
# A Longitudinal Study of New Product Development Capability in Generalist Australian Grass Roots Suppliers - An Insight into Innovation

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## Abstract

This paper reports on findings of a longitudinal study into generalist Australian grass roots suppliers innovation capability. Since the commencement of the study, the number of organisations reporting a new product development platforming strategy (defined as latent innovation capability) has fallen from a low starting point, to zero. "In an age of innovation", these grass roots organisations have stated that they have no appetite for new product development, preferring to focus on progressive cost, to the customer, reduction exercises.

This paper discusses the progress of this research, the emerging trends within both generalist Australian businesses and their leadership, and offers pointers to the future, where it is argued that, many organisations have now won the cost driven race to the bottom and are wondering where to run to next.

**Key Words**

New Product Development; Innovation Readiness; Grass Roots Supply Chain Systems

## Introduction

In 2009, the Australian Federal Government sponsored a program of work to investigate the innovation capability of core "grass roots" businesses. The core program of work consisted of business leaders completing a mature organisational diagnostic tool that delivered both a map and measure of innovation readiness across business sectors and geographical regions. The same diagnostic tool has continued to be used within businesses and a longitudinal data set has been compiled since the initial research. Unfortunately, the results from this longitudinal study paint a disappointing picture, where despite all efforts by Government to increase innovation capability, many general businesses that make up the foundation of the Australian supply base have no New Product Development (NPD) strategy, little appetite for innovation and indeed little internal expertise to take a new product to market.

This paper discusses a key trend, the fall in new product development strategy by grass roots generalist Australian organisations, recorded during the longitudinal research, and also offers some insight to a future, where it is argued that many organisations have now won their cost driven race to the bottom and are wondering where to run to next.

## Background

New Product Development (NPD) has increasingly contributed to business growth and success in various industries, from small food and beverage businesses, to high-tech ventures, and manufactures (Munawar, 2019; Deeds et al., 1999; Chung & Hsu, 2010). The body of literature since 2000 has suggested NPD strategy often aligns with business development, resources allocation and marketing demand, especially customer centricity (Fainschmidt et al., 2016; Biedenbach & Müller, 2012; Fish & Forrest, 2008). Hoyer et al. (2010) and Mahr et al. (2014) believe the more customer involvement in the innovation process of designing a new product, the better chance to gain market acceptance and therefore providing a greater possibility of maintain existing customers and acquire new customers.

More recent practices demonstrate a tendency where NPD can be well strategised and executed with better supplier and customer integration, a more sustainable supply chain, and business innovation processes in place (Fish, 2015). It has also been found that the involvement and commitment of top management and NPD team encourages internal and external knowledge transfer, including supplier and customer's collaboration and participation (Cui & Wu, 2016; Chang & Taylor, 2016).

## Method

The impetus for this research was driven from a series of focus groups that were involved initially in business regeneration programs in 2008. A subsequent program of work following the same diagnostic investigative protocol was sponsored by the Australian Federal Government in 2010 to support business development. The original Government sponsored program was promoted using a series of databases and advertisements in public electronic and print media. Participants were asked to pre-register for the regional focus group of their choice and as such, the sample set can be determined to be a random (or as near as is possible) representation of Australian business (Gibilisco, 2004). It should be noted that each business had their own supply chain system and was involved in at least one traditional customer supply network, and were therefore qualified to take part in the study (Boyer & Verma, 2010). For clarification, no start up or early stage businesses were included in this study. All participants were senior officers within their organisations and as such were involved in determining the strategic direction of their business, and also the strategic and operational intent of their supply chain and the customer acquisition and retention tactics. No qualifying participants were excluded from the study, however, there was, as would be expected, a natural filtering process from the initial contact stage to final participation (Bains, Fill & Page, 2008; Belch & Belch, 2007). The filtration ratio was 1:64 and is consistent with recognised protocols and it is therefore considered to be a robust sample within the scope of this study Craig and Douglas (2009).

## Rationale and Background of the Method

The diagnostics program that formed the body of this research was drawn from mature business modelling, analysis and due diligence methodologies. The diagnostics had been previously used successfully in many private business improvement consultation programs and supplier selection processes globally. In an effort to prove efficacy and relevance to the study from an Australian perspective, the diagnostics were first piloted in several smaller Australian focus groups including; regional industrial groups, chambers of commerce, and professional service focus groups prior to being incorporated into the study (Gill & Johnson, 2010). The study was conducted in an environment of an informed and inclusive network. In all cases, participants were provided with support and standard background information (Bryman & Bell, 2007).

