How can Canada **Take Back Manufacturing.**

The Canadian economy is in reset mode with the world-wide price drop in oil and declining international demand devastating the export orientated resource sectors. This has forced a related correction in the previously resource escalated Canadian dollar back to and maybe even below reasonable price parity. We are also experiencing instability in our saturated service and retail sectors. This duress has promoted some econo-political attention back to the long term hollowed out manufacturing sectors as a possible area of growth and support for a now fragile Canadian economy.

Many of us in manufacturing are perplexed that anyone can truly believe that a manufacturing sector that has been under-funded by indifferent policies and out-priced with an over inflated exchange rate for decades can just bounce back and do much to assist in the very short term.

However it’s worth a review of how our manufacturing sectors can respond to these new economic conditions and what success factors they need to consider to Take Back Manufacturing.

*Global or local manufacturing..... That is the question?*

Globalized manufacturing has been a strong and increasing feature of global trade in the last 30 years, and has become an accepted and important part of doing business. North American businesses and consumers have strongly embraced globalized manufacturing with lower cost products being available due to manufacturing being performed offshore in Low Cost Countries.

Unfortunately this globalizing trend was undertaken with much uncontrolled herd behaviour that drove us toward an over-extended and perhaps now in some cases unsustainable globalized manufacturing state with as many believe much damage to our local businesses and long term economic imbalance and stability.

But recently, a new awareness and major updates to some business cost parameters are significantly affecting the direction of the globalized manufacturing journey, and they will both resonate and amplify a move in certain cases back toward a more localized and “closer to the customer” form of manufacturing..... It’s called **Reshoring**...

*Reshoring using a balanced sourcing strategy.*

**Reshoring** is an initiative that forces a fresh thought process to discuss and manage a more informed **Balanced Sourcing Strategy** which looks at the total ownership cost for all manufacturing and supply chain activities, including the optimization of internal and external manufacturing processes and the supply of components, materials, services and capital to better support the business.

Reshoring is happening in many manufacturing sectors with some declaring that the great globalized manufacturing transient is now in some sectors coming to an end. Those long supply chains needing much inventory and babysitting of the so-called low-cost labor jurisdictions are "out", with much shorter and more sustainable supply chains that put manufacturing and other value-adding processes closer to the customer (while also helping the planet with more sustainable business practices) are now “in”.

Many corporations are “re-running the numbers” using these balanced sourcing models and redefining their supply chains. They now recognize from experience gained the hard way in the last few decades that there are many hidden costs and issues in supporting a remote and emerging supply chain. In general, and at the very least, local manufacturing in a stable mature economy is now considered “a firm option” that should be considered when compared to off-shore production in what was called a LCC (Low Cost Country).
Many large manufacturing organizations are already redeploying capital toward more regionalized forms of manufacturing and more agile supply chains, and are redeploying capital to reshoring from more remote supply locations to be close to the customer.

It’s now also clear that when we that globalized (offshore) manufacturing is far less sustainable with the realization that the off-shoring activity is getting much more expensive for many reasons. This includes increased transport costs, as well as double digit wage escalation in China which will also become a common trend in other emerging economies due to growth and better prosperity expectations.

Local manufacturing also offers more stability and the ability to innovate at home more effectively and being closer to the customer has added inventory and demand flexibility advantages.

Based on all of the above 40% of Global corporations are now undertaking reshoring for the next generation of products in the USA to be closer to those consumers, and a further 40% of them are evaluating such a journey.

A focus on only an off-shore based manufacturing strategy is way out of date based on this new and huge reshoring direction.

**Balanced Sourcing** raises what appear obvious questions, but ones that have not been well utilized by business in the past.

These questions now being revisited are giving some different answers in terms of the sourcing directions when coupled with the latest cost data available for globalized manufacturing based on the globalized manufacturing experience of the last 2 decades.

Such questions as:

- Do you fully understand the benefits and total costs of going offshore or out-sourcing versus Local costs?
- Is your sourcing journey in balance with a strategic advantage, not just reaction to local cost or market price pressure?
- Have you balanced your local capability and capitalization with that available offshore?
- Have you correctly selected which products/services to offshore and how they integrate with your internal or local capacity?
- Have you fully assessed the risks to your customer delivery/quality and intellectual property?
- Do you know where the political business world is heading and what changes are evolving?
- What is the strategic opportunity to offer your products and services to this offshore market?
- Have you selected the supply base you will use?

