

Just What is a Manufacturing Ecosystem and Why Are They Growing? *The Benefits and Challenges of Collaborative Manufacturing Partnerships Across Regulated Industries*

Deloitte shows that a massive 88% of manufacturers agree it is important to work with outside partners and vendors to reach their smart manufacturing and digital goals. With supply chains becoming ever more complex, it's clear to see that collaboration is at a defining moment across the manufacturing industry.

Bob Tilling, VP of Global Sales at Kallik, explains the value and challenges of developing a shared ecosystem particularly across highly regulated markets such as pharmaceutical, food and beverage and consumer packaged goods (CPG), and how something so simple as accurate labelling plays a critical role in collaborative success.

A recent analysis of Fortune 500 manufacturers identified that companies with more than 15 strategic alliances as part of a manufacturing ecosystem registered twice the revenue growth, compared with companies with fewer than 15 alliances.

Deloitte sees an ecosystems approach as forming a core part of 'smart manufacturing' into the future. A manufacturing ecosystem can be simply defined as "different entities coming together in meaningful ways to solve shared challenges and meet shared objectives."

Ecosystems and Partnerships Growing Across Pharma, Food and CPG

The manufacturing supply chain is already a complex network of companies and stakeholders, especially in highly regulated sectors such as pharmaceutical, food and beverage and consumer packaged goods. Any manufacturing process and supply chain becomes more complex and intricate when more than one manufacturing party is involved. For example, the Covid-19 vaccine needs to be supported by one of the most sophisticated supply chain ecosystems in the industry – due to there being over 40 Pfizer-owned sites and over 200 suppliers globally.

On the food and beverage side, take an international food and beverage organisation

specialising in making and selling a variety of cheeses. The company, as part of its growth plans, has very probably acquired other well-known organisations owning many brands within the same sector. Consequently, the organisation will have grown in size and complexity, with potentially thousands of suppliers globally.

Managing any such complex manufacturing ecosystem requires a structured system to enable accurate updates and changes to vital processes, and here's where labelling has a crucial role to play. Ingredient formulations and label artwork must be shared with the right people in the ecosystem at the right time

in a seamless and timely manner in order for the ecosystem to live up to its role of a collaborative partnership of organisations with shared goals.

Regulation and Compliance Add Yet Another Layer of Complexity

The already heightened complexity of manufacturing ecosystems is further exacerbated by regulation. Food and beverage for example, is now tightly controlled by regulations similar to those applied to pharmaceuticals. Regulatory bodies such as the FDA now require food products to be tracked throughout the manufacturing and distribution processes. Adding more players as part of an ecosystem



increases the complexity of building regulations into every stage of the manufacturing process for a particular recipe or formulation.

Managing Label and Artwork Information Across a Vast Ecosystem

Controlled real time access and centralised data are essential ingredients of any efficient and safe manufacturing environment. This is never more critical than when managing the accuracy of the information printed on product artwork, labelling and packaging. Keeping this information organised and accurate across the ecosystem of manufacturers and partners is vital.

There are four key areas of a manufacturing ecosystem where key parties will require varying levels of access to critical label and artwork information in order to ensure products continue to be manufactured quickly, safely and compliantly:

1. Laboratory and Key Ingredient Information

The need to share information such as ingredients and recipes while retaining information secrecy is vital in the manufacturing ecosystem. The challenge faced by many pharmaceutical and food and beverage processors is the lack of specific technology that tailors to their operational and industry specific needs such as ingredient confidentiality.

Throughout the labelling and artwork process, a sophisticated Label and Artwork Management (LAM) system is needed in order to ensure that the most up to date and accurate ingredient information is shared to only the necessary individuals in order to create labels and artwork that is accurate.

2. Translation Agencies

Translation agencies are integral to the manufacturing ecosystem, they ensure that the necessary product information can be shared to an international audience across often hundreds of product lines. These agencies need access to LAM software where they can upload information and translations but would only ever be able to see information intended to be translated such as warning phrases. LAM solutions ensure a translation agency see only the information and suggestions they are required to change, and not for example have access to other recipe formulations.

3. Packaging Designers

The use of different materials such as plastic and cardboard during the packaging process



can be incredibly complex – however, using a single LAM solution can aid the organisations in this partnership to complete design and packaging processes or reflect any changes efficiently. The LAM solution ensures that if each manufacturer is sent the correct information that they require – no information exchange between different designers and packagers in the chain would be necessary.

4. Sub-manufacturers

Ensuring that each sub-manufacturer involved in the end-to-end process in any industry is kept up to date with accurate information and artwork is essential to a smooth-running ecosystem. A LAM solution allows the artwork supplier to update artwork and information at any time and will pass this downstream, to provide only the intended recipients with the most up-to-date version.

Any changes made to any artwork or labelling information will be recorded in a log, as required by EU FDA guidelines that require electronic signatures.

Software Providing Visibility and Traceability

LAM solutions keep a single history of the complete lifecycle of the labelling and artwork manufacturing process from translations and packaging design to label and ingredient changes of the product. Barcodes featured on the packaging can then provide further traceability once it's placed in a consumer-facing position.

LAM solutions provide the manufacturer with complete control of how their critical product information is shared and hidden from different individuals in different processes. From laboratory technicians being able to view the entire recipe formulation to translation agencies only seeing safety guidelines or packaging manufacturers viewing the label artwork – manufacturers can customise specific windows of information.

LAM Solutions Play a Vital Part in Seamless Manufacturing Ecosystems

The key element though, is all this information is housed in one solution, managed by the parent or lead manufacturing organisation. Through various rules and access controls, each player in the manufacturing ecosystem can update packaging, label and artwork information individually – but all changes are visible and auditable down to the last detail.

The growth and development of manufacturing ecosystems is inevitable in the current manufacturing landscape. It is also desirable to enable businesses to meet their sustainability and smart manufacturing goals. At the heart of these ecosystems is collaboration – and that means sharing. LAM solutions have an essential and central role to reduce the potential for errors in accuracy and version control throughout the end-to-end manufacturing process tenfold – while ensuring confidentiality and security throughout the entire manufacturing ecosystem.



**Bob
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Bob Tilling is the VP of Global Sales at Kallik, an enterprise labelling and artwork management company. He has a wealth of knowledge when it comes to the life sciences industry, particularly regarding medical devices. Bob helps businesses in highly regulated industries begin their journey of transforming their labelling and artwork management.

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