- Launching a side project
- Writing and publishing articles in your space
- Getting featured on a podcast

Find a community of learners

“As important as it is to possess a growth mindset,” says Roberson, “it is equally important to surround yourself with others who have them as well.” When developing a growth mindset, surround yourself with like-minded people. They influence how you act, which values you adopt, and how you view life. Outside of finding them in your organization or in your network, you can join the following learning communities on LinkedIn and Reddit:

Accept mistakes and move on

Mistakes can trigger negative emotions, making you feel insecure or incapable. But rejecting mistakes to protect yourself prevents learning. Instead, try out the following to practice accepting mistakes:

- Acknowledge the mistake happened
- Permit yourself to feel upset
- Be kind to yourself
- Speak with someone who can give you a new

perspective

- Create distance between yourself and the mistake
- Look at the mistake objectively and ask how you can learn from it

Try out new ways of learning

You likely know which learning styles you enjoy best. But developing a growth mindset also means opening yourself up to new ways of learning. Rather than stick to what you know when trying to learn, try out different methods. This could include:

- Watching videos
- Attending a class
- Reading articles or books
- Working on a project

Growth mindset examples

A growth mindset means changing how you think about yourself and learning, and it can show itself in different ways.

Consider an entrepreneur who thrives in marketing, but has always struggled to wrap their head around finances. Because of their growth mindset, they feel confident knowing they can change that. So, they decide to sign up for a class - immersing themselves with other learners while trying out a more intimate way of learning.

A growth mindset also modifies how one reacts to failure. For example, consider a business that experienced a huge drop in sales due to economic troubles. Instead of dwelling on the losses, the business owner brings the team together for a meeting. The owner thanks them for their hard work, acknowledges the problem, and lays out ways they can improve their sales processes. They move on from failure fast, but make time to extract takeaways from it.

Source: Hubspot



How Paper Products Are Helping High-Voltage Concerts Become Sustainable



Blinding spotlights, wall-size video screens and amped-out rhythms pulsating through oversized speakers are all trademarks of a concert. But so are discarded plastic food and drink containers, overflowing garbage bags and foam coolers, which explain why ecological sustainability has become a show-stopping concern for some musicians and their fans.

As a result, performers, festivals and even concert venues are working to make their shows eco-friendlier, adding compost and recycling bins and even manually sorting through debris for discards that should be recycled as well as replacing some non-recyclable products with paper ones.

Consumers, including music fans, are trying to be more environmentally responsible, and get in on the action as well.

Here's a look at some of the paper goods that venues can use to balance music lovers' desire for live performances with the goal of shrinking their environmental footprint:

- Cardboard recycling bins
- Paper food containers, cups and Tetra Pak cartons
- Cardboard coolers
- Cardboard tents

Cardboard recycling bins



Cardboard recycling bin and paper-based food trays and cups

An obvious first step toward making concerts more sustainable is setting up recycling bins. Choose bins made of cardboard, and not only might they stand out better from plastic or metal garbage containers, but they'll be recyclable themselves. It's a win-win. The Environmental Protection Agency suggests arranging recycling bins strategically, focusing on high-traffic areas and places with high waste volumes such as concession stands, restrooms, and entrances and exits.

Paper food containers, cups and Tetra Pak cartons

Using paper containers for concessions – both food and drink – gives venues the option of recycling or composting everything once fans have satisfied their hunger. Two British music festivals reported gathering more than 400,000

paper cups for recycling after events in 2017. Paper goods are just as useful for concertgoers, too, if an event allows you to bring snacks from home. Recyclable or composting options are available for everything from pizza boxes to paper-based serving containers like the ones used for hot dogs. Some snacks and drinks, including boxed water and wine, are also sold in Tetra Pak cartons, which are largely made of paper and may be recyclable.



Cardboard coolers

Cardboard beverage cooler

A number of companies have developed biodegradable paper-based coolers to carry food and drinks to concerts and festivals, providing a sustainable alternative to disposable foam cartons that eventually become landfill fodder

after an occasional pit stop as roadside or campground litter. These earth-friendly cardboard coolers, some made by brands you're already familiar with like Brrr Box and Igloo, are easy to find online or at big box retailers and convenience stores. They're sturdier than they may appear, capable of holding enough ice to keep your snacks cool and fresh for several hours and some can keep water for several days without leaking. And once worn out completely, it and other cardboard coolers may be recycled or composted.



How Paper Products Are Helping High-Voltage Concerts Become Sustainable

These earth-friendly cardboard coolers are sturdier than they appear

And highly portable: It can be packed flat, making it easy to store in a car or garage until needed.

Cardboard tents



KarTent's cardboard tents at music festivals

Getting an idea of how much can be done with cardboard? The possibilities are even broader than you think.

One sustainable option, now used at outdoor events from Europe to the U.S., is a cardboard

tent made by Dutch company, KarTent.

The two-person tents, if available, can be purchased through the concert venue, have a small back window and additional rainflaps to keep festivalgoers' feet dry if rain falls while they sleep.

“We should look beyond the common applications of materials and boundaries that we know,” says Wout Kommer, KarTent’s co-founder. “We took a material suitable for packaging and gave a whole new meaning to it, and who knows what more is possible with cardboard?”

Everyone can feel good knowing that paper-based products and packaging are made from a sustainable, renewable resource—and can be made into new products up to seven times when recycled.

Source: Paper & Packaging

Three Strategic Ways That Corrugated Packaging Increases Sales



How Packaging Can Increase Sales

Did you know the type of packaging you use can actually increase sales? With so much competition in the market, taking a second look at your packaging could boost your market share. Here, we'll explore how packaging can increase sales and give you actionable steps to improve your packaging materials.

Corrugated Packaging Supports Preservation

Have you ever sent a package only to find out that once it got to its intended location, it was either partially broken, damaged, or worse — no longer usable. At that point, you probably reconsidered how you'd shipped it, and more importantly, what sort of packaging you shipped it in.

Now, that's a single package. What if you'd sent an entire shipment of items that were damaged during the shipping process? That could result in a loss of thousands of dollars — or more depending on the product. If you're using corrugated packaging to ship products, you don't have to worry about their security as they move from your warehouse to your customer's location.

This benefit of corrugated packaging applies to multiple industries, as the material is designed to not only protect the items inside but also withstand

the rigors of transit itself. Ultimately, the strength of corrugated packaging increases sales by getting more products to more people on time and in great condition.

