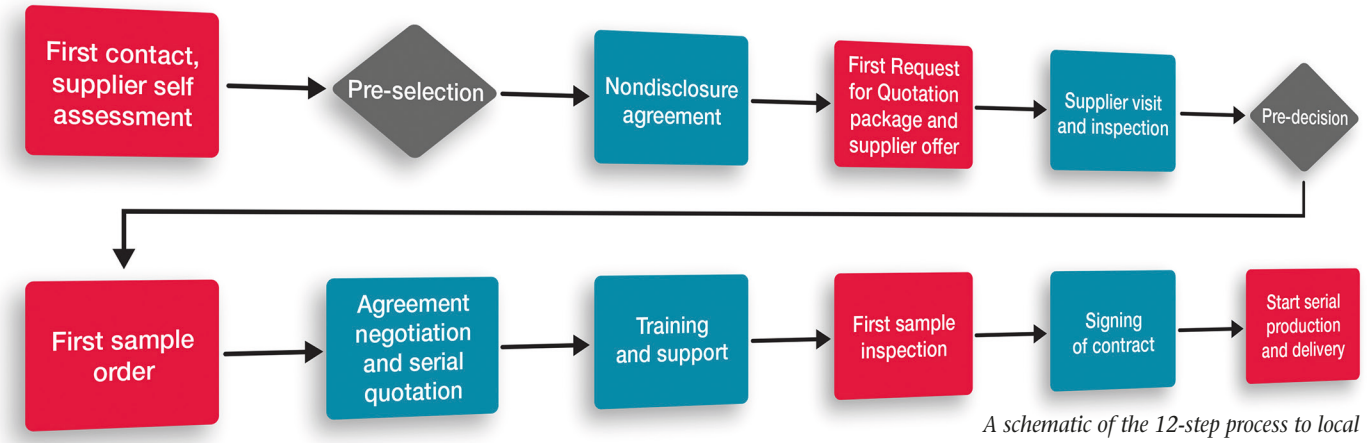
Christian Kopp

Getting Local Industrial Production Right: Experience from the Field



A schematic of the 12-step process to local industrial participation à la Curtiss-Wright. (All phots via Curtiss-Wright)

MilTech continues to seek out stories and accounts that illustrate the complexity and increasingly competitive – not to say complex – nature of the defence and security industries. Curtiss-Wright Defense Solutions kindly volunteered to share the company's experience and expertise in one of the more complex issues – that of local (national) industrial participation. [Editor]

Many countries prefer to procure military systems from their own national defence industries, making it less likely that foreign suppliers will be awarded contracts. On the other hand, establishing a close, long-term cooperative relationship with international defence contractors is often seen as an effective way to secure the supply and availability of critical technologies. For that reason, industrial participation is seen as a way to develop and maintain production, technology and expertise, so that critical defence products and services can continue to be produced under emergency conditions. For countries that have less domestic manufacturing capability for defence equipment, there are special rules in place that ensure any large sums of public money spent on foreign equipment will eventually make their way back into the local economy.

Increasingly, governmental customers insist on some level of local industrial participation (LIP) from foreign defence suppliers. LIP programmes typically involve a mix of technology transfer and local production. These direct offsets can be essential to successful resolution of a contract, and the ability of a defence supplier to support LIP programmes is often an important selling proposition and discriminator in contract negotiations.

LIP programmes will more frequently become a common requirement in future – even a prerequisite – for suppliers seeking to participate in foreign sales. Suppliers face numerous challenges when putting an LIP programme in place. A sub-contractor's familiarity and expertise with such challenges can be an important asset, for both prime contractor and customer, during contract negotiations.

Curtiss-Wright Defense Solutions' Drive Technologies business provides high-precision turret drive and stabilisation technologies for ground vehicles and is an industry leader in supporting and helping to develop LIP programmes as a Tier 2 supplier. From extensive international experience in such programmes in Europe, South Africa and Australia, for example, Curtiss-Wright has established a set of best practices for creating, managing, and optimising LIP agreements. Some of the required capabilities for suppliers to set up and successfully run an LIP programme are highlighted below. Experience shows, these capabilities can often be crucial factors in determining who wins a contract award.

A key element in supporting LIP programmes is ensuring products are designed as generically as possible, using standard parts and subcomponents that can be produced or sourced globally. For Curtiss-Wright, technology transfer and local manufacturing have long been part of the business model, and to expand competencies in these areas, the company decided years ago to design its products in a modular way, enabling line-replaceable units to be accessed, produced and tested globally.

The Role and Challenges of the Second-Tier Supplier

One hurdle faced by sub-primes when setting up an LIP programme is the comparatively low buying volumes when first establishing relationships with potential local manufacturing partners. Additionally, specialised military technologies tend to be niche product categories, meaning greater effort is required to find, support and train appropriate partners and negotiate rates and terms. All these extra requirements need to be calculated in advance and included in cost estimates for the prime contractor. Second tier suppliers are not usually involved in direct negotiations with the customer country, but those negotiations influence the incentives that can be offered to the Tier 3 supplier who will perform the local production. At the same time, a second tier supplier with expertise and experience in establishing successful LIP programmes can help the prime win the contract. This is especially true if the second tier supplier provides a niche technology solution. With specialised technologies, such as Curtiss-Wright's precision turret stabilisation products, it is important to determine which components comprise parts that can be manufactured by a local partner and which can only be sourced at the company's own site – in Switzerland, in Curtiss-Wright's case. This is also influenced by contractual LIP obligations, typically stipulating the percentage content considered as national workshare.