This thought process for considering the act of reshoring and the application of Balanced Sourcing will be central to our brief in this paper.....

What we strongly suggest be undertaken by each business is a far more calculated and controlled balanced sourcing activity to make the correct source decisions to thrive in and better serve this global environment.

We need our industries and business leaders to fully understand how to evaluate reshoring as an option and ensure they “run the numbers” to see if they are approaching the tipping point for reshoring and apply Balanced Sourcing as a strategic outlook.

**The Pros and Cons of offshore versus local versus manufacturing**

Many pros and cons for offshore versus localized manufacturing exist for any business and the current business trends require a revisit of some balanced source factors that will drive a change in sourcing and manufacturing site direction.

These balanced sourcing factors and trends listed below will shape the decision each business will make with regards to where to site manufacturing and the shape of the supply chain, and such factors will need to be prioritized depending on how they attract cost in the specific business and its sector situation.

Almost all these trends point toward the need to revisit the option of a far more localized supply base closer to the customer because this trend is approaching a general tipping point of local competitiveness for a certain range of products and sectors. This scenario at the very least strongly suggests the need for critical review by most corporations and
individual business to revisit the current position and any new direction to take based on specific market, product mix and any specific sector issues.

The most realistic way to use such a list of factors will be to include these factors correctly calibrated for a specific business into a comparative balanced sourcing model. The building of such a model and "running the numbers" on a product by product basis on an ongoing basis will differentiate the heads-up leaders from the blind followers in this much more marginal and transitional game of global sourcing.

Some unknowns and risks will always exist in these trends and those quoted are the best information we have gathered so far and many reliable sources now exist and are updated on a continuous basis.

Each business must establish sources, baseline the numbers and then track ongoing trends using the factors mentioned below.

**Balanced Sourcing factor trends/scorecard for Onshore (NAFTA based manufacturing) versus Off-shore manufacturing.**

*For Brevity we will use China as the Baseline mature emerging economy with an existing capable manufacturing base*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Trending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offshore/Emerging market Opportunity</td>
<td>perceived high</td>
<td>Lower</td>
<td>Less Opportunity</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore factory cost differential</td>
<td>Competitive</td>
<td>Escalating</td>
<td>Less Competitive</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore lab rate differential</td>
<td>Low</td>
<td>Escalating</td>
<td>Trending Higher</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore material price differential</td>
<td>Advantage</td>
<td>Less advantage</td>
<td>No Advantage</td>
<td>None</td>
</tr>
<tr>
<td>LCC exchange rate</td>
<td>Stable</td>
<td>Mild Escalating</td>
<td>Unknown</td>
<td>None</td>
</tr>
<tr>
<td>Increased oil and transport costs</td>
<td>Stable</td>
<td>Increasing</td>
<td>Remaining High</td>
<td>Onshore</td>
</tr>
<tr>
<td>Import Duty</td>
<td>Stable</td>
<td>Stable</td>
<td>Unknown</td>
<td>None</td>
</tr>
<tr>
<td>Offshore Logistics support costs</td>
<td>Unknown</td>
<td>Increasing</td>
<td>Remaining High</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore Support costs</td>
<td>Unknown</td>
<td>Increasing</td>
<td>Remaining High</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore Cost of Poor Quality</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore Safety costs (Some sectors)</td>
<td>Unknown</td>
<td>Increasing</td>
<td>Remain High</td>
<td>Onshore</td>
</tr>
<tr>
<td>Offshore Inventory costs</td>
<td>Low</td>
<td>Low</td>
<td>Potential Increase</td>
<td>Onshore</td>
</tr>
<tr>
<td>Interest rate normalization (Increase)</td>
<td>None</td>
<td>None</td>
<td>Unknown</td>
<td>None/Onshore</td>
</tr>
<tr>
<td>Offshore communications/travel costs</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Complex supply chain costs</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Proximity to Customer Sensitivity</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Co-location with Product development</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Clustered and capable supply base</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>None</td>
</tr>
<tr>
<td>Capital re-investment mobility</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>None</td>
</tr>
<tr>
<td>Ease of doing business (Local)</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>IP protection issues</td>
<td>Unknown</td>
<td>Significant</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
<tr>
<td>Political pressure to go Local</td>
<td>None</td>
<td>Growing</td>
<td>Significant</td>
<td>Onshore</td>
</tr>
</tbody>
</table>

Explanation:

This list has 4 kinds of factors: Economic/Business cost/Commerical and Political. Some will be driven by the effectiveness of the specific business and some by the local regional situation. The challenge is to understand all the options and make the correct directional decisions for the future of the particular business.