Preservation of Comestibles

Corrugated cardboard packaging is becoming more and more popular in terms of an avenue in which to ship all kinds of produce. Recently, produce companies have realized the ability of corrugated cardboard to help preserve the freshness, aroma, appearance, and taste of fruit and vegetables for longer than plastic. In addition to preserving the product during shipment, corrugated packaging also leads to an increase in shelf life.

One way this is accomplished is by keeping outside moisture from getting inside the packaging, allowing produce to withstand long shipping times and keeping it from spoiling. This proves beneficial to everyone involved in the process of putting produce on store shelves for consumers. A longer shelf life results in less food being wasted, thus increasing overall sales. Studies have shown that corrugated cardboard has also become an attractive option in grocery stores due to the positive influences it directly has on purchasing behaviors of consumers.

Three Strategic Ways That Corrugated Packaging Increases Sales

Preservation of Consumer Products

Companies and their customers alike want to feel confident that products are being shipped properly and with the utmost care. The benefit of corrugated cardboard packaging is the ability to add padding to packages, as well as options for a flexible design that will ensure an appropriate fit based on the product type. This affords companies greater packaging options rather than having to settle for a basic design that might not be fully customized to best transport a specific product.

Protects Products During Transit

Because of the ability to add items such as padding to a corrugated cardboard package, products are at a much lower risk of breaking or getting damaged than they would be in something such as a plastic container or regular cardboard box. The padding can provide a stable cushion for any product, keeping items safe during what could be long-distance transportation, as well as shipping and handling of the product. Being able to guarantee that a product will arrive damage-free reduces the time and money spent on issuing refunds, fixing products, and addressing customer complaints, which in return saves the company money.

Increases Customer Satisfaction with Design

Flexibility of design allows for companies to create engaging packaging that delights customers the moment they receive their package, whether it's a food product, clothing, or electronics. As more and more companies learn that packaging increases sales, greater attention is being paid to what can be done with corrugated cardboard. What better way to satisfy a customer than to ship your product in attractive, custom-made packaging that makes them excited to open your product?

A great example of this is craft beer packaging. With more and more craft breweries popping up across the country, producers need a way to make their craft beer packaging stand out from the competition. To achieve that, they're not only using advanced printing techniques to visually make their packaging stand out, but they're also using the strength and resiliency of corrugated cardboard to their advantage.

For example, many craft beer producers use what are called mother cartons — larger containers designed to hold bottles or cans. These containers

are moisture-resistant and incredibly strong, which they need to be in order to hold larger numbers of cans and bottles. Producers are having fun with these containers and also making them more useful for consumers. Everything from removable coasters to custom die-cut windows and patterns — even transforming the entire carton into an ice cooler — help these producers make their packaging more appealing and ultimately increase customer satisfaction.

Using the example of craft beer packaging with unique functionality and design, customers are more likely to be excited when they find the product and discover the creativity that went into it. The better the quality of your packaging, the more likely your customers are to be satisfied, leading to repeat customers and ultimately resulting in an increase in sales. It's recommended to spend additional time on choosing the proper packaging for your product to really appeal to the customer.

With the sheer amount of design options available, there's a wide array of designs, shapes, printing techniques, and more available that can help you make your product stand out from competitors — both in-store and online.

Communicates Your Environmental Philosophy

By using corrugated cardboard packaging for product packaging as well as for shipping containers, companies are more effectively able to communicate their commitment to the environment and even detail their recycling program. This creates a positive impression on customers' minds and greatly influences buying behavior. Customers enjoy hearing that the company they're purchasing from is environmentally conscious and is trying to make a difference for the planet.

Corrugated Cardboard is Easily Recyclable and Reusable

Last but not least, since corrugated cardboard is made from renewable and fully recyclable resources, it's the most sustainable packaging option on the market. Using corrugated cardboard packaging allows consumers to easily recycle the packaging or simply fold it up and store it away for future use.

Source: <https://www.jamestowncontainer.com>

Revolutionizing Production: The Advancements in Corrugated Cardboard Manufacturing

In the past few decades, the corrugated cardboard production line has undergone remarkable real development, achieving significant progress through the adoption of automation and intelligence technologies. This critical sector of the manufacturing industry has witnessed tremendous advancements. This article aims to unveil the true development journey of the corrugated cardboard production line, showcasing the role of technological innovation and process improvement in enhancing production efficiency and quality.

1. Leap in Efficiency through Automation

In the past, the corrugated cardboard production line heavily relied on manual labor, resulting in limited production speed, low capacity, and susceptibility to human errors. With the introduction of automation technology, the production line experienced an unprecedented leap in efficiency. Automatic feeding systems, automated cutting and folding machines, and robot-assisted stacking devices replaced most traditional manual operations, significantly boosting production speed and effectively reducing production costs.

2. Data-Driven Intelligent Optimization

With the rise of Industry 4.0, the corrugated cardboard production line gradually embraced data-driven intelligent optimization. Sensors and monitoring devices were widely employed throughout the production line, enabling real-time data collection and transmission. This data was then integrated into advanced data analytics systems, utilizing artificial intelligence and machine learning algorithms for in-depth analysis. The result was process optimization, proactive fault prediction, and warning capabilities, enhancing production line stability, reliability, and adaptability to market demand fluctuations.

3. Environmental Responsibility and Sustainable Development

In the modern society, environmental responsibility and sustainable development have become essential obligations for businesses and the manufacturing industry. Throughout the real

development process, the corrugated cardboard production line continuously optimized its processes, reducing energy consumption and resource usage. The adoption of advanced waste recycling and reuse techniques effectively minimized waste generation. Furthermore, the growing environmental awareness has led manufacturing companies to prioritize the use of eco-friendly materials, driving the application of sustainable materials in corrugated cardboard production.

4. Human-Machine Collaboration and Innovative Production Models

The real development of the corrugated cardboard production line not only entails technological innovations but also emphasizes a new model of human-machine collaboration. Instead of solely replacing manual labor with machines, modern production lines highlight the synergy between humans and machines. Employees are no longer limited to executing simple mechanical tasks but have become managers and decision-makers overseeing and operating intelligent devices. Through training and skill enhancement, employees actively participate in various stages of the production process, contributing their wisdom and experience to optimize and innovate the production line.

Conclusion:

The true development process of the corrugated cardboard production line is a result of both technological advancements and the wisdom of human talents. Automation and intelligent technologies, data-driven intelligent optimization, environmental responsibility, sustainable development, and human-machine collaboration have collectively driven the transformation of the corrugated cardboard production line from traditional to modern. We firmly believe that in the future, the corrugated cardboard production line will continue to incorporate more advanced technologies, expanding its application fields, and making even greater contributions to the development of the manufacturing industry and society.

