

Assessing Geographic Risk in Global Outsourcing

By Charlie Barnhart

“Probability is nothing but common sense reduced to calculation.”

Pierre Simon Laplace (Théorie Analytique des Probabilités, 1812)

For those *Thought Leader* newsletter subscribers who may have been asleep the day Laplace was covered in physics class, please stay with me. Pierre Laplace was a French mathematician who extended the work of his predecessors, (including Newton), and put the finishing touches on mathematical astronomy techniques based on calculus rather than geometry. Then when he was finished with that, he systematized and elaborated probability theory.

I bring that up to set the stage for the latest revision of Technology Forecasters Inc.’s *Global Pricing Workshop*, which brings some new tools and metrics to the increasingly risky task of global outsourcing decision-making. Now, most of us consider ourselves to have an adequate dose of “common sense” at our disposal when we make decisions. Common sense is the ability to see what is in plain sight – and come to the obvious conclusion about the right course of action. The problem with common sense is that oftentimes we don’t know all the facts. For example, if you could see all the details of hundreds of global outsourcing programs – the ones that were successful and the ones that failed – you would be able to make very good decisions about how to set up your next program. The problem is when you work within one organization – whether it’s an OEM, contract manufacturer, or supplier – you can’t see the whole picture.

That’s where statistics comes in handy in tandem with TFI’s charter and funding, which fortunately allows us to see the details of hundreds of global outsourcing programs. Good probability modeling takes actual experience and creates mathematical tools to enable those who use them to apply common sense to their own decision-making process.

True Cost of Outsourcing Model

- Global Pricing Methodology
- Total Cost of Ownership (TCO) Module
- Global Outsourcing (GO) Tool

These are the three components of our new *Global Pricing Workshop*, Revision 10, and I want to take a moment to outline how they can be used to increase the probability of a successful outsourcing program. As TFI consultants have discussed [in recent *Thought Leader* columns and other articles and presentations](#) when OEMs systematically review risk, they uncover some very scary results! Yet, while TCO is elemental to understanding the true cost of



True Cost of Outsourcing Model
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implementing and supporting outsourcing strategies around the world, TCO alone doesn't provide everything you need to do the complete analysis.

The Global Pricing Methodology defines how the underlying costs of electronic manufacturing are formulated into outsourcing prices. But even this model affords only a partial insight into an OEM's total cost of outsourcing—the TCO Module alone produces only one component (albeit a very important component) of a three-part harmony.

A complete picture must more fully take into account not only price and cost of ownership but also *risk*. It is in our Global Outsourcing Tool, or GO Tool, where this third component of the true cost of outsourcing—*risk*—is quantified. So without further ado let's look at the GO Tool, its provenance, structure, and application.

THE "GO TOOL"

The GO Tool methodology, grounded in TFI's case-study data, correlates a numeric estimate of the probability of risk, within a specific geography, to the outsourcing processes applied to the alternative selected.

In other words, to maximize the effectiveness of any outsourcing strategy and thereby minimize risk, you need to align the OEM's *Expectations & Resources* with the suppliers' *Capabilities*.

The GO Tool illustrate that the level of risk in any outsourcing project is equal to the level of resources available to support expectations applied over the supply solution's capabilities, when factored by the attributes of the geography selected.

Expressed another way:

$$\text{Risk Factor} = \text{Geographic Constant} \left(\frac{\text{Resources} \times \text{Expectations}}{\text{Capabilities}} \right)$$

Figure 1, GO Tool Formulation

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The GO Tool not only defines the relationship between the variables, but also provides a means to apply the principle. How? By first defining and quantifying the elements critical to an OEM's assessment of their internal *Resources and Expectations*; including:

Resources: (level of resources the OEM has internally to apply to project)	Expectations: (what the OEM expects from supply solution)
Staffing level	High quality
Time sensitivity of project	Quick response
Travel budget	Ability to execute
Level of outsourcing experience	Stability of operation
Level of Information Systems support	Minimal support from OEM
Level of design engineering support	Continuous quality improvement
Project technology	IP protection
Probable forecast accuracy	Ongoing cost reductions

Table 1, Resources and Expectations Variables
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So these factors can be contrasted against a potential supply solution's *Capabilities* and (favorable and unfavorable) operating characteristics, in the form of a *Geographic Constant*, for over 20 global geographies worldwide.