In general, most of the factors are rapidly trending toward an onshore advantage but the specific tipping points will depend on the industry sector and specific business situation and will vary across the product range.

Also the improved realization of these hidden costs using such a balanced source modeling is further resetting the tipping point toward an onshore solution. Many of these cost factors were "unknown" or were not considered in past sourcing decisions and are now weighting these new tipping point calculations.

In summary, most mature LCC labor is getting comparatively more expensive, and the real cost of transportation and logistics to globalize manufacturing have escalated. Plus, other factors as mentioned are now being better valued in the balanced source cost equation.

So for a business shipping a lot of large product where the % cost of transportation is high and where labor contribution within the product is mid to low then the cost numbers will show a strong reshoring trend. GE “white products” are a good
example as are heavy plant and industrial equipment such as John Deere and Caterpillar who are all looking to reshore next generation products.

This reshore logic can be strongly modified by the impact of capital investment direction, for example the consumer level electronics industry which would be a reshore candidate on low level labor content has low capital re-investment mobility as it is fully invested in high capital levels of facility and manufacturing processes offshore and to redeploy or repeat that capital investment to support reshoring for a substantial part of the supply chain activity is mainly prohibitive, although some token reshoring of lower capital intensive final integration and test of more complex and technologically advanced products may take place in that industry.

The manufacturing site that has local raw material or a strong and well clustered supply base may also create an advantageous tipping point. If that is coupled with a close to customer requirement then many other factors need not be as competitive. This has been the situation with some food industry manufacturers, but this is changing within the NAFTA region where solid trucking networks can extend the definition of “close to customer”.

**The environmental impact of Globalized manufacturing**

The high pollution levels in China and the recent deaths due to poor safety in South-Asian factories also point to perhaps future global policies with much higher financial consequences. This may advantage mature economies that typically have developed better controls over pollution and safety due to social balance than an early emerging economy who may treat pollution and safety rules secondary to output and short term economics. These safety litigation costs are now raising concerns and are getting added to some cost models when operating such long supply chains in some early emerging economic sectors. The increase in corporate responsibility for sustainable supply chains is now placing more emphasis on better management and optimization so avoiding the impact of such long and less well controlled supply chains.

These are long range projections, but many environmentalists are now raising fact based concerns about the need to improve or limit the extremely large carbon footprint of container ships. Although much improved, global supply chains are intrinsically more wasteful versus localized supply chains and at the time of writing this report container ships are by far the largest pollution source on the planet and may be exposed to future international policies through some form of carbon levies or taxation that could drive transportation costs upward and make performing activities associated with manufacturing closer to the customer much more attractive and cost effective than continuing to move products through long distance transportation and export/importation processes.

**Reshoring in Canada?**

In the past the Canadian economic environment did not stack up at all well as a manufacturing destination against most global competition or local NAFTA competitors, the USA and Mexico.

This was based on the inflated Canadian dollar and past and present day Canadian government policy as it related to the manufacturing sectors.

The Canadian dollar before its recent downward adjustment has been a significant ongoing concern for most manufacturing entities in Canada and although some business sectors had found ways to adjust they have remained at a global disadvantage using a total loaded manufacturing cost model.

The firm argument from the manufacturing sectors is that the increasing dollar strength seen in the last decade was not achieved by productivity, which would have been an acceptable reason for a stronger dollar, but to the contrary we have seen a weakening of our overall productivity due to the under-utilization of our diversified and smaller scale production assets in most sectors in Canada.

Further impact of the high Canadian currency was an adverse effect on recapitalization per industry in Canada which has been in steady decline with corporations taking stock of the total manufacturing loaded costs being projected and firmly deploying most new capital and plants south of the border or into Mexico for any new manufacturing capacity.

