

**A report on the Economic
Competitiveness
of the
District of North
Vancouver**

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Introduction

The District of North Vancouver (DNV) is undertaking a process of data collection, analysis and public consultation to develop an understanding of the economic competitiveness of the District.

The elements that make an economy vibrant and prosperous today are fundamentally different from those of the past. There is growing recognition that local and regional clusters are a key to economic development. At the same time, in most economies, including BC, there is an ongoing transition from an economy based primarily on resources or manufacturing to one based on commercialization of services and intellectual property. In this new economy, concepts such as patents, copyrights, customer relationships, brand value, unique institutional designs, the value of future products and services and their structural capital (culture, systems and processes) are critically important to businesses in a region. Economic performance is determined by how effectively a region uses its comparative advantages to create and expand knowledge assets and convert them into economic value.

These new “economics of place” are driven by the ability to attract, retain and expand human capital and infrastructure and leverage them for economic and social development. In practical terms this means the ways that these assets, usually located in urban areas in the region, are mobilized and how knowledge which is created (often in universities) is transferred from the laboratory to the commercial sector.

Regional clusters

There are four propositions that link industrial clusters to regional economies. They are:

- regions are the fundamental units of the world economy (not nation-states)
- industrial clusters shape the economies of regions
- input advantages specific to a region are the basis of competitiveness of its clusters
- a collaborative culture creates economic advantage

Within these general statements there are several corollaries reflecting the relationships between regions and clusters. A region can be a subset of a nation-state or a municipality: it is merely a matter of scale. Each region has a portfolio of clusters – they

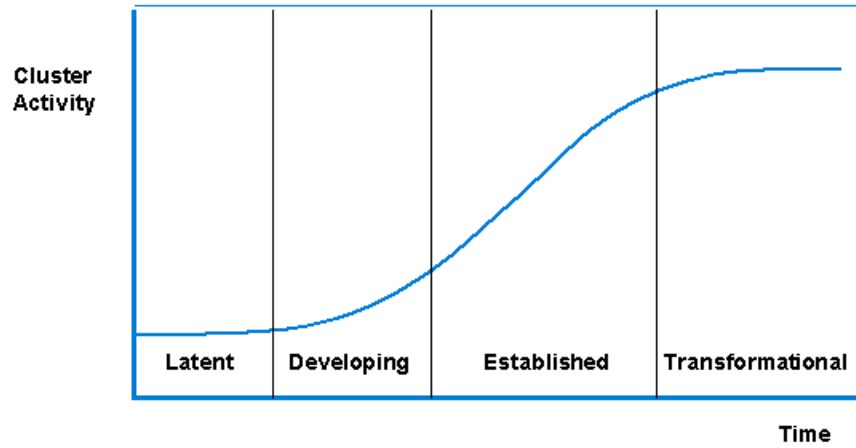
need not be directly related to each other. Clusters have a life cycle, from birth through growth, decay and finally disappearance.

The life of a cluster can be defined in terms of four stages: latent, developing, established, and transformation, as shown in Figure 1¹.

- Latent (or “seed”) – There are a number of firms and other actors that begin to cooperate around a core activity and realize common opportunities through their linkages.
- Developing – As new actors in the same or related activities emerge or are attracted to the region, new linkages develop. Formal or informal institutions for collaboration may appear, as may a label and common promotional activities for this industry in the region.
- Established – A certain critical mass is reached. Relations outside of the cluster are strengthened. There is an internal dynamic of new firm creation through start-ups, joint ventures, and spin-offs.
- Transformational – Clusters change with their markets, technologies, and processes. In order to survive, the cluster must avoid stagnation and decay. Transformation may be through changes in the products and methods, or into new clusters focused on other activities. These may be spin-offs within the region which start next-generation clusters (this is the real test of the continuity of a cluster).

Figure 1: Cluster Life Cycle

¹ Adapted from : Andersson, Thomas, Sylvia Schwaag Serger, Jens Sörvik, and Emily Wise Hansson, 2004. “*The Cluster Policies Whitebook*”. Malmö: International Organization for Knowledge Economy and Enterprise Development.



These stages, which can be thought of as a linear process, also link to each other in terms of economic potential and size:.

Table 1: Cluster evolution

	<i>Low economic potential</i>	<i>High economic potential</i>
<i>Have critical mass</i>	Transformational	Established
<i>Do not have critical mass</i>	Latent	Developing

Part of the challenge for understanding the economic competitiveness of DNV is to understand how the industrial clusters in DNV fit into this life cycle.

