

a TNA whitepaper

# from start to finish

the top 10 reasons to use a complete solutions partner



About the author:

## Thiago Roriz

Chief Operations Officer, TNA solutions

Thiago is responsible for implementing TNA's business strategies and optimising global operational capabilities. Through his role in the company's leadership, he provides management and vision to meet short-term and long-term objectives.

Thiago works with key members of the executive management team to formulate policies and a company culture that strengthens operational efficiencies and generates revenue.

He has been with TNA for nearly 11 years and has held several roles in multiple locations globally, before taking on the mantle of Chief Operating Officer. He is passionate about engaging with customers to understand their strategic business objectives and conceptualising solutions aligned to help them meet, and exceed their goals.



# contents

## introduction

1	finding a complete solutions partner for all your production needs . . . . .	4
	1.1 single point of contact . . . . .	4
	1.2 customer-centric view . . . . .	5
	1.3 total systems approach . . . . .	5
2	maximising system performance through optimisation . . . . .	6
	2.1 effective line integration . . . . .	6
	2.2 ultimate control . . . . .	6
	2.3 total traceability . . . . .	7
	2.4 workforce efficiency . . . . .	8
3	developing a lasting customer supplier partnership . . . . .	8
	3.1 single point of responsibility . . . . .	8
	3.2 investment security . . . . .	9
	3.3 long-term partnership . . . . .	7

## summary

# introduction

The global food packaging industry has experienced significant growth over the past few years. In 2017, the industry accounted for 1,845.5 billion units, according to GlobalData<sup>1</sup>. By 2022, this figure rose to 2,071.4 billion units, recording a CAGR of 2.3%.

This upward trajectory is not expected to slow down anytime soon. Projections suggest an acceleration in the CAGR to 2.4%, with the volume expected to reach 2,337.8 billion units by 2027. This anticipated growth signifies a wealth of opportunities for manufacturers to tap into, paving the way for future expansions and innovations in the food packaging industry.

To take full advantage of the market's potential, food manufacturers need quality equipment that is able to produce and package their goods efficiently and suits both their current and future production requirements. Finding the right supplier can often be a costly and time-consuming task. Complete solutions partners can offer manufacturers numerous benefits at every step of the process, including project management and aftermarket services, when it comes to choosing food processing and packaging equipment.



<sup>1</sup> <https://www.globaldata.com/store/report/food-packaging-market-growth-analysis/>

# 1

## finding a complete solutions partner for all your production needs

In today's market, increased emphasis is placed on fully integrated processing and packaging lines. In the past, food manufacturers used various suppliers to install their food production lines, searching for a specialist in each area. However, today more and more plant managers are looking for a partnership with a turnkey, complete solutions partner to specify systems from start to finish. These total system suppliers offer it all; from processing equipment, such as fryers and ovens, to distribution, coating, seasoning, weighing and packaging solutions, including all the necessary ancillary devices such as coding, verification and metal detection equipment. Some suppliers even offer to act as a business consultant, helping you identify and analyse your production needs and proposing improvements throughout the line. This could include, for example, advice on how the installation of controls and integration technology could help you realise further production efficiencies.

### 1.1 single point of contact

Finding the right solution for a food production line can be a challenge for any manufacturer. Whether you're starting out or are looking to expand your current production, the market is full of suppliers claiming to be specialists in their particular field. Identifying a supplier that can offer you the right level of support and can help you get the most out of your production requires a lot of research and time. But even once the right supplier is found, manufacturers will need to ask numerous questions before they can make a decision. Will the system integrate with my other equipment? Will the equipment help me achieve my objectives? Will my operators require additional training to use the system?

Partnering with a complete solutions partner, who can offer turnkey solutions for your complete production line, can save a lot of time and paperwork. Not only will it provide you with a single point of contact, meaning you spend less time dealing with various suppliers, but it will

also give you access to a much broader portfolio of technology, services and skills. In addition to this, a complete solutions partner should be leveraging the very latest technological advances – such as virtual factory solutions, for example – to further enhance the overall outcome.