It should be noted that this analysis is based on the basis that the focus groups provided an initial random sample of Australian business (i.e. supply base) and the mean averages of the collective focus groups is a representative and robust indicator of the generalist Australian supply base. There is no suggestion that there were not some world-class participants within these focus groups, however, it is the sample mean in this case that provides the core indicator of performance not selected “best (or indeed worst) in class” (Montgomery & Runger, 1999).

The total diagnostic tool was developed around five key themes, these were:

1. Analysing Strategic Positioning and Market Trends

2. Analysing Supply Networks, Supply Competency and Capability
3. Analysing the Potential Risk Inherent within Supply Networks
4. Analysing Technology
5. An Insight into Innovation

Point five, an Insight into Innovation, is considered in this paper. The significance being that Australia is currently ranked as 20th in the 2018 Global Innovation Index Report (Dutta et al., 2018). Whereas this ranking might appear to be an admirable position or indeed a significant improvement over the overall performance of Australia in earlier studies, performance in certain classifications of the Index illustrated an underlying risk and indeed a deep-seated constraint to innovation as a continuous process within Australian businesses. For example, Australia was ranked number 11 on the Innovation Input[1] and number 31 (Weakness) on the Innovation Output[2] sub-index, resulting in the Innovation Efficiency ratio[3] ranked at 76. In other words Australia's innovation enable activities are relatively sufficient and sophisticated enough, positioned in top 10 percent of the participant countries, however the innovation outcomes ranked low, resulting in poor efficiency ratio behind Vietnam: 16, and Armenia: 15. In another sub-pillar indicator: Innovation linkage[4]: Australia ranked 52 as a Weakness, where Ghana sit on 37 and Cambodia positioned 26 (Dutta et al., 2018).

Despite significant Federal and State Government initiatives, there is sufficient evidence to suggest that the individual key ranking indicators of Australia in the 2018 Global Innovation Index is unlikely to improve. For example McLeod (2017) provides some disturbing data suggesting that even within the Australian start up community (a subset of organisations that should be rife with market ready, innovative, customer and product solutions) only 70% of these organisations report having "some innovation" in products or services. McLeod also suggests that 97% of the organisations active in this community in 2017 would have either have either failed or exited the market by 2019.

Further data comes from the 2018 AMGC report that states: *"Australia is currently home to one of the most volatile manufacturing industries in the world (AMGC 2018)"*. This report claimed that as many as 33% of businesses would suffer considerable operational continuity issues if they were to lose one of their current customers. What is more, the report suggests that for 10% of these Australian businesses, the loss of a single customer would tip the balance and cause them to cease operations suggesting an innovative approach to customer en-

[1] The Innovation Input Sub-Index is comprised of five input pillars that capture elements of the national economy that enable innovative activities: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication.

[2] The Innovation Output Sub-Index provides information about outputs that are the results of innovative activities within the economy. There are two output pillars: (6) Knowledge and technology outputs and (7) Creative outputs.

[3] The Innovation Efficiency Ratio is the ratio of the Output Sub-Index score over the Input Sub-Index score. It shows how much innovation output a given country is getting for its inputs.

[4] Innovation linkage includes: linkages with University / Industry research collaboration; State of Cluster development; GERD financed by aboard; Joint venture and strategic alliance deals; Patent families filed in at least two offices.

gagement perhaps through a process of active New Product Development (NPD) is no longer a desirable augmentation to an organisations strategy, but rather an imperative for organisational survival. It is risky to keep seeing NPD as an in-house stage-gating project-based practice, since businesses operate in a dynamic supply networks (Li et al., 2014). Various activities from various partners orchestrate in an integrated NPD process (Wlazlak, 2018) in order to maintain customer base and development business opportunities. Cusumano et al. (2015) and Zhang et al. (2016) suggested manufacturers differentiate and innovate products through a "Development of combined product-service network", and offer customer-centric or industry-specific solutions to nurture manufacturers and clients relationship.