The BC experience

The results of academic research on clusters in BC suggest that innovation policy must not only focus on public support for the development of knowledge-intensive industries but also seek to support the development of other industries such as those based on BC's natural resources. This includes factors such as venture capital financing, human capital development and the factors that influence the quality of life in a city. Simply wanting to have, for example, a biotech cluster establish itself, or survive in the long run, is not enough. There are necessary and sufficient conditions for the establishment of any industrial cluster in a community, and these conditions differ from one industrial sector to another.

Cluster size is important, and there are critical factors, below which cluster activity will not ignite and be self-sustaining, such as population, regional domestic product, access to human resources from outside the region, transportation and communications infrastructure.

It is tempting to suggest that it is possible for an economy, such as BC, to evolve from being a resource-based economy to a service-based knowledge economy without having to pass through the intermediate stage of being an industrialized manufacturing-based economy. There are several high wage-rate, high educational attainment economies based on resource extraction. These economies are constantly being threatened by competition from lower wage rate (and usually lower educational attainment) resource-based economies. This is certainly the situation in BC, as exemplified by the forest products sector.

New knowledge-based clusters need not only be based on the manufacture and marketing of specific, physical products, but also on the development of intellectual property. Intellectual property is often first created in a public sector institution, before it is transferred to the private sector through the licencing of the base technologies to a start-up company. These companies develop intellectual property and bring it to the level where it is ready for production.

This process does not fit the traditional cluster model constructed by Michael Porter. The Porter model has two features which narrows the scope of the concept to a large manufacturing-based economy with domestically-based multinational companies. Porter’s model defines a cluster to be a vertically-integrated agglomeration of enterprises that have a strong domestic market and a significant competitive advantage in the global market. Research on knowledge-based clusters in BC suggests the cluster need not be a vertically-integrated agglomeration, but can be a loose horizontal association of enterprises that do not compete for market share. Given that the BC economy is in transition from a resource-based economy to a knowledge-based service economy, the revised model may be the successful model for our specific set of economic circumstances.

Analysis of StatCan data

Analysis of Statistics Canada 2001 data provides a broad brush view of the industrial activity in DNV and the skills of the residents of DNV, with comparisons to the City of North Vancouver, the GVRD and Canada as a whole. The 2001 Census collected information that allows the determination of place of employment, by industrial category and by occupation and place of residence, also by occupation and industry of employment. Table 2 summarizes how Statistics Canada aggregated its data by neighbourhoods in DNV.

Table 2: DNV neighbourhoods, by Census Tract

Neighbourhood	Census Tracts
Deep Cove	110.01 + 110.02 + 111.02
Maplewood	111.01 + 111.03
Lynn Valley	112 + 113 + 114 + 115
Grouse Mountain	116 + 117
Northgate	118
Capilano	119 + 120 + 121 + 122

In looking at the relative competitiveness of DNV compared to the rest of the GVRD, by industry, the data are aggregated to the totals for DNV as a whole, along with data for the GVRD and CN, also in their entirety. Statistics Canada data, by industry or occupation, are more accurate at higher levels of aggregation, and thus it is difficult to focus on specific industrial clusters. However the data can provide information about areas where

DNV or any other region has a relative advantage, as evidenced by a higher than average levels of employment, which is usually referred to as the “location quotient”, or LQ.

Hence the LQ for industry x in the DNV compared to the GVRD is:

$$LQ(x)_{DNV/GVRD} = \frac{\text{employment in industry } x \text{ in DNV} / \text{total employment in DNV}}{\text{employment in industry } x \text{ in GVRD} / \text{total employment in GVRD}}$$

Figures 2 through 5 show both the LQ of DNV to the GVRD and the LQ of the CNV compared to the GVRD. Not all industrial codes are shown. If either the DNV or CNV has a ratio greater than one, it indicates that it has some competitive advantage compared to the rest of the GVRD.

Figure 2 shows that DNV has LQs significantly greater than one in construction, transportation, educational services and the arts. This gives one map of the clusters of interest in DNV. There were a totals of 17,430 people employed in places of business in DNV in 2001.