Significant data is now available on this issue with a focus on the Auto industry, where it shows Canada to be attracting significantly less than its capex quota with an outlook of a further 25% reduction in the automotive manufacturing sector GDP within a decade.

This de-capitalization trend has continued over the last decade even with a low cost investment rate, a competitive corporate tax rate and many government supported business entitlement programs within the Canadian economic environment.
The very recent Canadian dollar downward reset is good news for manufacturing competitiveness and in theory should assist with the halt of this decline in investment in local industry, but experts are far from sure if the Canadian dollar will remain at this sub price parity value, and some are doubtful if its current position as a competitive currency for manufacturing will be stable enough to be believed by corporations and business investors to reverse past de-investment trends and attract the redeployment of capital that we will need in most manufacturing sectors to Take Back Manufacturing.

However, in situations where a strong highly capable manufacturing capacity already exists or localized natural resources with low transport costs can advantage the local Canadian manufacturing site or where support to local customers or product development can be leveraged, then these Canadian sectors will now sustain better.

But where duplicate manufacturing sites within NAFTA exist with equivalent spare capacity and where no raw material or product delivery supply chain differentiation or other factor leverage exist, then these will be candidates to relocate to the US or Mexico who region to region still offer a significant lower operating cost.

Also, we still suffer from a large penalty in Ontario in terms of non-competitive cost of electrical energy foot-print.

Further, the current transportation cost disadvantage due to the US/Canada border has increased over the last 15 years due to enhanced and additional security at the border, also transportation organizations have taken advantage of the high Canadian dollar and it remains to be seen if these sticky prices will decline.

The score card below shows the Canada Manufacturing advantage/disadvantage versus other NAFTA countries for reshoring on a number of major factors.

**Canada Manufacturing advantage/disadvantage versus other NAFTA countries.**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Trending</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDN/US Loaded Factory Cost comparison</td>
<td>Par</td>
<td>Higher</td>
<td>Delta</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>CDN/US labor rate differential</td>
<td>High</td>
<td>Higher</td>
<td>Major Delta</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>CDN Energy cost competitiveness</td>
<td>Low</td>
<td>Low</td>
<td>Lower</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Corp tax rate advantage</td>
<td>Lower</td>
<td>Lower</td>
<td>Unknown</td>
<td>Advantaged?</td>
</tr>
<tr>
<td>Cdn $ exchange rate value</td>
<td>OK</td>
<td>Improved</td>
<td>Unknown</td>
<td>Advantaged</td>
</tr>
<tr>
<td>Local technical skill level</td>
<td>Higher</td>
<td>High</td>
<td>Declining</td>
<td>Advantaged</td>
</tr>
<tr>
<td>Local Tech skill availability</td>
<td>Ok</td>
<td>Ok</td>
<td>Declining</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Local region Financial support</td>
<td>Weak</td>
<td>Weaker</td>
<td>Unknown</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Cross border transportation</td>
<td>Par</td>
<td>Weaker</td>
<td>Major Delta</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Mexico as a Manufacturing Partner</td>
<td>Low</td>
<td>Strong</td>
<td>Stronger</td>
<td>Opportunity</td>
</tr>
<tr>
<td>Mexico as a Manufacturing Competitor</td>
<td>Low</td>
<td>Strong</td>
<td>Stronger</td>
<td>Threat</td>
</tr>
</tbody>
</table>

Some outliers and exceptions will always exist, but studies performed on various sector manufacturing cost comparisons find that this is the predominant cost performance outlook.

**The current Canadian challenges for manufacturers**

Canadian manufacturers continue to strongly participate in the global economy but currently still face some significant challenges.

In general, Canadian balanced sourcing costs are still far from the same reshoring tipping point currently being enjoyed by some parts of the US and Mexico such that any reshoring decisions involving recapitalization and investment in new facilities will be more directed toward those more cost competitive locations. Further, Mexico is a strong consumer growth market opportunity in some sectors and the future close to customer preference will further drive an interest in Mexico as a strong choice as a manufacturing destination.

It is too early to comment on the Canada/Euro trade deal recently announced by the Canadian government… Any final and ratified changes in tariffs and trade factors will need to be loaded into a balanced sourcing model for that specific market, but in general from a manufacturing source decision point of view any businesses operating in similar economies with near equal factory costs will be making manufacturing source decisions based more on the logic of transportation cost and close to customer advantage.