When technology transfer is involved, customers will require training of local personnel to a higher technological level, qualifying them to participate later in additional programmes, separate to the original contract.

Curtiss-Wright only engages in LIP programmes directly related to the goods and services stipulated under the contract, typically including local production, industrial participation, subcontracting, technology transfer, training, maintenance and repair, co-production, and cooperation. These programmes do not include indirect offsets.

Experience has enabled the company to identify the following competencies as essential requirements for a Tier 2 supplier's ability to successfully execute its obligations under an industrial participation contract:

- Contract and negotiation competence
- Project management competence
- Supply chain management competence
- Technology and manufacturing competence
- Lifecycle support competence

The Local Supplier Selection Process

Key to the success of any LIP programme is identification and selection of the local supplier partner. Over time, Curtiss-Wright has developed a standard 12-stage supplier selection process for Industrial Participation in different countries.

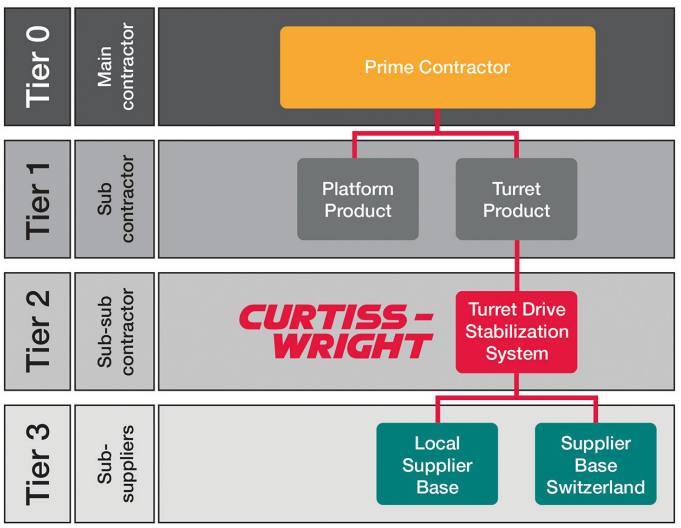
In the very first stage, supplier databases of local in-country suppliers are consulted to identify candidate partners. The various companies that make the first cut are asked to perform a self-assessment, using a form developed to determine their competencies relative to the programme. For example, the form helps to identify what sort of company it is, what departmental structure, technology and manufacturing capabilities, and business references they have, as well as the level of quality management system (QMS) in place. Typically, Curtiss-Wright seeks suppliers with ISO 9001/EN 9100 QMS certifications.

Based on the self-assessment results, the next step is pre-selection, to determine whether the supplier is a good fit for the programme. From this, candidate suppliers are asked to complete a non-disclosure agreement, after which they are sent a first, small request for quotation (RFQ) which might, perhaps, include the complete technical description as well as the manufacturing procedures for these components. This RFQ may comprise one or a few parts, such as a PCB or box housing. The candidates next undergo a test in which they are asked, on paper only, what it will take for them to produce a yearly batch of the RFQ items, together with their pricing information. This process provides a good sense of the supplier's understanding of the project, its ability to produce the required components, and the associated costs.

During Stage 5, a personal visit and audit takes place. The information derived goes into a database for evaluation and results in a comparative scoring. Based on these results, three or four of the best candidate suppliers are asked to invest their own resources to produce an actual sub-component sample, providing evidence of capability. The resulting order is shipped to Curtiss-Wright's Drive Technologies facility in Switzerland, inspected and the results scored. Between the first sample order (Stage 7) and the creation of a formal negotiated agreement, candidates are further down-selected to two or three potential suppliers.

Christian Kopp, Director of Engineering and Operations in the Drive Technologies business of Curtiss-Wright Defense Solutions in Switzerland. No further information is available as to whether he is directing, operating, or engineering in this photo!

After final supplier selection, Curtiss-Wright provides the supplier with training and support, during which supplier employees travel to Switzerland, to work with Curtiss-Wright for a week or two and train in how to produce and test the products required under the LIP programme. Following training, the supplier is asked to produce the first delivery sets. Upon successful inspection of the sample order, and an audit of the supplier's processes, a formal contract is put in place. Production and delivery – in defined batch sizes – can commence.



A typical outline of the position the company may occupy – and the relationships it will develop – in its normal turret drive stabilisation systems business.

Managing the Relationship

After production begins, the relationship requires ongoing nurturing, management and analysis. That makes it all the more important to identify the right partner, that you can depend on for years to come, at the earliest possible stage.

Identifying potential suppliers with reference customers and a history of projects mainly in defence and aerospace markets is good – as is the supplier its own engineering department, able to provide local support for customers should problems arise. The suppler should also have an established local manufacturing, assembly, and supply chain, so the great majority of parts used are indigenously produced. The ideal supplier is one with defence and aerospace industry knowledge and substantial technical, logistical, quality, and related capabilities.

For Curtiss-Wright sub-components, specific requirements for local partners include expertise in build-to-print, including 100%-testing of electronic and mechanical assemblies. The supplier must have test equipment present on-site for inspection of subcomponents, and have the advanced technical skills to be able to perform end-of-line tests for high-tech defence electronic components. In addition, special processes for military coatings, such as Chemical Agent Resistant Coating (CARC), must be supported. As more countries require industrial participation and technology transfer to gain access to technologies and expertise not available locally, it becomes increasingly important for suppliers to establish the requisite processes to ensure success in these challenging LIP programmes. The proven processes Curtiss-Wright has put in place, informed and improved in years of experience over numerous programmes, provide a sound framework for a supplier asked to support industrial participation requirements.

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