Innovation and Advancements in Packaging Technology

Advancements in packaging across both active and passive technologies continue to revolutionize the industry as new features, functionality and capabilities broadly become more available. Packaging companies have an increased emphasis on differentiating themselves in the market through unique, tech-enabled offerings as customers have demanded more innovative solutions. As a result, mergers and acquisitions (M&A) continues to be an attractive strategy for acquirers to pursue new technologies to drive growth in their existing platforms. In the below perspective, Lincoln International explores the evolution of packaging technology as well as M&A opportunities.

Thinking Outside the Box

“Technology” and “evolutionary” are typically not the first words that come to mind when thinking about the packaging industry. For those within the industry, innovation is as top-of-mind as ever as the sector continues to transform, resulting from changing market dynamics, regulations and customer demand.

The definition of “smart” packaging is often up for debate and can be considered more broadly as any technology, either active or passive, that enables a package to serve a further function beyond a vessel for goods. This could be as simple as radio frequency identification (RFID) codes scanned to provide further information of the contents via the internet, pads that prolong the life of raw foods or tamper-activated sensors that track the opening and closing of a container.

Smart packaging solutions continue to revolutionize the industry by incorporating electronic and sensing devices into packaging materials to provide added functionality beyond containing and protecting products. Nowhere has this been most evident than in e-commerce, where “next-day” delivery has turned into “next hour,” and ordering groceries online has become as commonplace as buying books. Smart packaging innovations can help reduce waste and improve the efficiency of the supply chain by providing real-time data on the location and condition of products in transit.

In areas such as healthcare, smart packaging enables providers to monitor what and when prescriptions are removed from a container, connecting patients directly with their personal care providers. Rising medical costs and more personalized care have created an opportunity for innovations in medication adherence, such as tamper-evident packaging, which have become a cost-effective solution for real-time patient monitoring in an ever-changing healthcare and regulatory environment.

Enhancements in packaging are not only transforming the way products are packaged and shipped, but also impacting how acquirers think about M&A. As newer market entrants commercialize technologies, traditional packaging companies are looking to expand their capabilities and offer more value-added services to their customers through M&A. This has led to an increase in acquisition activity within the industry focused on technology-specific interests versus more historical pursuits such as geographic and customer expansion. For example, after years of very large, transformational acquisitions, paper-based manufacturer WestRock has announced its intention to look toward smaller, “tuck-in” acquisitions focused on targeted technologies such as materials science and digital. Financial acquirers, such as private equity and venture capital firms also have similar interests in “non-traditional” packaging businesses as they look to fund emerging companies disrupting the industry.

Packaging Technology: An Active and Passive Approach

There are typically two main categories to consider across the smart packaging landscape: active and passive. Active packaging systems are designed to interact with the packaged product or the environment, while passive packaging systems are designed to monitor and report on the condition of the product itself versus directly interacting with it. Examples of active packaging include oxygen scavengers, moisture absorbers and antimicrobial agents. Passive packaging technologies include temperature labels, RFID tags and printed sensors.

Smart packaging technology is driving efficiency in

the food safety space. Innovations in food packaging can detect and prevent food spoilage by providing real-time data on the condition of the product. For example, smart packaging, such as Zebra Technologies' Temptime sensors (acquired by Zebra in January 2019), can monitor the temperature and humidity of fresh produce during transportation and storage, and alert suppliers and consumers when the product is approaching its expiration date. Technologies such as these can lower food waste and improve food protection, greatly reducing cost while also emphasizing sustainability.

Healthcare is another area where smart packaging applications are having an impact. Smart packaging can advance the security and efficacy of pharmaceutical products by monitoring the temperature and humidity of the product during transport and storage, preventing spoilage and product loss. Packaging temperature sensors became quite abundant during the onset of COVID-19 due to the strict requirement of vaccines to remain at a constant temperature during transport. Due to the rapid scaling of these sensors, costs were further reduced, opening the door to many other applications outside of healthcare including consumer goods and food and beverage.

In addition to improving safety and quality, smart packaging also provides valuable insights into the supply chain, which became most evident by disruptions following the COVID-19 pandemic. Smart packaging solutions such as location-enabled sensors can identify bottlenecks and inefficiencies by tracking the location and condition of products in real-time, allowing companies to digitize supply chains and reduce costs. A recent example includes Wiliot's "Pixel", a battery-free RFID label that provides real-time insights into goods, such as location, without expensive, material-heavy batteries. Smart packaging also supports inventory management, ensuring product availability when and where needed in the production or sales cycle. Customers can leverage data collected by the package and software enabled by enterprise resource planning (ERP) and business intelligence systems, gaining valuable insights into their inventory and products including the movement of goods, ship times and environmental impacts such as temperature and humidity.

A Smart Deal for Buyers and Sellers

Companies with innovative packaging technologies bring forth a number of benefits for both buyers and sellers. Strategic buyers have the opportunity to acquire companies that specializes in smart packaging or other advanced solutions, providing access to new markets, increased capabilities and improved efficiencies. Additionally, the acquisition of a company with a strong intellectual property portfolio provides a competitive advantage and creates further barriers to entry for other market participants. Owners and sellers of innovative packaging companies can also benefit in being acquired by a larger packaging player who can provide access to greater resources, increased distribution networks and the ability to rapidly scale their technology. A successful acquisition provides a significant return on investment for shareholders, while also allowing the company to continue to enhance and develop new technologies. In March 2022, Sealed Air acquired Foxpak Flexibles, a developer of digital printing and flexible packaging which leverages its digital printing capabilities to print directly on its flexible packaging materials to empower customers' brands. This aligned with Sealed Air's \$100 million investment into digital offerings through its prismiq™ business line, which includes a portfolio of solutions that combine the best of digital printing, smart packaging and package design services. Financial acquirers also benefit by investing early in emerging companies who could utilize additional capital as they seek to scale up and commercialize their products.

The Future of Packaging

Advancements in packaging will continue to transform the landscape and have a significant impact on M&A activity within the sector as new solutions are introduced and technology becomes more cost favorable. Strategic players will look to expand their capabilities and offer more value-added services to customers, resulting in greater interest for smart packaging technologies and an increase in M&A activity. As competition for differentiation heats up and customer demand for tech-enabled packaging solutions rises, we can expect to see more innovative partnerships and acquisitions in the years to come.