The scorecard below show general competitive directions for each sector and as mentioned the specific business situation can only be determined by using a balanced sourcing model and developing directional business plans.
However it does provide some information on the implications for Canadian based manufacturers and investors.

Scorecard of key industry sectors in Canada and how they relate to this competitive NAFTA environment and reshoring.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Trending (Can)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Competitive</td>
<td>Non-competitive</td>
<td>relocate US/Mexico</td>
<td>Decline</td>
</tr>
<tr>
<td>Aerospace</td>
<td>Competitive</td>
<td>Competitive</td>
<td>sustain</td>
<td>Maintained</td>
</tr>
<tr>
<td>Consumer products</td>
<td>Offshored</td>
<td>Offshored</td>
<td>Reshore US/Mexico</td>
<td>No change</td>
</tr>
<tr>
<td>Electronics consumer</td>
<td>Offshored</td>
<td>Declined</td>
<td>Declined</td>
<td>No change</td>
</tr>
<tr>
<td>Electronics Hi tech</td>
<td>partial offshore</td>
<td>further offshore</td>
<td>Declined</td>
<td>Niche growth only</td>
</tr>
<tr>
<td>Food</td>
<td>Competitive</td>
<td>Semi offshored</td>
<td>Reshore possible</td>
<td>Recovery possible</td>
</tr>
<tr>
<td>Pharmaceutical</td>
<td>Competitive</td>
<td>semi offshored</td>
<td>semi offshored</td>
<td>maintained</td>
</tr>
<tr>
<td>Furniture</td>
<td>Offshored</td>
<td>Partial Reshore</td>
<td>Reshore US/Mexico</td>
<td>No change</td>
</tr>
<tr>
<td>Clothes and apparel</td>
<td>Offshored</td>
<td>Partial Reshore</td>
<td>Reshore US/Mexico</td>
<td>No change</td>
</tr>
<tr>
<td>Medical equipment/devices</td>
<td>Local</td>
<td>local</td>
<td>relocate US/Mexico</td>
<td>decline</td>
</tr>
<tr>
<td>Resource extraction equipment</td>
<td>local</td>
<td>local</td>
<td>relocate US/Mexico</td>
<td>decline</td>
</tr>
<tr>
<td>Heavy plant and equipment</td>
<td>Local</td>
<td>partial offshore</td>
<td>reshore US/Mexico</td>
<td>No change</td>
</tr>
<tr>
<td>Natural wood products</td>
<td>local</td>
<td>partial offshore</td>
<td>reshore possible</td>
<td>Recovery possible</td>
</tr>
</tbody>
</table>

In general the challenges for Canadian manufacturers will be to understand the disadvantages listed and make a plan to mitigate them or beat the average industry performance displayed here.

The opportunities are to start to view the “local” environment as including the US and Mexico and study how to leverage on this opportunity by adopting a more NAFTA wide profile in terms of market and manufacturing base.

It still remains to be seen how a NAFTA based manufacturing base will compete for a global customer. The implication of the reshoring trend is that manufacturing everywhere will support more local customers and supply chains will become far shorter.

Therefore the trend will be a preference to franchise manufacturing in the customer’s home market to support that market and will mean global manufacturing partnerships will be the strategic advantage.

Think NAFTA as the local market.

The best opportunities are by starting to view the “local” environment as including the US and Mexico and study how to leverage on this opportunity by adopting a more NAFTA wide profile in terms of market and manufacturing base.

In general, Canadian balanced sourcing costs are far from the same reshoring tipping point currently being enjoyed by the USA and Mexico such that any reshoring decisions involving recapitalization and investment in new facilities will be more directed toward those more cost competitive locations. Further, Mexico is a strong consumer growth market opportunity in some sectors and the future close to customer preference will further drive an interest in Mexico as a strong choice as a manufacturing destination.

Canadian business must look at the broader picture of where to manufacture and develop supply chains within NAFTA.

Manufacturing Skill shortage threat…

Due to reluctance to engage in the reinvestment in manufacturing at all levels of our society we now have businesses defining critical skill shortages within some sectors of manufacturing. This situation may be impacting some business performance, yet based on high average national unemployment levels we have governmental restrictive practices on using immigration and foreign manpower as a short term solution.

