Every day, as we make decisions we face risks. We question ourselves: **Am I making the right decision or the wrong one?** And in the business world, decisions can be even riskier than those in your personal life. That next decision you make could affect not just you but also your coworkers, your customers, your suppliers—even the fate of your company.

Consider a midsize manufacturing company that provides smart glass—glass that changes colors or level of transparency in response to applied voltage. Known more formally as electrochromic glass, this technology is increasingly being adopted by construction companies that use it to automatically regulate the flow of sunlight, and thus heat, into buildings.

As its business has taken off, the manufacturing company has begun examining its growth options and making choices that will affect its future. The company needs help making decisions about:

- Moving into new markets
- Investing in acquisition
- Maintaining business as usual

### Risks associated with moving into a new market

The company’s executives see a new opportunity for its technology in the automotive industry by developing a way for the capability to be applied towards auto-dimming solutions for windshields. But becoming an automotive supplier involves addressing several big questions—where to start, how to choose an entry strategy, how to assess the strength of the opportunity, and whether to pursue commercial or military sales.

### What’s the best place to start?

In exploring the possibilities for this new market, the manufacturer’s executives should start by working with a third party to certify that the company’s technology can be used within the automotive industry. Doing so raises several more questions. Are there regulations governing the use of such technology? Does its technology pass the internal benchmarks set by original equipment manufacturers (OEMS) for durability, performance, safety, and cost? Does it have any research on similar technologies being used in the automotive industry? If so, how long did it take for full adoption to occur? What were issues and track record were associated with that technology? What are the costs associated with entering the automotive market and what are the projected revenues? Which vehicle manufacturers adopted the technology, and which did not—and why? Once its technology can be proven as valid for the automotive industry, the company can move on to the next step, entering the market.

### What’s the entry strategy?

Long before the manufacturing company can start selling its products to a new market, it must face a daunting task that carries considerable risk: deciding on an entry strategy. Making the wrong decision can have serious implications for the company’s future, and it must weigh its options carefully.

For such a company, becoming a direct supplier to automotive OEMs involves several significant barriers to entry. First, the company would need to open facilities near its OEMs’
assembly plants, which are located around the world. But that’s just one risk. Another is the onerous terms that automotive OEMs often establish for their suppliers, sometime even requiring that the technology used in suppliers’ products become the OEMs’ intellectual property. Also, if a component such as a windshield is part of a recall, the supplier may be responsible for the cost of that recall. In short, the manufacturer would incur quite a bit of risk just by trying to get started in the automotive industry.

For that reason, the company should find a windshield supplier with which to partner. It could license its technology to the supplier and establish a royalty relationship in which it receives a portion of revenue from the sale of each windshield. The supplier, in turn, would continue to absorb the risk from warranties or recall issues. This agreement might produce less revenue, but it would also generate much less risk for the manufacturer.

Are things as good as they seem?
The manufacturer’s executives see opportunity in the automotive industry. After all, given the increasing demand forecast for lightweight passenger vehicles, the demand for glass windshields looks promising, as shown in the chart below.

![Global light vehicle sales forecast](chart)

Source: IHS Automotive Global Light Vehicle Sales Summary, July 2013

But looks can be deceiving.

What happens if car manufacturers finally crack the code on implementing a high-quality plastic windshield? Given the importance of lightweighting to automotive OEMs, a move to lighter-weight plastics is a distinct possibility. And what about autonomous cars, such as the one Google is testing? Once such technology becomes mainstream, manufacturers wouldn’t even need windshields. Instead, they might move to models with smaller porthole-like windows.

Why commercial? Why not sell to the military?
Automotive OEMs aren’t the only option when it comes to selling windshields. There’s also the military, though—as aerospace and defense (A&D) experts lay out in the figure below—becoming a military supplier comes with its share of both pros and cons.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tr>
<td>Once you become a supplier, you can expect steady paychecks from what are often large-volume sales…</td>
<td>…if you are resilient enough to wait until programs get funded.</td>
</tr>
<tr>
<td>Demand is increasing for replacement parts such as windshields.</td>
<td>If you thought commercial car manufacturers’ engineering requirements were onerous, wait until you see the military’s.</td>
</tr>
<tr>
<td>The government will pay for significant innovation and may fund contractors’ R&amp;D efforts.</td>
<td>Procurement regulations and budget constraints mean that a military supplier’s profit margins will be tighter.</td>
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Key Takeaway:
When considering whether or not to move into a new market it’s not enough just to have a good product. To avoid risky mistakes, you also need critical information and insight into technical and regulatory realities, far-reaching demand trends, and potential operational and economic issues.
Risks associated with making an investment
Another growth option is to make an investment or acquisition. In this case, the company is considering acquiring an Indonesian chemical manufacturer that focuses on the manufacture of polyvinyl alcohol (PVOH), which has a wide variety of applications. The acquisition looks promising, but the company must weigh the full range of risks, looking at investment timing and geopolitical stability in the country and region targeted for investment.

Is it the right time to invest in Indonesia?
The short answer: It’s probably never been a better time. Benefiting from a stable government, Indonesia has steadily improved its economic performance. President Susilo Bambang Yudhoyono is facing the end of his second and final term in office, and he’s likely to take the opportunity to concentrate on strengthening the economy. Related opportunities for growth may come from infrastructure improvements, development of the country’s financial and natural resources, and the introduction of policies to attract more foreign investment.