Source: Lincoln International



New research from Industrial Physics reveals packaging innovation warning: Accelerating packaging innovation cannot come at the cost of ensuring safety



New research from **Industrial Physics**, the leading packaging, product, and material test and inspection provider, has highlighted the pressures facing packaging professionals and the risks that cannot be overlooked in the race to innovate.

The international survey of packaging professionals operating in the consumer goods, food and beverage, and medical and pharmaceutical industries found that an overwhelming majority of packaging decision-makers (96%) believe it is important for companies to explore new packaging developments.

It was revealed that the goals driving change in the sector currently are: waste reduction (57%), reducing the cost of packaging (55%) and sustainability (53%). As Steve Davis, Product Line Director at Industrial Physics explains in the report, the environmental efforts are often due to external demand pressures which have been building in the industry: “consumers, and lobby groups that speak

for the consumer, are driving the industry toward endlessly recyclable packaging.”

In 2022, Industrial Physics released a research report on packaging sustainability*, where manufacturers revealed investment in sustainable packaging was driven by the goal to reduce their environmental footprint (65%), reduce waste (50%), and meet consumer demand (49%). This year's packaging survey results indicate that waste reduction and sustainability remain defining considerations, with respondents reporting the greatest areas for development in the next five years as: material choice (53%), production processes (51%) and material reduction (49%).

The latest research also uncovered the three biggest challenges faced in packaging innovation in 2023:

1. Current testing standards
2. High cost of expertise
3. Cost of materials

New research from Industrial Physics reveals packaging innovation warning: Accelerating packaging innovation cannot come at the cost of ensuring safety

With deeper complexities surrounding each challenge, the report explores several key factors that can lead to the development of new packaging without the knowledge or ability to ensure it meets the safety and quality requirements for that sector.

“We have recently seen a dramatic increase in the pace of global packaging innovation. As a result, we have seen the positivity of new entrants and fresh ideas, however, this change has also highlighted the enormous risk we face if challenges vocalised are not addressed properly.” commented Greg Wright, Chief Commercial Officer at Industrial Physics.

The research report also includes contributions from experts in the field such as John Blake, Senior Director Analyst in Packaging Engineering and Supply Chain Applications at Gartner, illustrating how the survey results translate into real world examples within a variety of sectors.

Wright continued, “We understand the immense pressure that packaging professionals are facing, navigating sustainable customer preferences, budget restraints and changing legislation, however, accelerating packaging innovation cannot come at the cost of ensuring safety for customers. We undertook this research to explore the challenges in more detail, and highlight how

overlooking these in the plight for faster innovation could have a detrimental effect on the packaging industry.”

The research report concludes with opportunities that respondents identified for innovation in the next five years, including:

- Packaging testing processes and equipment
- Packaging shape
- Package coating

Areas of innovations indicated include automation and new equipment introduced for testing processes, packaging design led by user experience and waste reduction, and plant-based or biodegradable coatings for packaging materials.

Wright concluded, “At Industrial Physics, we are really pleased to see the strong appetite for packaging innovation from our latest research. We hope that this report highlights to those in the industry how they can overcome their current challenges and seize the host of opportunities that our industry has to offer in the coming years.”

Source: Packaging World Insights

E-commerce, packaging demand dips are linked but don't necessarily signal a wider downturn

Blaming softer e-commerce sales as the reason for falling demand in corrugated packaging and beyond may be “overblown,” sources say.



The connection between cardboard boxes piling up on doorsteps and booming corrugated packaging volumes during the pandemic was obvious. Following dampened results from e-commerce giants during the first quarter of 2023, some concerns arose about the effect e-commerce’s recent downtrend could have on packaging going forward. They are connected, but the relationship between the two is complicated, experts say.

“The tie between e-commerce dropping and corrugated boxes is a bit overblown,” said Myles Cohen, founder of consulting firm Circular Ventures. “E-commerce might be a bit soft, but it’s not what’s moving the needle in the wrong direction for corrugated boxes. It’s a factor, but it’s a small factor.”

The e-commerce dips aren’t necessarily abnormal, nor are they strong indicators of an

impending wider recession across packaging and other industries, suggested Jess Dankert, vice president for supply chain at the Retail Industry Leaders Association. Instead, the slowdown signals a return to a level of business activities considered traditional prior to the global supply chain disruption caused by the COVID-19 pandemic.

Pandemic push

E-commerce and corrugated boxes alike experienced demand surges early in the pandemic as consumers quickly shifted from in-person to at-home shopping, and backlogs and supply chain snarls ensued. Another quick consumer shift from goods to services as pandemic restrictions eased resulted in excess inventories.

Now, e-commerce and box companies are in the

E-commerce, packaging demand dips are linked but don't necessarily signal a wider downturn

midst of multiple quarters of demand dips and destocking activities, as referenced in recent earnings calls. And this year, e-commerce and shipping giants Amazon, FedEx, UPS and Walmart signaled leaner times ahead when they announced various measures for downsizing, restructuring and/or layoffs.

But the sky is not falling, sources say. Rather, e-commerce demand simply is renormalizing to pre-pandemic levels, and companies are downsizing to reverse nearly three years of inflated volumes and rapid hiring.

“Obviously, there was a huge surge during the early years of the pandemic, and a lot of the questions and conjectures were around how much of that was going to stick,” Dankert said. “That jump is kind of rationalizing to where it ordinarily would have been had we not had that unusual spike.”

Packaging companies also have had to adjust to recent inventory destocking and demand dips following a pandemic leap. But that once-heightened demand occurred across many retail and food sectors, not just e-commerce.

During its Q1 earnings call, Packaging Corporation of America Executive Vice President of Corrugated Products Tom Hassfurther said that certain business segments shot up as much as 200% early in the pandemic and have receded significantly since then. He said the resulting destocking means “we’ve had to sort through this volume situation a little longer than what we would have hoped.” PCA executives noted a 12.7% year-over-year decline in box shipments during the quarter, with CEO Mark Kowlzan saying “demand in the packaging segment was well below our expectations.”

International Paper’s box sales were down 9.1% year over year, partly because of destocking and a “surprise” demand dropoff in March, executives said on their earnings call.

The lower demand and destocking trends go beyond fiber, too.

“Other substrates such as plastics and metals are not immune to what’s going on, as everybody is seeing a decline right now,” said Circular Ventures’ Cohen, who formerly was president of Pratt Recycling. “It seems to be a global phenomenon; it’s not only happening in the U.S.”