The virtual factory harnesses the power of extended reality (XR), making it possible to create a fully functioning and interactive digital twin of any planned or current operations. By optimising physical footprints, ensuring access, and seamlessly integrating line equipment, potential hazards and challenges can be mitigated before anyone sets foot on site. Regardless of their global location, all stakeholders can meet virtually, saving time and reducing carbon footprint by minimising travel. The chosen production lines can be seen in full operation, providing opportunities for comprehensive analysis, scenario testing, and real-time adjustments. Potential bottlenecks or situations that may lead to wastage or unscheduled downtime can be identified and addressed. In addition, remote capabilities offer immersive and interactive training, as well as access to virtual support. The primary benefits include increased efficiency, improved productivity and enhanced uptime.

A total system provider focuses on you, the customer, to help you at every stage of the process, from setting your objectives to design, installation and training, all the way to after-



sales-support, ensuring that your line keeps running well after the first contact is made and the install is complete.

### 1.2 customer-centric view

When it comes to commissioning new production equipment, manufacturers need to start right at the beginning. What am I trying to achieve? While this might sound like an easy question, it's often one that many businesses struggle with. It's not always easy to know how many bags of product you're looking to achieve per minute, for example, or what the cost per bag will be, which type of process best suits your products, or how local nutritional specifications may affect your labelling requirements. This can be especially challenging when you're new to a market, looking to introduce an untested product or expanding your operations into a country you're not familiar with.

By taking a customer-centric view from the start, a complete solutions partner can add immense value during the initial phase of the project. As a provider of complete solutions, they have an overview of the entire industry, enabling them to provide expert advice on average throughput targets, best industry practice and legal requirements for various applications and each section of your line. When looking for a supplier, manufacturers should also ensure they choose a company that operates on a global scale with locally based service teams. Its industry insights can be invaluable for any manufacturer looking to export their products or set up a new plant abroad. Familiar with global industry standards, trends and local regulations, a global supplier can offer invaluable support by helping you set targets that are both achievable and ensure that your operation is competitive against global benchmarks.

### 1.3 total systems approach

Many manufacturers undervalue the importance of taking a step back and looking at the complete line. While it's easy to spend your entire budget on the latest state-of-the-art technology,



it's not always guaranteed that combination will bring you the best results. Each of your suppliers will be able to estimate what their machine can achieve as a single unit, however, when it comes to overall throughput, they cannot make any guarantees as it will all depend on how effectively each machine works in synergy with the others. After all, what use is a bagger that is able to achieve throughputs of 250 bags per minute, when your scale can only handle 80 weighs per minute?

Besides taking on the project management for your system, a complete solutions partner is able to not only evaluate your needs for each segment of the line, but also takes a holistic view of your entire production process. As they have responsibility for the integration of the complete line, partner suppliers are able to tailor their solutions to your individual needs, taking into consideration your objectives, environment, products and future growth plans to maximise the available resources and plant footprint. This ensures that each machine delivers exactly what you need, from the highest output levels to the lowest downtime and cost of ownership over time.

# 2 maximising system performance through optimisation

Complete solutions partners can offer many benefits, in particular at the beginning of the process. However, the value they bring to your production does not stop once the contract has been signed. On the contrary, their broad expertise can really make a difference when it comes to system design and installation, ensuring that the system you have invested in is able to operate at its highest level of performance.

## 2.1 effective line integration

One of the key requirements for an efficient production line is communication. Line integration is the first step towards operational efficiency as it ensures that each component communicates effectively with the others. Stand-alone machines from different suppliers that are only connected mechanically through conveyors are often unable to operate at their optimum levels, reducing the overall efficiency of the line. Furthermore, a lot of machines employ different software, making it difficult to evaluate reports and run detailed diagnostics, limiting the ability of operators to effectively monitor any unusual activities and react quickly should an incident occur.

Machines from a complete solutions partner are typically designed, assembled and installed so that components will work efficiently with one another, ensuring that your production processes operate at their maximum performance. However, even when all machines are supplied from the same equipment manufacturer, there is still a risk that sections might operate in isolation. In this case, complete solutions partners with control system expertise can provide manufacturers with greater visibility over their entire production. Often considered as the 'glue' that holds the manufacturing line together, effective integration ensures that movement between each area of the production is seamless and waste is reduced to a minimum.