The AMGC 2018 reports suggests that robust strategies to increase the resilience of these organisations can include:

1. Technical leadership
2. Flexible customer engagement models
3. Diverse product offerings

Point three points once again to the connection of a customer centric product offering and within the context of volatile markets noted above, and the imperative of a New Product Development strategy that is aligned closely to the customer being essential for organisational longevity.

**Context of "Grass Roots Suppliers"**

Most supply chain research is conducted around the focal nodes and their interaction or dominance with tier one and tier two suppliers (Jaber & Goyal, 2009; Carter & Liane Easton, 2011). Studies that do cover wider supply chain systems typically focus on discipline or industry sectors (Oh et al., 2010; Touboulic & Walker, 2015; Durach et al., 2017). These studies are important because they develop acute knowledge specific to a type or classification, however, they seldom delve deeper into the origins of value creation or indeed the "mix and muddle" of suppliers deeper in the system. It is however these deeply imbedded suppliers who often influence the strategic direction of OEM's and sector specific supply chains simultaneously.

The limited research conducted on total supply chains and the inherent risk lower down the system where these generalist (grass roots) suppliers could be selling into many sectorial key players at the same time, is hidden and/or undervalued within the systems they typically operate within (Sarimveis, 2008; Styger, 2013). This is often due to supplier engagement strategies based around devolving lower tier management to tier one and tier two suppliers by the focal node (Saunders et al., 2015; Wilhelm et al., 2016). The invisibility of grass roots suppliers brings significant organisational risk. There is also a tendency for transactional relationships with little strategic alignment at this level, that in-turn increases the cloak of invisibility due to a status of insignificance being awarded to many grass roots suppliers in most supply chain systems. As a result, there is a tendency for those suppliers to fall into a subset of a cost driven and value reduced player status and once on this road little can be done to

turn an organisation around (Rossetti & Choi, 2005; Reuter et al., 2012; Wagner et al., 2019). Over time, a cancer develops where these suppliers begin to move more and more rapidly to the bottom of the value creation scale and eventually, a state develops where turbulence, fragmentation, reduced quality and reduced customer focus become normalised that invite competition and/or dominance from within or outside of typically well structured supply chain systems because of overall lack of end-to-end focus.

In parallel to the time this study was initially commenced, Hines (2006) described accurately the setting of cost focused strategic direction in supply chain management (this is illustrated in Figure 1.0). What has become apparent throughout our study is that at a given point in time, organisations face an event where a decision to value create through new product development, compared to organisational cost reduction, would change the economic wellbeing of both the grass roots supplier and their value chains (see Figure 2.0). To do this however, a change in strategic and operational capability is necessary that is based on a customer focus and the capability of an organisation to bring new products to market for their customers. This research has however discovered that this capability is sadly missing in many of the grass roots generalist suppliers of Australia who formed part of this study.