Berry Global, for example, reported during its Q1 earnings call a nearly 13% year-over-year decline in net sales and ongoing demand challenges while announcing plans to “rationalize” 15 facilities across its sectors. And Ball Corporation reported a 7.2% year-over-year decline in Q1 net sales, in part due to lower beverage can shipments.

Dankert explained that the e-commerce dip also shouldn’t necessarily be viewed as an indicator of a looming recession. E-commerce volumes normalizing and packaging executives reporting stronger April numbers are creating optimism for the coming quarters. Although economic uncertainty remains across a plethora of business sectors, retail’s strongest points of the year are right around the corner. Based on what RILA employees are hearing from members, the group anticipates consistent e-commerce and broader retail volumes for the remainder of 2023.

“We’ll probably see some [volume] bumps in the back-to-school timeframe, and then certainly heading into fall and into the peak [season],” Dankert said. “We anticipate steady growth from e-commerce and not very much of a fall off in most retail sectors.”

The ties that bind

Amazon is touting its packaging lightweighting and reduced material use on some boxes.

Megan Poiniski/Industry Dive

The health of the box sector is tied to the health of retail, to some degree, but e-commerce only constitutes about 8-10% of corrugated box shipments, Cohen said. Thus, e-commerce softness shouldn’t instantly induce panic for packaging.



Cohen said a much more influential demand pressure currently transforming the sector is the move to lightweighting and using less packaging.

“There’s a lot of environmental pressure for e-commerce to reduce the size of packaging,” Cohen said. “This is particularly noteworthy for corrugated because compared with mass retail, like big box stores, corrugated has dismal recycling rates from residential households.”

Amazon has shifted some box use to flexible mailers, including recyclable fiber versions.

Megan Quinn/Industry Dive

Amazon, for instance, has made a concerted effort to reduce not only the size and weight of its boxes, but also the number of them used. It has shifted to using more alternative packaging, like flexible mailers.

The company cites the packaging shift in its sustainability reporting, noting that it reduced its

per-shipment packaging weight by 38% between 2015 and 2021 and eliminated 1.5 million tons of packaging. Corrugated boxes were used for 43% of shipments, while flexible mailers — both fiber and plastic types — were used for 49%. However, Amazon’s plastic use faces scrutiny; shareholder advocacy nonprofit As You Sow introduced a resolution that in part says the e-commerce giant has fallen behind competitors in reducing virgin plastic use.

Sustainability is “critically important” to RILA members, Dankert said, and a lot of those considerations center on reducing e-commerce emissions and packaging. In some cases, that means displacing box use.

“Retailers are doing some really exciting things” in terms of more efficient packaging choices for e-commerce orders, including some “at the intersection of supply chain and e-commerce and sustainability,” she said.



The sustainability evolution could even lead beyond the use of disposable packaging.

around reusable packaging for e-commerce orders,” Dankert said.

“There is potential in a lot of the pilots out there

Source: packagingdive.com

Shri R G Agarwala felicitates President Droupadi Murmu

R G Agarwala, Sr Past President - FCBM who is associated with Sankalp Shrishti, an NGO serving Adivasi girls of West Bengal. At a function felicitating these underprivileged girls, President Droupadi Murmu graced the occasion and R G Agarwala sir presented her with a beautifully adorned Maa Durga photo. This indeed proves that corrugators go beyond their businesses and serve society at large through various social causes, as well as contribute to the overall development of society, which is now recognized by the highest office in Bharat.



Plastics Will Maintain Dominance as Protective Packaging Material of Choice, Study Says

Plastics account for 71% of global protective packaging, a market that is forecast to grow 4% annually through 2027.



Plastics will continue by far to be the leading protective packaging material, accounting for 71% of the \$33.2-billion global protective packaging industry, according to a recent study by the Freedonia Group, a division of MarketResearch.com. Global protective packaging demand is projected to advance 4.0% per year through 2027 to reach \$40.4 billion.

The Global Protective Packaging study said the fastest growing market for protective packaging will be supported by the expanding use of protective mailers, air pillows, and other flexible products in ecommerce order fulfillment. Also contributing to growth is increasing ecommerce shipment of delicate and fragile items, such as electronics, which require greater protection to avoid damage during transit. These materials include molded foams to keep items in place, surface protection films to prevent scratches, and rolled foams for added cushioning.

Modest growth projected for paper

Paper will see moderate growth as sustainability

trends — including bans of EPS foam products — will encourage substitution of plastic with paper. Paper fill is seeing more use in e-commerce applications for shipping less-delicate items — such as books and clothing — because of ongoing efforts of major e-commerce vendors to address consumer concerns about packaging sustainability. However, in certain manufacturing applications, a lack of suitable alternatives to plastic will support demand for foams, such as molded EPS.

Molded fiber demand will experience robust growth, with increased use in nondurable goods packaging. Molded fiber is replacing expanded polystyrene in some manufacturing applications as a result of its more environmentally friendly profile in terms of recyclability and degradability.

Sustainability trends also will drive fast growth for biodegradable and compostable materials, such as cornstarch, hemp, soy, and mushrooms. However, the high cost and inferior performance of these bio-based materials will limit their use save in some niche applications.

Historical data provides context

The study presents historical demand data in five-year increments — 2012, 2017, and 2022 — and forecasts — 2022 and 2027 — by product (flexible protective packaging, foam protective packaging, rigid protective packaging); market (durable goods, nondurable goods, e-commerce, retail, and other markets); and region (North America, Central and South America, Western Europe, Eastern Europe, Asia/Pacific, Africa/Mideast).

The study also evaluates company market share and competitive analyses on several industry competitors, including Abriso Jiffy, Cascades, Crown Holdings, DS Smith, Mondi, Packaging Corporation of America, and WestRock.

Ecommerce drives use of flexible protective packaging

Global product demand will be driven by double-digit growth in ecommerce sales, in addition to rising production of durable goods and protective packaging-intensive nondurable goods, such as chemicals and pharmaceuticals, and the food and beverage sector.

Ecommerce has been the fastest growing market for protective packaging over the past decade, as online purchases continue to make up a larger share of retail sales, especially in the United States and China. In addition, ecommerce is rapidly rising in lower income countries as internet access and smartphone penetration grows.