For example, standalone supervisory control and data acquisition systems (SCADA) can gather information from the entire line and store it in a central database, delivering comprehensive

diagnostics for each machine. By adopting a standardised approach for all systems within the production line, new machines can be added with minimal effort and key performance indicators (KPIs) can be set for the entire production line. Lines can be operated and maintained in the most efficient way, reducing downtime and saving costs.

## 2.2 ultimate control

As production lines become more automated, products are being processed at unprecedented speeds. Just one product breakage can affect the entire production cycle and easily damage a large number of goods before the fault is noticed, resulting in unnecessary downtime and excessive wastage. Often caused by inaccurate control equipment or badly tuned processes, material waste is a real problem for any plant manager and weakens the efficiency of the production line.

A complete solutions partner who offers turnkey engineering solutions from software and system design, to control panel manufacture, installation, maintenance and advice can prevent such inefficiencies. By developing a detailed user requirement specification (URS), they can help plant managers identify the expected KPIs they require. This URS is then translated into a functional design specification (FDS), and once signed off by both parties the process will be set



up according to the agreed specification. With a tight control specification in place, a smooth and reliable product flow can be achieved, reducing material wastage and downtime to a minimum.

### 2.3 total traceability

Collecting detailed and reliable data from as many parts of the production process as possible is vital for a safe and efficient plant operation. Growing consumer demand for greater transparency has led many food manufacturers to review their processes, while governments across the globe have started to introduce tighter regulations to combat food safety scandals. As a result, traceability – the way in which manufacturers record the movement of products throughout the processing stages – must now form an essential element of all food manufacturing operations.

Food safety can be assured by improving traceability and in-line checking throughout the entire process, facilitated by the adoption of a fully integrated control system. Many total solution offerings include data collection equipment, such as barcode scanning systems, which accurately verify the correct batch is being processed by scanning the product barcode and cross-checking it with the available data. Date code assurance systems ensure that the date



code is printed, complete and legible, while in-line monitoring systems, such as metal detection and x-ray equipment, will ensure the absence of foreign bodies within the product prior to packaging. Integrating these systems into the complete production line achieves a rigorous system of product traceability. The logged data will also provide a detailed record for submission to external monitoring bodies if required, creating a greater level of transparency and accountability within the manufacturing process.



## 2.4 workforce efficiency

People are undeniably the most important part of any production facility. Although technological progress has certainly automated some of the plant processes, labour costs still account for the biggest share of any facility's budget. Having a well-trained and knowledgeable workforce is key to business profitability. However, training employees on different components from a variety of suppliers can often be time consuming, requiring employees to complete multiple training courses and online modules.

Working with a single equipment supplier that has core components compatibility helps create a more efficient workforce. Simultaneous operator training across all line components saves valuable time and resources, making sure that your new operation is up and running as soon as possible. Furthermore, a detailed review of all the activities within the plant can expose a number of tasks that would benefit from automation. Once this has been optimised, staff are able to perform other less repetitive duties, such as becoming more focused on output for example.

At the same time, the installation of intelligent technology can significantly reduce the margin for human errors. For example, with a programmable logic controller (PLC) system and an intuitively designed HMI (Human Machine Interface) system providing machine status and production data, operators will be able to monitor any unusual activities and react quickly and efficiently, before any further processes are affected. By investing in operator training and intelligent control technology, plant managers not only realise considerable cost savings, but also increased job satisfaction and retention levels amongst their employees.

## 3 developing a lasting customer supplier partnership

Once a complete system is installed and running, a complete solutions partner's involvement doesn't stop. Fully automated production lines benefit from regular maintenance and continuous improvement reviews to operate at optimum performance. Partnering with a supplier of complete solutions can offer many long

term benefits when it comes to maintenance and system improvements, ensuring that your production lines meets your current and future requirements.

## 3.1 single point of responsibility

Maintenance and repairs, although unavoidable, are a time-intensive exercise at every production plant. Even the best machines need to be checked and serviced regularly. And sometimes it's the failure of just one small piece of equipment that can bring an entire production line to a halt. In addition, control systems are rarely commissioned with a full set of finely tuned control loops as not all processes or recipe types can be tested during initial production trials. As a consequence, additional fine-tuning is necessary to ensure the line continues to run at optimum performance. Sourcing spare parts and services from various suppliers often takes time as it requires multiple calls to different representatives, and various servicing schedules and shipping arrangements, causing additional downtime.