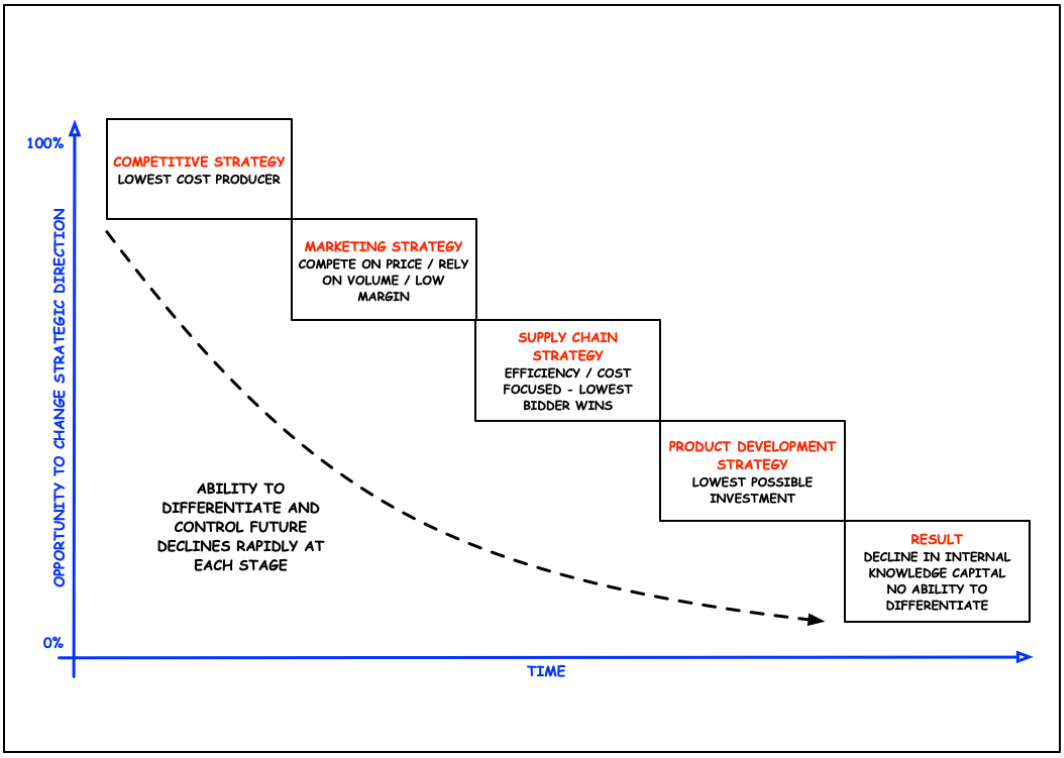


**Figure 1.0 - Illustration of a Cost Driven Strategy**
Source: Adapted Hines (2006)

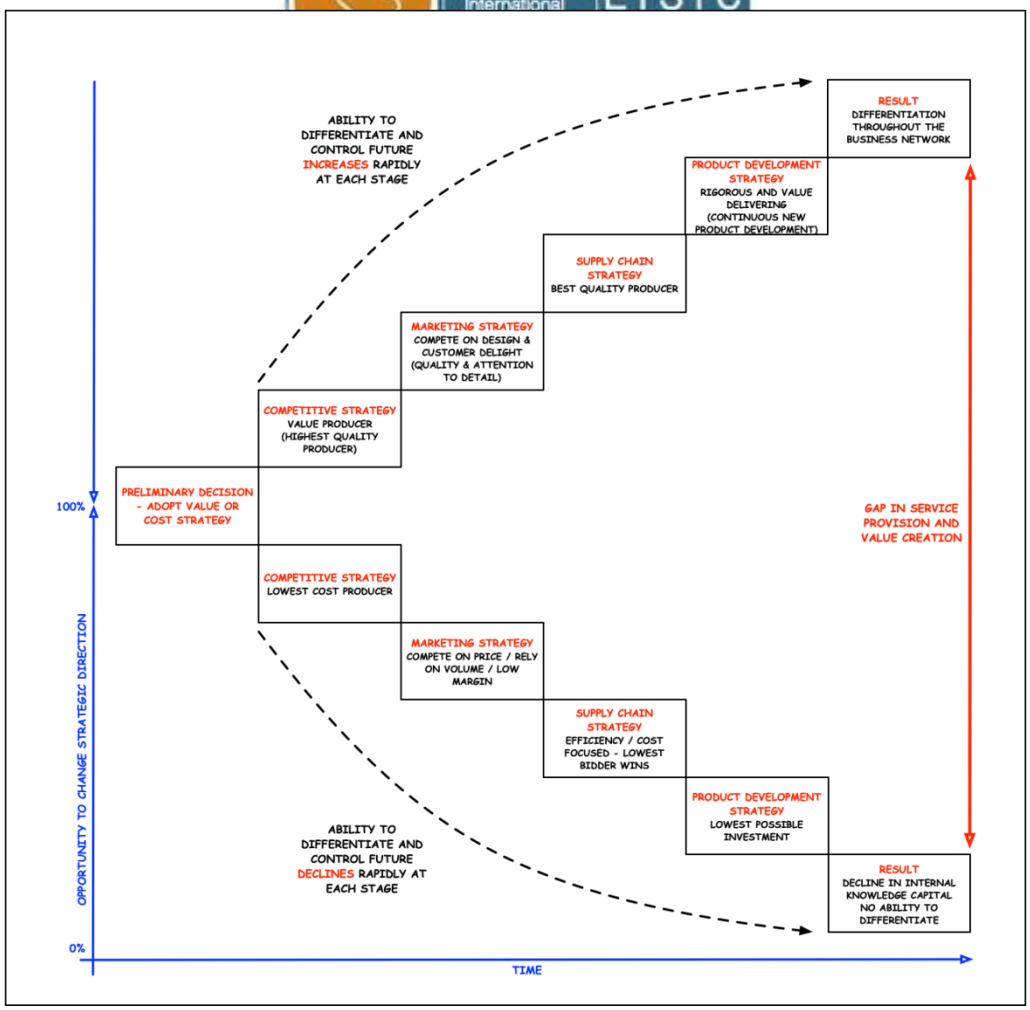


**Figure 2.0 - Illustration of a Comparison of Cost and Value Driven Strategy**
Source: Adapted Hines (2006)

## Results

Diagnostic 13 of the Audit addresses new product development strategy. This diagnostic is particularly important because it reflects an organisations ability to respond to current customer needs. This diagnostic is also a predictor of future capability and flow within a supply chain system, and therefore an indication of organisations ability to future proof itself and the supply chain that it belongs to. This diagnostic is an indicator of the measure of customer focus and growth potential, and it is based on the status, positioning and level of innovation within that organisations future products (i.e. it is evident within an organisations new product development strategy).

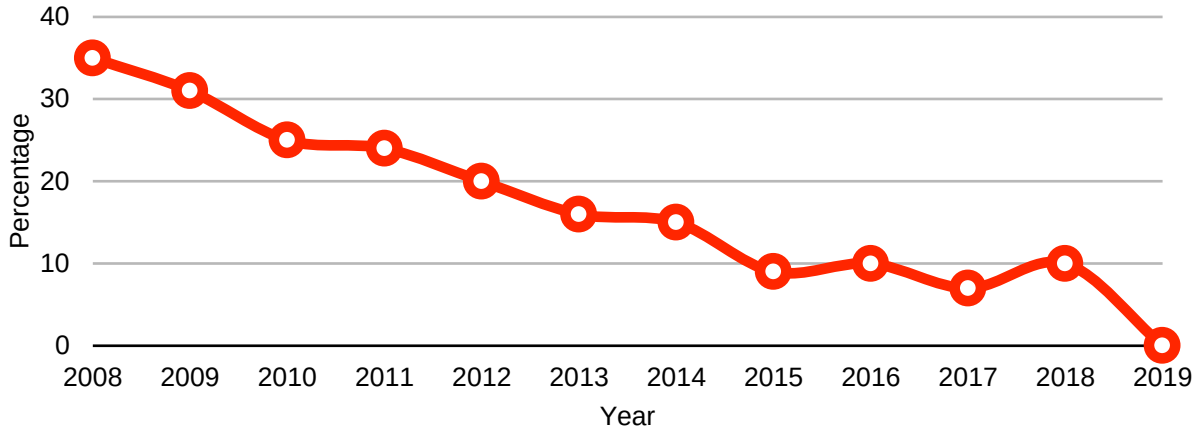


Figure 3.0 illustrates the decrease of the level of new product development strategies within grass roots generalist Australian organisations during the overall period of study, to a point where the leaders of these organisations have now returned a zero response against the terms of reference of the diagnostic.

**Figure 3.0 - Illustration of the Fall in New Product Development Strategy in Grass Roots Generalist Australian Suppliers**

On face value the original positive level of 35% would appear to have been reasonable bearing in mind the status of many of these organisations with supply chain systems and perhaps their contextual position a decade ago both in-terms of the market confusion during and immediately after the Global Financial Crisis and also the comparative lack of technology driven connectivity to markets and suppliers at that time. Whereas we would have accepted a dip in the level of capability reported at that time, and indeed at that time assumed 35% to be representative of that dip, we would have expected to see an increase over subsequent years and a figure in excess of that noted in 2008.

What appears to have occurred is that once organisations let go of their new product development capability (perhaps as a result of the turbulence in the market during and post the Global Financial Crisis the time), they then have been either unable or unwilling to reinstate that capability into their value creation systems. It may be argued, and indeed often is by the participants of the audit, that there are other ways to create value in an organisation (i.e. cost down strategies), however, this argument does not align with larger bodies of knowledge such as ISO 9001:2015 (ISO, 2015), that states clearly that:

*"The organisation shall establish, implement and maintain a design and development process that is appropriate to ensure the subsequent provision of products and services"*

This principal (8.3.1) demonstrates the importance of organisational strategies for new product development and also its alignment to customer focused organisations that can, via

external audit, demonstrate measurable impact on both the customer and their own organisation.