Flexible protective packaging will continue to benefit the most from ecommerce expansion, the study said. A focus on right-sizing and source reduction by online retailers will drive demand for protective mailers. Also, the widespread use of corrugated boxes for ecommerce shipping will support demand for protective packaging that is often used in conjunction with boxes, such as bubble wrap, air pillows, and paper fill.

Impact of sustainability

Although sustainability concerns — such as the use of non-recyclable plastics and the carbon

footprint of packaging production — have a larger impact on primary packaging, they will also affect the future growth and product mix in the protective packaging market. These effects will have a relatively larger impact on foam protective packaging, the study said. For example, government regulations limiting or banning the use of certain plastics and manufacturer pledges to reduce plastic use have prompted protective packaging suppliers to offer what are perceived to be more sustainable options, such as paper-based fill and insulating products or starch-based foam products, as replacements for expanded polystyrene.

Although plastic protective packaging, especially foam protective packaging, will continue to be a focus of environmental concern, plastic will continue to be used for protective packaging because of its advantageous properties, including crush and moisture resistance that can prevent leakage during transportation.

Demand surpassed output during last decade

The market for protective packaging products is primarily influenced by trends in manufacturing output and ecommerce sales, according to the study.

Between 2010 and 2020, protective packaging demand grew faster than manufacturing output because of increased awareness of protective packaging's ability to reduce the rate of returns of damaged goods and the ongoing shift to value-added protective materials with superior performance, according to Freedonia.

The main driver of the protective packaging market in recent years has been the rapidly rising penetration of ecommerce into retail sales. The rise of ecommerce has increased the number of packages requiring protection. Products sold through traditional retail channels often are shipped in bulk rather than in individual parcels.

Source: Packaging Digest

Clearing the Confusion on Machine Standards Applications

A single primary machine standard can involve several additional standards, so it is important to know what to follow for a given machine project.



Standards applications should involve management, a combination of mechanical and electrical engineers, technicians, and sales. PMMI Business Intelligence: 2023 The Impact of Global and Local Standards on OEMs & Suppliers.

For the uninitiated, machine standards can seem like a tangled web of red tape, but machine manufacturers need to untangle this web to ensure safety and compliance.

The decision about which regulations and standards apply to new machines rests solely

with the machinery supplier and the component supplier, according to PMMI Business Intelligence's 2023 report, "The Impact of Global and Local Standards on OEMs and Suppliers."

Starting points in determining which regulations and standards apply to a project include the requirements of the customer and the destination of the machine.

Machines going to E.U. locations fall under —ISO 12100:2010 Safety of MachineryGeneral Principles for DesignRisk Assessment and Risk

Clearing the Confusion on Machine Standards Applications

Primary Industry Machinery Standards to Know

	US / ANSI	International ISO
Machinery	ANSI B11.0*	ISO 12100
Packaging Machinery, Risk Assessment	ANSI B155.1*	ISO 12100
Electrical (harmonized)	NFPA 79	IEC 60204-1
Industrial Robots (identical)	ANSI/ISO/RIA R15.06	ISO 10218-1 & -2
Safeguarding / Risk Reduction Measures	ANSI B11.19*	Various ISO 13850 · ISO 13851 · ISO 13855 ISO 13857 · ISO 14119
Control Systems	ANSI B11.26 provides examples	ISO 13849-1* & -2
Control of Hazardous Energy	ANSI Z244.1*	ISO 14118
Warning Labels	ANSI Z535.4	ISO 3864-2

* Primary document
Source: Bruce Main, design safety engineering inc.

Reduction. It's important to note that the American National Standards Institute's ANSI B155.1 Safety Requirements for Packaging and Processing Machinery is broader in scope than ISO 12100.

Therefore, the ANSI standard is recommended for equipment destined for E.U. as well as U.S. destinations. From there, a careful reading of the standard will help determine what requirements must be met.

These foundational standards also provide references to other standards that may impose additional requirements. Proper research and compliance depend on access to a library of standards.

It's not uncommon for a machine to be governed by one primary standard, as well as 10 related standards. Since many standards have been updated over the years, it is important to work with the most recent publication.

Required standards vary by project type. PMMI Business Intelligence: 2023 The Impact of Global and Local Standards on OEMs & Suppliers.

Saving time and money with machine standards compliance

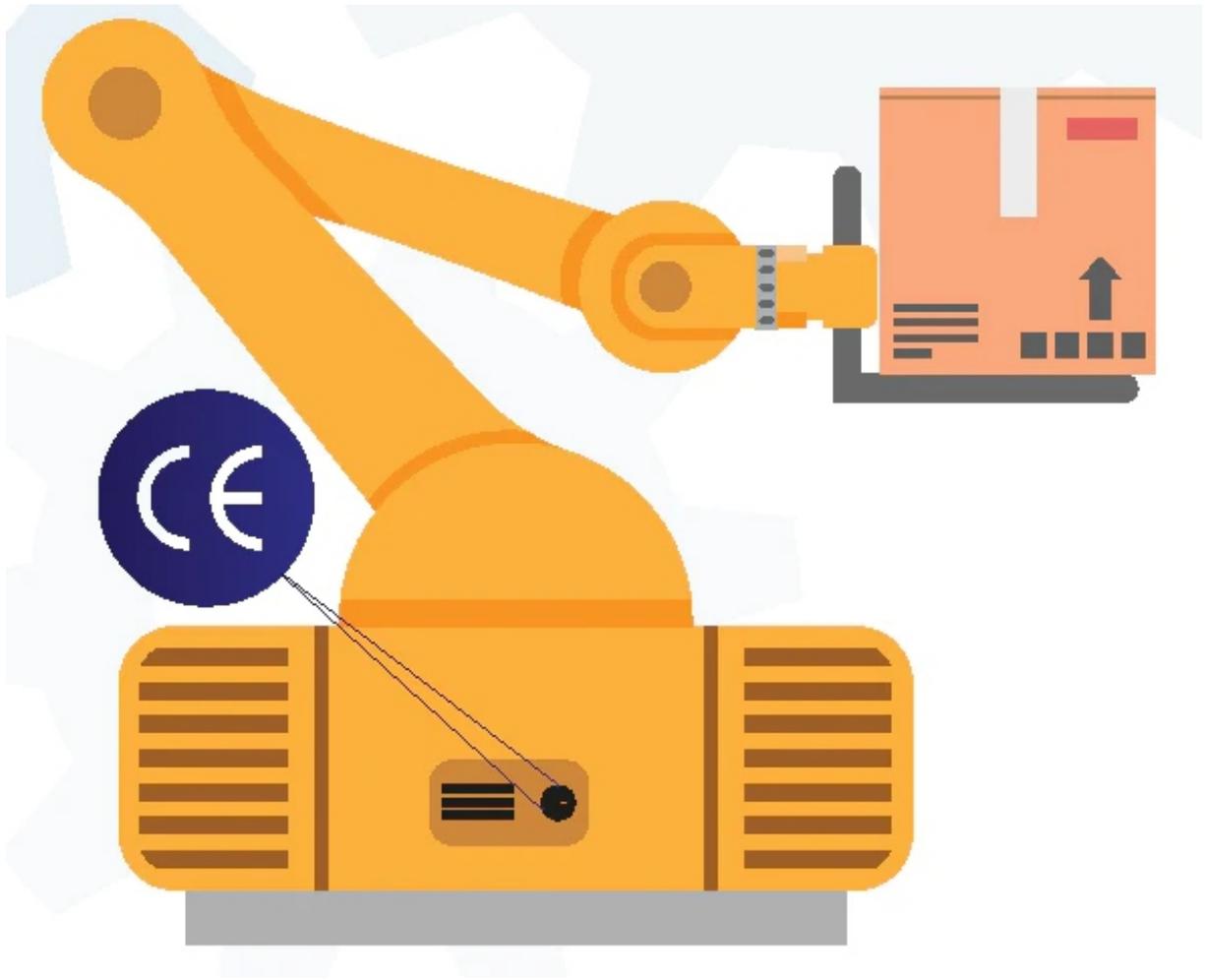
Everyone is so busy trying to meet deadlines and build machines that meet performance objectives, it can be a huge challenge to take the time necessary to become familiar with the standards, determine which ones apply to a project, and map a path to implementation.