The permanent long term solutions of a formal industrial based manpower re-training plan and an integrated industrial apprenticeship system are still being debated between federal and provincial authorities.

We must all encourage government to facilitate the undertaking of these initiatives to provide the skills as well as solve our significantly high youth unemployment if we are to Take Back Manufacturing.

Business “Success factors” to maintain a competitive localized manufacturing capability
Some of the business “success factors” are:

Using the balanced sourcing model to calibrate on natural economic based strengths and weaknesses and positioning the business supply chain accordingly.

Strong business process productivity improvement goals and focused capital and technology investments may sway the balanced sourcing numbers significantly.

Strong and Rapid product development using co-location of development and manufacturing functions will be a strong factor in the balanced sourcing model. This co-located site location may also be determined by how close it is to the customer’s experts for knowledge transfer. Also a well-developed supply base organized in a close geographical cluster with the above may also drive the site location decisions.

Using solid automated business systems and enterprise planning tools as well as strong supply chain management that can look at the whole global opportunity will cement these success factors into a winning combination.

LEAN thinking is essential……

Typically Lean business thinking and sustained continuous improvement in all facets of the business tends to be a business cultural advantage and should breed not only strong operating performance, but also a more robust innovative environment that will attract capital and growth investment. This requires a very stable and visionary management capability and this is where strong business leadership can make the difference to the outcome.

There are three LEAN business strategies that should be followed…

1. Use lean thinking to eliminate the waste in the non-value-adding parts of the overall business process, and reach a simplified and much leaner version of the new business process.

This must apply to all parts of the business operation, including developing a supply base organized in a close geographical cluster that will feed local manufacturing and distribution loops.

This will require a rethink of the business processes and the facilities, systems and people factors that can be improved and better integrated. Therefore, this overall process of lean thinking must be at the top of the business planning agenda to strip out non-value-added process steps and associated waste.

2. Undertake a formal review of what new and emerging technology and science can be applied to this business model using innovation strategies.

This will also include a review of current and future product designs and how it may better leverage these technology application opportunities.

An organization with close-coupled product and process design teams and a slick new-product-introduction process should perform these tasks much better than those that do not have such cross-functional business teams operating naturally within the organization.

Also, if the market and product set requires strong and rapid product development then co-location of development and manufacturing functions will be a strong factor in the balanced sourcing model.

The site location may also be determined by how close it is to the customer’s experts for knowledge transfer.

Using the latest manufacturing technology and integrating this effectively with product innovation is a way to gain an edge.

For Canadian operations who have the ability to cross the tipping point using a boost in productivity this makes a lot of sense. The caution is that new technologies are very portable, transferable and have very short competitive time spans in the global market, and will not provide a long lasting competitive edge, and everything else in the balanced source model must also line up to provide a successful outcome.

3. Apply automation in all forms to the output of the two strategies above. Automate the latest technology into the remaining value-adding business processes to support the most advanced and integrated product set. This approach will possibly make the business the benchmark in the industry.

The individuals that can grapple with these three complementary strategies, stay current on the latest technology and
scientific trends, relate the output to the latest automation technologies and communicate and implement such strategies and continuous improvement plans inside an organization, will be the super heroes of the business world and will win the quest to Take Back Manufacturing.

Many businesses with world class scores in these types of activities and can integrate them together into a unified business improvement evolution plan will generate success factors that will drive the balanced sourcing decision.

Focus on Entitlement funding to leverage advantages

A further advantage is to leverage the "Entitlement funding". Including SRED and other grants as well as other government sponsored funds for improvements in manufacturing processes and workforce training and recruitment...

The integration of Technology development plans with local academic centers to attract COOP students and jointly undertake R&D projects is a further way to access funding and talent and new employees that can take the business to the next level.

The supply chain structure (local/onshore/offshore/Hybrid)

Canadian manufacturing exporters and investors will require a broader and overall NAFTA manufacturing strategy with a global market outlook.

The approach will be to develop and run the balanced sourcing model and depending on the sector consider a hybrid supply chain. In some cases setting up strategic partners in other locations within NAFTA will assist this strategy.