Working with a complete solutions partner that offers a comprehensive after-sales-service can save time and costs. Passing over the responsibility of your line to one provider ensures consistent product quality and full support throughout the life of all your equipment. It is also vital that your supplier has local sourcing of





all spare parts to ensure that your line is up and running again as quickly as possible. By working with a single partner, lengthy stops can be minimised and maintenance efficiency improved.

### 3.2 investment security

The food industry never stands still. Consumer demand changes rapidly and many manufacturers need to react quickly in order to keep up with the latest trends and global developments. Whether it's a shift from large family-packs to small snack-size bags or a sudden increase in demand for chocolate covered potato chips, manufacturers need an equipment supplier that can provide them with machines that can easily be upgraded to their changing requirements.

Complete solutions partners understand that it's important to be one step ahead and keep an eye on the entire food industry and not just one aspect of it. As a result, many providers are often able to predict 'the next big thing' and will be able to quickly offer a solution. These could range from an upgrade to the jaws of your packaging machine to a completely new distribution system that is capable of operating at much higher speeds. As your supplier will be very familiar with your entire system, upgrading and integrating new equipment to accommodate your changing needs can be done quickly and efficiently. By partnering with a complete solutions partner you can be sure that your production line meets the performance requirements you have now and later, providing you with the highest level of investment security and flexibility.

### 3.3 long-term partnership

Developing and maintaining a good relationship with your equipment supplier is essential when it comes to finding a complete turnkey solution. Good buyer-seller relationships are often based on partnerships which have been developed and nurtured over time. Finding a supplier who provides you with quality products, excellent service, and responds quickly to your requests, can help you achieve your goals faster and more efficiently.



Building a close partnership with one supplier means that they will develop an in-depth understanding of your production processes, your market and your individual needs. This also means that you will often get access to upgrades and services that individual distributors won't be able to offer. A business that offers a total systems approach has access to a much wider group of experts, including designers, engineers, technicians, sales and service personnel. Each of them will have extensive knowledge of the food industry and will be an expert at their particular field, offering advice and support that's customised to your business whenever you need.



## summary

While in the past many manufacturers may have incorporated a variety of different suppliers' equipment into their production lines, more and more are seeking complete solutions. With a line that is tailored to each plant's needs, using the total systems approach, key productivity objectives can be met, efficiency can be improved and throughput increased.

At TNA, we focus on crafting solutions, not just products. We design for the highest output with the least downtime and cost of ownership. Our extensive range of products supports various goals, including handling, processing, temperature, coating, distribution, seasoning, weighing, packaging, inserting, labelling, metal detection, verification, and end-of-line solutions. We stand by every element in our turnkey, end-to-end, single-source approach.

Our commitment to sustainability goes beyond machinery; we work to reduce waste, conserve energy, and invest in people and communities within our company and the broader world. We help tackle labour and training challenges using our vast experience and local presence. With TNA, you gain more than just industry-leading solutions; you join a forward-thinking company committed to delivering excellence, sustainability, and positive social impact.

Together, we aim to succeed responsibly in an ever-changing world.

TNA solutions is a global leader in food processing and packaging solutions, committed to helping people succeed responsibly in a changing world. With over 40 years of experience, TNA's global team of experts have installed more than 14,000 systems in over 120 countries. The company creates and sustains solutions that help customers realise goals and exceed their expectations, with performance, responsibility, and a customer-centric approach at the core of the business. A collaborative, consultative approach ensures measurable results and lasting success, with solutions designed to evolve and perform over time.

As an inclusive partner, TNA supports a growth agenda that goes beyond business, emphasising its commitment to people, prosperity and the planet in harmony. TNA is a powerful advocate of social justice, and aims to support children in disadvantaged communities through education, healthcare, and social enterprise programmes, through the humanitarian initiatives undertaken by the Nadia and Alf Taylor Foundation.