However, this knowledge can save time and money by ensuring compliance, preventing expensive design changes late in the process, and eliminating the potential negative consequences of noncompliance such as substantial fines, and in the worst cases, jail terms or significant civil liability.

Standards compliance needs to be part of the product development process to ensure operator and environmental safety and adherence to legal requirements as well as best practices.

Application Strategies

Management must be onboard with standards applications. One person should be responsible for implementing procedures, the product liability



program, and overseeing the team. Copies of relevant regulatory and normative standards should be maintained and updated, as necessary.

Team members should include a combination of mechanical and electrical engineers, technicians, and sales, according to "PMMI's 2007 Guide to the Key European Directives for Packaging Machinery Fourth Edition.

Machines sold in the E.U. must include CE Mark certification. PMMI Business Intelligence: 2023 The Impact of Global and Local Standards on OEMs & Suppliers

When working to achieve a CE Mark to qualify for European sales, for example, the standards team should learn, implement, and document the process to comply with the directives, perform a risk assessment, address the essential

requirements list, and create the files required for qualification.

Documentation includes the Technical Documentation File, Declaration of Incorporation and/or Declaration of Conformity, the Hazard Analysis and Risk Assessment, and a list of the EHSRs of the directive that applies to the machine, the PMMI 2007 guide says.

It should be noted that machine design changes and upgrades need to be analyzed to see if they impact compliance. If so, parts of the Declaration of Conformity may need to be redone. Re-testing should be done periodically to confirm compliance, says the PMMI guide.

Source: Packworld.com



Concern about chemicals in compostable food containers

University of Queensland researchers are analysing compostable takeaway food packaging for potentially polluting chemicals.

Associate Professor Sarit Kaserzon from UQ's Queensland Alliance for Environmental Health Sciences (QAEHS) said little is known about the substances used in compostable paper or cardboard products and how they may impact the environment.

"Recent bans on single use plastic food packaging have led to an increase in alternatives, which is a really positive step," Dr Kaserzon said.

"However, we have a limited understanding of the chemicals within these alternate products and how they may pollute recycling or composting streams.

"We want to understand how these chemicals may persevere when the packaging is composted or recycled, leading to potential human and environmental exposure.

"This knowledge is crucial as we divert waste from landfill and transition towards more sustainable practices."

Research has already found chemicals such as mineral oils, flame retardants and per- and polyfluoroalkyl substances (PFAS) in non-compostable paper containers, additives which enhance their structural integrity and resistance to heat, water and grease.

PFAS, synthetic compounds linked to human health problems, are estimated to be present in 40 per cent of food contact papers in the United States of America.



The UQ research project aims to understand if similar substances are present in compostable products.

Dr Fisher Wang from QAEHS said the research findings will inform regulatory decisions to ensure the safe and sustainable use and disposal of compostable food packaging in Australia.

"Food packaging is essential for the preservation, protection, transportation, storage and marketing of food," Dr Wang said.

"Working closely with government and industry partners, we will test compostable and/or biodegradable food contact materials to identify the concentrations of chemicals of concern and then determine the persistence of these chemicals in the organics resource recovery stream.

"When we understand the chemicals in compostable food packaging and their potential to persist past their intended use, we can work out ways to ensure Australians and our environment are protected against exposure to harmful substances."

Source: University of Queensland

WICMA Symposium 2023: Business Strategy for Growth

WICMA Symposium 2023 held on Sept 14-15, 2023 picturesque surroundings of the Radisson Spa & Resorts, Lonavala was a remarkable one. This 10th Grand edition of the Symposium themed Business Strategy for Growth has evolved into one of the acclaimed industry events in the Western Region.

The huge gathering of 260+ delegates comprised of corrugators, paper mill owners, machinery and accessory suppliers pan India. CORPEX 2023, a table-top exhibition, with 12 exhibitors, was held as a synchronising event.

The lighting of the ceremonial inaugural lamp provided an auspicious start to the proceedings. WICMA members, Shri Ashish Gandhi & Shri Dushyant Patil were felicitated on their elevation to the top posts of two local Industry Associations. The R&D Centre Team was felicitated for being bestowed with the highly coveted NABL accreditation as well as being approved by Director General Shipping, Govt of India as an IMDG testing centre for UN Certification for corrugated packaging used in shipping hazardous goods by Sea. On the occasion, Shri M. Rajagopal of M/s McSparr Test Systems & Chemicals Pvt Ltd. was felicitated for his support in manufacturing a crucial equipment with non-standard specifications within the shortest lead time.

Shri Pradip Bosmaya, Past President - WICMA & FCBM, was presented the Lifetime Achievement Award, in recognition of his meritorious and dedicated services to WICMA and the Corrugated Industry. The Symposium program themed carrying the theme Business Strategy for Growth comprised information-packed technical sessions, panel discussion and a vivacious evening musical program.