This may mean a close to customer site in Canada to support the local market from a product development point of view with some final product assembly and distribution to support custom needs from the customer base. Then a US or Mexico partner/s providing manufacturing and direct ship or indirect ship inside NAFTA to the customers who may be in the US or Canada and Mexico.

Some commodities that fall outside the reshoring tipping point may still be sourced offshore and direct shipped to the manufacturing site wherever it may be.

We anticipate that the Mexican market will be key to any future manufacturing hybrid strategy as it will be able to absorb and reshore a significant portion of the current offshore base of commodities over time as the manufacturing base in Mexico matures and develops, but this will have to be modeled and planned long term.

The small business dimension

The impact of outsourcing on our small and medium businesses has been huge, with significant decline in this size of business. The future goal of the small business will be to understand where the customers will be, and if practical join that localized cluster and capitalize on the trend at all levels to be closer to the customer.

This will mean learning how to leverage off of the broader sectors they occupy in terms of how the customer and supply chain functions and by embracing technology and know-how and attracting the needed skills. This will be an area of involvement that will generate visibility to be considered a strong player in the more localized and clustered supply base.

Learning how to operate in all 3 counties within NAFTA and how to approach this market will determine success, and this has traditionally been a challenge for a small business and this is an area where assistance should be obtained.

The business Toolkit for reshoring and beyond

The balanced sourcing journey will require an integrated and well supported toolkit for the business entities to flourish and be competitive.

Here is a list of some of the tools we will need to provide:

Business and industry based Awareness/Education/Training package on these new global trends and balanced sourcing.
Balanced sourcing modeling tool so each business can develop its own sourcing decision systems
Strong templates to install lean thinking and a continuous improvement system within a business
A roadmap to integrate all of the business processes with computerized tools to evolve to a computer integrated business state.

Provide simple and effective tools to innovate and commercialize the next generation of products

Provide technology transfer and trade partnering tools and systems (including IP management)

Tools to develop a local supply base with a regionalize directory for Business to Business relationship building.

Provide exposure and supporting database for the latest trends in manufacturing technology processes and methodologies.

Provide a sector organized industrial apprenticeship system to develop and update the skills and knowledge for a future workforce to support the future manufacturing capability.

**Summary and Outlook**

The real message of the reshoring situation is that the economic landscape is creating a strong need to review and better understand the balanced sourcing factors. This will mean that certain segments of manufacturing will move from globalized manufacturing centered in the next lowest cost country toward more regionalized manufacturing closer to customers in the best cost competitive locations within that customers trade zone or bloc.

Although the importing and exporting of physical products and components and materials from one trade zone to another will continue in some cases for quite some time to come, it’s fair to say that based on these trends the future global trade slogan may become “Future products will be transmitted more than transported”

This looks like a future vision some technologists share about where emerging additive manufacturing technologies using such devices as 3D printers will provide the dream of consumer level push button manufacturing in the same way we order coffee from a dispenser or download a movie…. It’s taking local manufacturing to the limit, but it does show a LEAN vision that we should start toward and the reshoring and balanced sourcing journey are the early new steps toward waste free customer focused manufacturing that is more sustainable in a world under pressure from environmental changes.

This may force the need to franchise or license new manufacturing centers in new markets across the globe to be closer to customers and avoid wasteful transportation through the use of more portable and transferable manufacturing technologies and better developed IP and technology transfer systems via global partnerships.

The challenge for the manufactures, exporters, investors and the many support agencies and groups will be to combine efforts to adjust to this future change and challenging trend and learn how to reinvigorate and in some cases reinstall local manufacturing capability that will be highly competitive.

We will need a well-coordinated and integrated team of experts and organizations to provide our businesses with such a toolkit. But we still see far too much fragmentation of effort for both planning and execution of support within the business and industry support groups within Canada.

We need to pool all our efforts and harmonize the many plans and initiatives if we are to move Canadian businesses forward effectively so that up- to-date information is made available so that the correct decisions are made by our businesses so they can thrive in this globalized economy yet meet the challenges of a more sustainable approach.

*Let’s Take Back Manufacturing for Canada.*

**Nigel Southway**

**TBM Advocate.**

**TAKE BACK MANUFACTURING**

* Dedicated to the restoration of our manufacturing sectors

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10th March 2015