Of course, despite a trend of increasing safety, security remains a concern in Indonesia. As one recent report states, “New Islamist splinter groups have reduced capability and have a different target set to their predecessors. They are likely to target security forces, bars, nightclubs, and shops selling alcohol and music in Cirebon, Poso, Ambon, Makassar, and the urban areas of Java. Militants in Papua are likely to target migrant workers at Freeport-McMoRan’s Grasberg in road ambushes. The Navy will probably search vessels suspected of illegally transporting sand, timber, or immigrants. Land disputes related to mining, biocultivation, and construction are likely to motivate protests. Foreigners in Aceh and Papua face an elevated threat of kidnap for ransom.”

Overall country risk rating for Indonesia, 1998-2013
Source: IHS Global Insight and IHS Foresight. Overall country risk rating is based on cumulative rating of political, economic, legal, tax, operational, and security risks.

Is it the right time to invest in PVOH production?
Aside from any issues with location, the manufacturing company must address the nature of the investment itself. It’s very familiar with PVOH, an intermediate in the production of polyvinyl butyral (PVB) resin—which the manufacturer in turn uses as part of its electrochromic windows. Windshield manufacturers also use PVB as a laminate in safety glass. Demand for PVOH is expected to rise around the world, driven in part by growing demand for PVB:
- In China, demand is forecast to grow at an average annual rate of 5.8% from 2012 to 2017.
- In the United States, demand is projected to be 2.3% per year from 2012 to 2017.
- In Western Europe, demand is forecast to grow at an average annual rate of 3.6% from 2012 to 2017.
- In Japan, demand is expected to increase about 3.5% annually from 2012 to 2017.

Key Takeaway:
It is critical both to take a closer look at the risks associated with doing business in a new country and to explore forecasted demand. In this example, the company’s executives are in a good position to make a critical investment decision.
Risks associated with doing business as usual
In business as in life, doing nothing also involves some level of risk. Even if the company chooses to not make any major changes to its business at this point, its executives must still keep a close eye on the risks that come with doing business in today’s risky world. The catch: Some of those risks may not be so obvious. Following are two examples of the less-than-obvious risks it may face, both driven by today’s incredibly complex and interconnected global business landscape.

What does wind energy have to do with a glass manufacturer’s supply chain?
A lot, it seems.

Our company’s electrochromic window technology utilizes rare earth metals. While rare earths aren’t truly rare, their thin disbursement throughout the earth’s crust means that they aren’t always found in economically exploitable concentrations. This has led to only a handful of suppliers willing to remain in the market, consolidating supply power among a select few—and leading to price spikes as demand for these minerals has risen in recent years. (China is the big player here, dominating both rare earth production and consumption.)

At first glance, it seems like the supply issues associated with rare earths will only continue to worsen, given the growing demand for the minerals. The biggest end use for rare earth metals is magnets, the demand for which some analysts expect to grow from 24% in 2012 to 29% in 2017. And the biggest driver of that growth? Installations of offshore wind turbines that use magnet motors. This rising demand for a supply-constrained material would seem to lead directly to rising prices, thus threatening the bottom line.

But that’s only part of the story. As prices have risen and governments have grown concerned about China’s hold on this strategic market, more countries are moving into the rare earths mining business. In 2012, the total world capacity for rare earths was estimated at 141,000 metric tons (measured in terms of total contained rare earth oxides), but recent research indicates that by 2017 there could be 350,000 metric tons of capacity. As other countries bring rare earth mining operations online, China’s slice of the pie will be trimmed, reducing the world’s dependence on a single major supplier. The result of this greater supply? Lower prices.

Of course, a happy ending isn’t guaranteed; there are still risks. Expected mining operations may not come online as planned, or mining companies may choose to focus on other minerals if prices drop too much for the difficult-to-produce rare earths. If either of those scenarios occurs, the manufacturer could once again be dealing with rare earths supply constraints.
And what do mobile phones have to do with glass manufacturers?
They may not be directly linked, but in a business environment where contract manufacturers serve a diverse range of clients, the fate of one can have a significant impact on the fortunes of the other.

The manufacturing company uses a contract manufacturer to produce the devices that control its windows. Relying on an outside manufacturer to manage control box production helps it focus on its core competency, making electrochromic glass. So outsourcing seemed like a good decision, until recently.

Over the last few years, many contract manufacturers have faced uncertain times as some of their customers have scaled back production. Those providing services to smartphone OEMs have been hit particularly hard. Mobile handset OEMs are scaling back on use of contract manufacturers as they move toward production of smartphones, which many prefer to handle in-house. Forecasts indicate that in-house OEM handset production will soon make up the majority of the market, with a 72.1% share.5

As contract manufacturers struggle, their existing customers could suffer as well. What happens if the company’s manufacturing partner loses enough customers that it has to declare bankruptcy and shut its doors? What will be the impact on the manufacturer’s supply chain and customers?

In conclusion: It’s a risky world
Risks abound in today’s business world. Some are easy to see and measure: Will demand increase or decrease for this product? Will your competition get to market before you do? Will your new factory open on time? But such obvious factors aren’t the only risks you need to worry about. Very real risks can at first glance seem disassociated from your business. Maybe they’re buried in forthcoming legislation in another country where you don’t operate. Maybe they hinge on a weather system halfway around the world from your office, or on the fate of a partner deep in your supply chain. As they make critical decisions, companies need to weigh all these risks, whether doing so involves evaluating new markets or new investment opportunities—or just trying to keep a current business model running as efficiently as possible. As our examples illustrate, only by viewing a complete picture of all possible risks—operational, economic, political, legal, tax, regulatory, environmental, and security—can companies make sense of them, and so make informed decisions about the issues that matter most.

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To learn more about how IHS can help you mitigate your risks, visit www.ihs.com

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Key Takeaway:
It’s important to keep an eye on both obvious and less obvious risks. Even though scenarios such as these seem at first glance far removed from the company’s core business, a little digging indicates that they could have a significant impact on the company’s bottom line.