Dr Radhakrishnan Pillai, one of India's foremost business authors famed for his Chanakya series

delivered an amazing motivational session. Followed by two panel discussions; on kraft paper and on corrugated machinery. Panellists comprised representatives of some prominent paper mills and corrugated machinery manufacturers.



14 - 15 September 2023
Radisson Resort & SPA
Lonavala

The technical session titled "Corrugator's perspective on Business Strategy for Growth" had two corrugators, Shri Hemendra Agrawal, Co-founder - Miracle Group of Industries, Shri Aditya Agarwal, Partner - Krishna Board And Containers, Shri Vernon Mathias, Partner - Vel-Vin Packaging Pvt Ltd, and Shri Rakesh Shah, Director - Madhuvan Packaging Solutions, who presented on successful strategies implemented by them to overcome challenges and which were instrumental in substantial growth of their own enterprises. Followed by sessions by Shri Subhasis Kumar Roy, Founding Partner - Promotus Enterprise, on "TRUE CARE - An Industry 4.0 Initiative in Maintenance", Dr Ipshita Guha, SMB and Ghost Owner on "Who is my Customer? Rethinking Business Strategy" and Shri Pravin Jagtap on "Transmissions in Corrugation Industry".

WICMA AGM was held on 14th Sept 2023. The new President Shri Anil Loya took charge from Shri Kirtikumar Gandhi. Shri Rohit Bubna was elected Vice President. At the Managing Committee meeting following the AGM, Shri Shlok Kedia was nominated as Hon. Secretary and Shri Satyajit Patel was nominated as Hon. Treasurer.

WICMA thanks their Sponsors, Exhibitors and delegates for their support and participation and making WICMA SYMPOSIUM 2023 one of the most successful and memorable events in recent times.



EICMA conducts its 51st AGM in August 2023

On August 5, 2023, EICMA held their 51st Annual General Meeting at Bronz Banquets, Alipore, Kolkata. In the AGM proceedings, the Office Bearers were re-elected with Shri Achyut Chandra as President, Shri Pradip Agarwal as Vice President, Shri Samir B. Mehta as Honorary Secretary and Shri Nitesh Chowdhury as Honorary Treasurer continuing office for a second term.

All office bearers as well as the five Managing Committee members were elected unanimously. Avik Roy representing Bharat Chambers of Commerce and Industry was present, along with



Formal session ended with National Anthem and vote of thanks by Shri Pradip Agarwal, Vice President, EICMA. Special thanks were rendered to Sri Rajarshee Dutta for curating the evening and to the supporters of the event.



Shri Milan Dey ex-officio FCBM, and lot of EICMA past presidents.

In his address, EICMA President, Shri Achyut Chandra, thanked all for the opportunity to serve the fraternity for a second term, highlighting few opportunities and challenges facing the industry.

An interactive technical workshop on SCORE LINE CRACKING was conducted by Sri Ram Kumar Sunkara for the benefit of members. The workshop was followed by a short interaction took place with the paper mill representatives present there. A table top exhibition gave opportunity to participating vendors exhibiting their

products/services for the benefit of members.

All of the 125+ attendees including members, their families and vendors concluded with a musical programme followed by a sumptuous dinner.



He also thanked seniors for their continued support and guidance to the team.



KACBMA - Conducts its 2nd General Meeting

On Sept 8, 2023, KACBMA conducted its 2nd general meeting at St. Marks Hotel Pvt Ltd. Bangalore at which 30+ members attended the meeting.

Additionally, a technical Seminar on ROE & ROI were conducted; Return on Equity (ROE) and Return on Investment (ROI) are two key financial metrics that help evaluate the performance and profitability of a company. Both metrics are valuable tools for investors, analysts, and stakeholders to assess the efficiency of a business and its ability to generate profits.

The speakers were Rishab Jain, Director - United Packaging Solution and Rishab Kumar Daga , Partner - Qualityplus Star Kkraft Corporation. The meeting concluded with networking over dinner.



FCBM R&D committee completes an experiential learning mission

FCBM delegation led by the R&D Chairman Ankit Agarwal, Director - Central India Packaging India Pvt Ltd embarked on a first of its kind - Experiential Learning Mission (ELM) to Bangkok, Thailand from September 24-26, 2023. A total of 15 delegates pan India participated covering five regional associations; ACCT, EICMA, KCBMA, SICBMA & WICMA.



Name	Company Name	Name	Company Name
SR Prasad Pendyala	Jayaraj Fortune Packaging Pvt L	Jai Vardhan Sarogi	KIG Kraft Tech Containers Pvt Ltd
Ankur Gupta	Mukund Corrupack Pvt Ltd	Puja Banik	Banik & Co. Paper Products
Ramraj Varma	Compack Containers	Pradumn Dalmia	SR Associates
Sudarshan Gopal chary	Padmanabh Packaging	Rajesh	Krishna Package
Ankit Agarwal	Central India Packaging Co Pvt Ltd	Vishnu Aadit	APA Package
Nirmal Deoram Sadgir	DBS Packaging Pvt Ltd	Shiv Kaarthik	Jaya Packages
Pradip Agarwal	NPI Paper & Board Pvt Ltd	Nikhil Singhvee	A-One Packaging
Anish Das	Paper Trading Syndicate Pvt Ltd		

Following were the highlights:

- In CorruTec Asia 2023 at BITEC, FCBM delegation was greeted by Mr Chusak, President - Thai Corrugated Packaging Association.
- The delegation also visited Thai Container Group, Patumthani plant which hubs a Flexo Press of 6 colour 2.5-meter-wide Conprinta, Germany. The machine uses belt technology with registration error of +/- 0.35 mm
- The delegation visited Siam Kraft, Banpong Mill where they learnt about the PM # 16 which is 7.5 meter wide and produces 1200 Tons per Day!



The storage and inventory management was impressive with 100% automation and the robotics involved tracking wastages at a microscopic level and are now handling over 100,000 tons of paper reels with less than 100 kgs wastage!

The delegation observed that the Length/ liner meterage is mentioned on the packaging label on the reels, an international norm which is now catching up with Indian mills with continuous efforts being made by R&D team to impress upon the advantages of Linear Meterage, launched earlier this year.

The delegation bonded well and concluded their visit over dinner at Jhol- a Michelin, a star restaurant in Bangkok. With a successful outing, R&D team will now plan more such "Experiential Learning Mission" in the future.