APPLYING THE GO TOOL

By way of example and without foraging into the individual numeric factors, the process for looking at alignment of *Resources* looks like the outline in Table 2, below:

You have: (the OEM)	They have: (China)	They have: (Mexico)
Minimal support staff	Remote time zone	Same time zone as USA
Compressed timeframe	Prefer larger lot sizes	Available capacity
Travel restrictions	Complex travel rules	Entry on demand (no visa)
Minimal experience	Inconsistencies in region	Reliable execution
Limited eng. support	Electronic interchange	Real time support
Breakthrough technology	Less experience	Proven experience
Low forecast accuracy	Long supply chain	Low-cost logistics to USA

Table 2, Alignment of Resources Example China/Mexico
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And then like Table 3, below, the alignment of *Expectations*:

You need: (the OEM)	They have: (China)	They have: (Mexico)
Responsiveness	Electronic interchange	Real time support
Consistency	Inconsistencies in region	Reliable execution
Stability	Prefer larger lot sizes	Available capacity
Low maintenance	Remote time zone	Same time zone as USA
Predictability	Long supply chain	Low-cost logistics to USA
Ongoing improvement	Less experience	Proven experience
IP Protection	Known problems	No problems

Table 3, Alignment of Expectations Example China/Mexico
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By then applying numeric factors for these variables from the GO Tool, along with the corresponding *Capabilities* factor and *Geographic Constant* we produce the following results:

$$\text{China Risk Factor} = 11.37 \qquad 11.37 = .6 \left(\frac{20 \times 18}{19} \right)$$

Figure 2, GO Tool Formulation/China Example
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$$\text{Mexico Risk Factor} = 3.32 \qquad 3.32 = .3 \left(\frac{15 \times 14}{19} \right)$$

Figure 3, GO Tool Formulation/Example
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A difference of 8.05 points (i.e., 11.37 China minus 3.32 Mexico = 8.05) between a possible China and Mexico supply solution, that (as the *Risk Factor* is a measure of the relative risks between the geographies) can be applied—as a percentage adder—to our Total Cost of Ownership calculations so a direct comparison between the options can be made.

The bottom-line: if the TCO between our China and Mexico example resulted in China being less than 8.05% cheaper on a *risk adjusted* basis than Mexico, then Mexico would be the more cost-effective option. If on the other hand, China turned out to be more than 8.05% cheaper than Mexico on a TCO basis, then China would be the better deal.

Outsourcing decisions are as complex as they are vitally important to corporate profitability, and the industry needed a simple and easy-to-use tool to accurately facilitate the integration of risk into the analysis of outsourcing solutions worldwide,

Additionally, the GO Tool will work with any outsourcing strategy but as is usually true with complex issues—it is not one-size fits all. Therefore the tool has been formatted so both the *Resources* and *Expectations* tables can be adjusted to comprehend unique situations and requirements.

There is even a provision in the GO Tool to allow for adjustments in the *Capabilities* table, but this must be done with considerable care and consultation

(i.e. while it's true some suppliers are better than others, everyone seems to think *their* supplier, or potential supplier, are better than all the rest! Unfortunately this usually isn't the case – hence the comment on care and consultation.)

Intrigued? Want to learn more about Global Pricing, TCO, the GO Tool, and the True Cost of Outsourcing Model?

Then [join us on June 6th, 2006 in San Diego](#), California, to learn the complete True Cost of Outsourcing Model in our new Version 10, *Global Pricing Workshop*. To register for this session or any other TFI workshop, click on the link above, or contact Jennifer Read at JRead@TechForecasters.com, 1-623-293-6985.

We think Laplace would approve.