Figure 2

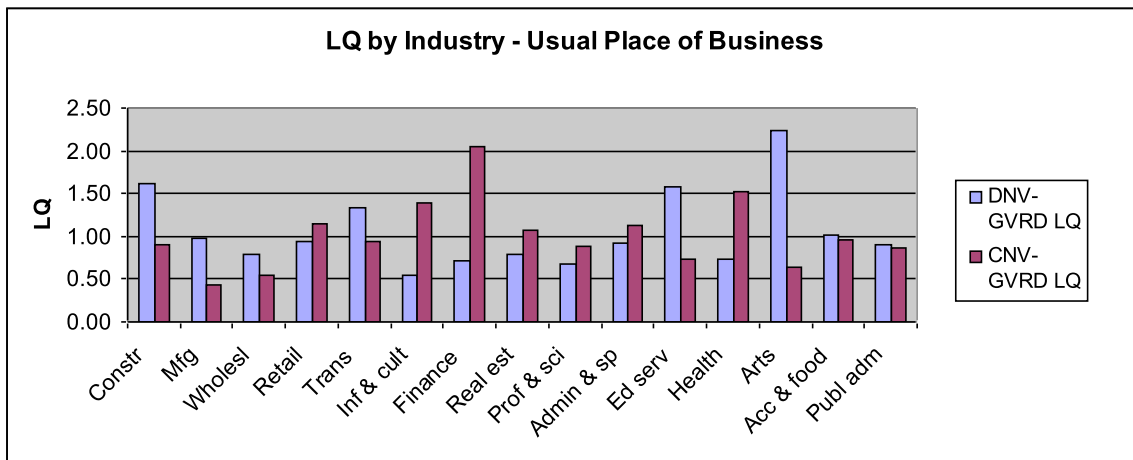


Figure 3 shows the data for the 5070 people who worked from home. This number, compared to total employment in DNV, shows that a much higher percentage of people work from home in DNV (23%) compared to the GVRD as a whole (8.9%) or CNV (8.9%). There are clearly a number of small home-based business sectors that enjoy a higher than average LQ in the DNV (but interestingly, not arts).

Figure 3

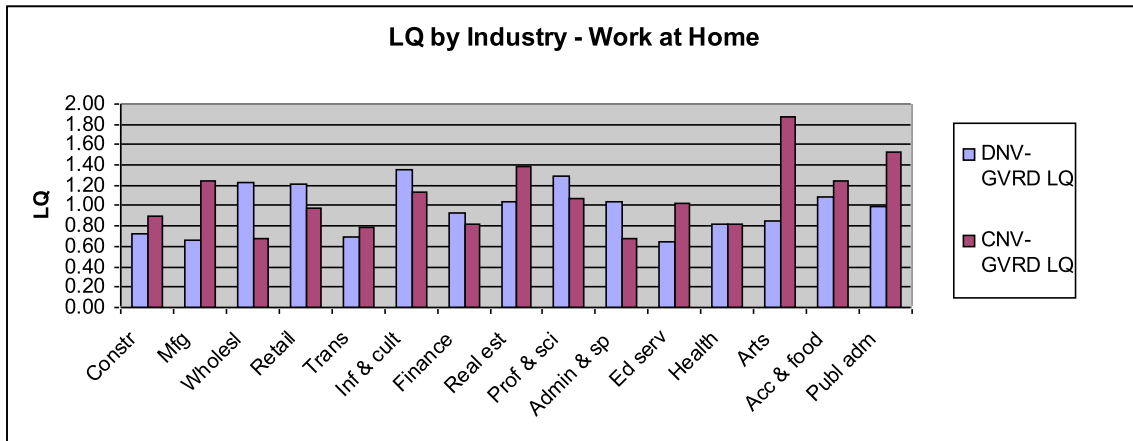
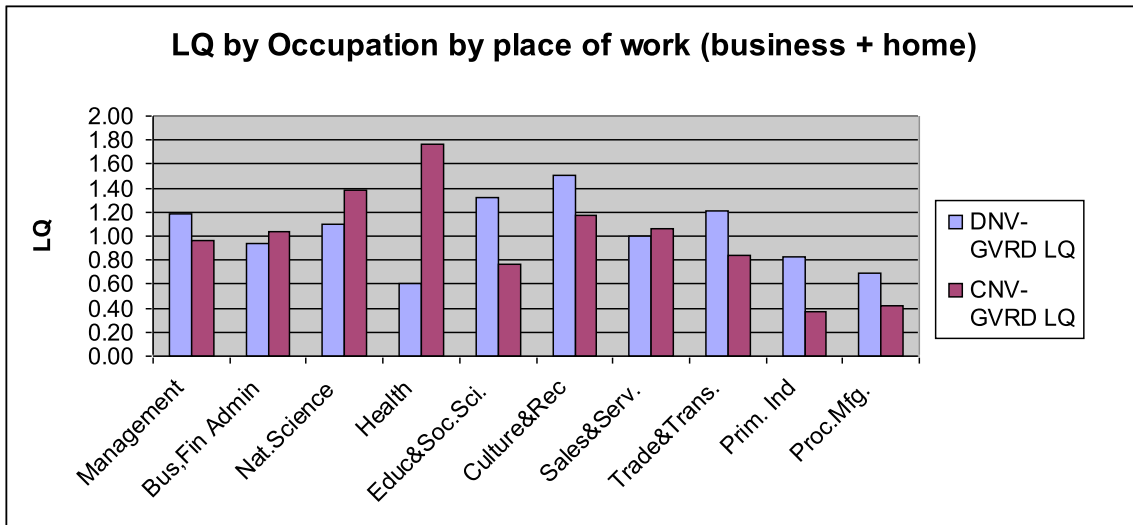