Over the period of this study, those companies who were not able to satisfy the terms of reference for this diagnostic, were able to be classified into four groups, these were:

1. Participants made an assumption that a policy on new product development was equal to having a specific new product development strategy, and indeed that the policy itself had more significance than the tangible evidence of throughput of new products within the supply chain system of the organisation.
2. Organisations relying on a single customer and therefore focusing all process development on cost down benefits for that customer (i.e. price driven strategy), rather than spreading organisational risks and developing multiple product offerings for a portfolio of customers.
3. Organisations relying on a vendors new product development output to be transferred into the supply chain system in the assumption that acting as a "middle man" or agent would be sustainable in an evermore cost focused, globally engaged customer base, that is as capable as the agent of sourcing a product locally and/or globally on a transactional basis.
4. Lack of new product development leadership capability within the organisation and lack of experience of getting a new product to market. Interestingly the leadership capability has remained at around 50% (see Figure 4.0) of respondents claiming no expertise in new product development leadership. This figure usually coexists, however, at the intersection of the other three points noted above, suggesting that even the 50% of respondents who do have product leadership experience block their ability to develop both a relevant strategy and subsequent viable new products by the inherent system that they operate within.

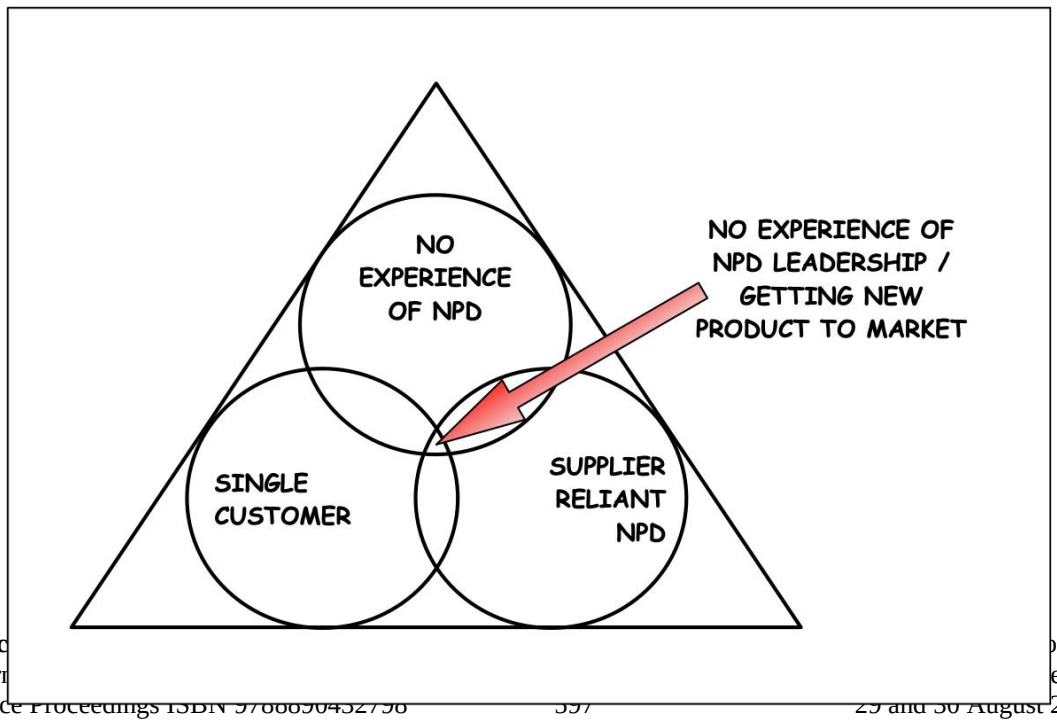

**Figure 4.0 - The Intersection of Constraints for New Product Development Strategy in Australian Grass Root Suppliers**

Other headline figures for 2019 derived from this study include:

- 53% of leaders of generalist Australian grass roots suppliers had no experience of getting a new product to market
- 8.2% of leaders of generalist Australian grass roots suppliers thought they were world class at getting a new product to market
- 9.1% of leaders of generalist Australian grass roots suppliers thought their innovation skills were world class
- 84% of leaders of generalist Australian grass roots suppliers claimed they needed "more innovation" within their organisations
- 77% of leaders of generalist Australian grass roots suppliers thought they could simply "order innovation in" (i.e. asking for a kilo of innovation)
- 91% of leaders of generalist Australian grass roots suppliers stated that their organisations "had no appetite" for new product development and introduction

## General Observations and Discussion

During the original discussions and later conversations with participant several themes emerged regarding the operational stance of these organisations. Typically most organisations appear to be transactional, taking on the role of adding value through a sourcing or procurement function (i.e. "middle man" organisations), albeit often with some level of technical competence within the supply chain system they operated within. More open markets, perhaps disrupted by technology and the internet, have forced a reduction in operational margins, and faced with this challenge, organisations have reached a decision point where they can either:

A. Change strategic direction to a more discriminating customer and provide a value centric product offering
B. Reduce margins further, via continued cost to the customer reduction tactics, in the hope a plateau will be found and/or customer loyalty retained

Many organisations appear to have taken option "B"; indeed there has been no evidence to suggest that instigating further value creation through new product development and introduction was ever considered past the "cost" to the organisation in a new product development phase. There also appears to be a culture within these organisations of an unchallengeable

axiom of "what is current in the market today, will remain current in the market tomorrow", and as such, many of these organisations are unable to align themselves with a change mentality. Although these organisations have demonstrated high levels of technological awareness, many typically misunderstand the overarching impact of technology and its creative and/or destructive potential on their operations. This is best evidenced in many of the organisational leaders was their ability to access instantly the product and price offerings of their competitors and/or suppliers, but often doubt that their products and prices are being monitored in the same way by their competitors and/or suppliers.

These findings are significant because wider cross-sectional, "grass roots" organisations are rarely collectively studied, typically because they are outside of the realm of a specific discipline based supply chain system research. As such, it is common to assume that the challenges identified within that supply chain system are unique to that system or the sector that the specific system operates within. However, in this case, we investigated the "grass roots" businesses of multiple supply chain systems, all of whom are integral to many supply sectors, and their various supply requirements. As such these findings suggest that the issues noted above are an endemic total supply chain problem where there has been a generational shift in leadership focus from that of the customer, evidenced by no proactive product development strategy, but rather to a cost cutting emphasis to satisfy immediate shareholder demands that jeopardise the medium to long-term health of the enterprise.

## Conclusion

It is important to contextualise the impact of this shift in strategy. As noted above ISO 9001:2015 (ISO, 2015), states a requirement for customer focused products and services and it also sets a requirement that organisations must prove to be compliant to this clause, via a process of independent external auditing, if the standard is to be met. We would suggest that many "grass roots" enterprises would fail such an audit and could therefore preclude themselves from participating in larger, value centric, supply chain systems and in so doing drive themselves further to the bottom as the choice supplier for many OEM led systems. In the context of Australian enterprises being typically small global players, any kind of long-term future appears to be at risk because of their future inability to access global supply chains due to compliance nonconformity issues with recognised industry standards (i.e. the rules apply more than ever and many of these organisations cannot comply with these rules).

The findings from this work point to a systems issue, where no matter how much external drive or incentive is available to grow innovation capability within a supply chain system, be it from the focal node, customer, or grass roots supplier, the entire system must be willing, waiting and wanting that change in capability and it must reconfigure to enable that change to impact and flow through, however, in this case, we are not seeing any evidence of this occurring.

In the free market economy only one company can be the cheapest and the rest will need to compete on delighting the customer. Organisations must therefore develop exciting products that suit specific current and specific future needs of those markets under contest. The find-

ings from this work suggest that enterprises are failing because they have not developed exciting products to suit their customers and have therefore ignored the customer for too long and thereby given the customer opportunity to explore other options. As harsh as this might appear, ongoing disruption in many Australian grass roots businesses is likely, because the leadership in many of the organisations under investigation typically lack the experience, capital and alignment to customers that, as a result, will catalyse further turbulence and ultimate fatigue and failure of many seemingly robust supply chain systems. Put simply, new product development is not on the RADA of a significant number of leaders of generalist grass roots organisations in Australia and as a result, significant opportunities in terms of achieving market dominance are open to any enterprise that is customer centric and competent at delivering products that will satisfy and delight the customers within those markets.

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