Figure 4 shows the LQs by occupation, rather than industry. As can be seen DNV enjoys substantial LQ advantages in management, education, culture and recreation and trade/transportation. The CNV advantage in health is, of course, due to the presence of the Lions Gate Hospital in CNV.

Figure 4



DNV is a bedroom community, so that it is reasonable to ask in what industries do the *residents* of DNV have a competitive advantage, even if their place of business is not in DNV. 45,620 residents of DNV are employed, but only 21,715 people are employed in DNV. Those employed in DNV are not all necessarily residents of DNV – there is considerable cross boundary commuting. As Figure 5 shows, DNV residents have significant LQ advantages in professional, scientific and artistic occupations.

Figure 5

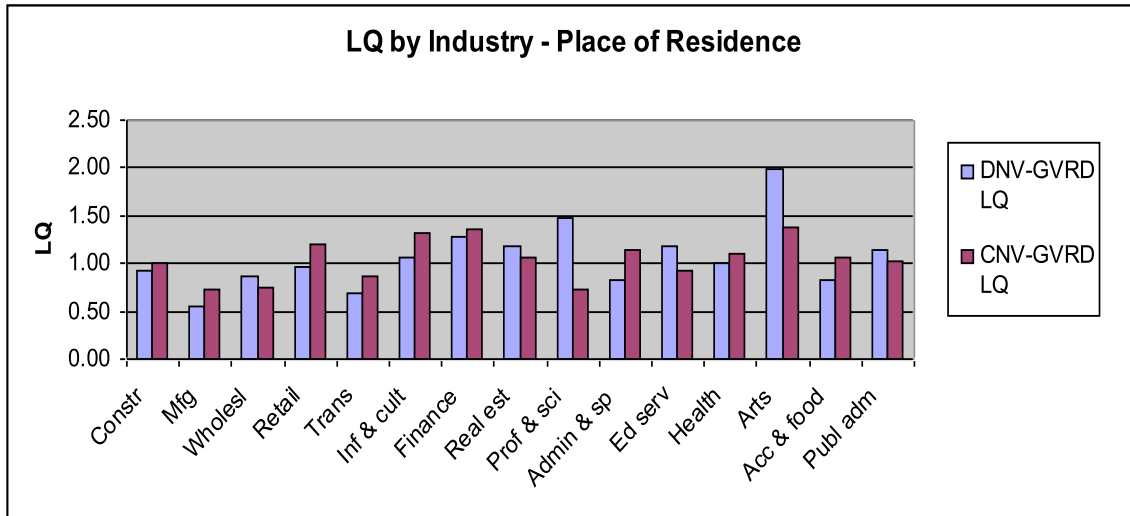


Table 3 summarizes those areas where DNV has a significant advantage over the rest of the GVRD (LQ > 1.5)

Table 3: LQs – DNV/GVRD

	DNV/GVRD LQs > 1.5
Industry – usual place of business (Figure 2)	Construction Educational services Arts
Industry – home based (Figure 3)	None. > 1.5 >1.2 = Wholesale Retail Information & cultural activities Professional & scientific activities
Occupation by place of business (Figure 4)	Education & social sciences Culture and recreation
Occupation by place of residence (Figure 5)	Professional & scientific activities Arts

Some simple observations may be drawn from these data:

- DNV has some areas of comparative advantage, both respect to the GVRD and the CNV.

- DNV has a very high percentage of home-based employment, more than double that for the GVRD
- DNV is clearly a “bedroom” community where the number of employed people living in DNV is twice the number of people actually working in DNV

Linkage between DNV and CNV

DNV, as noted above, is essentially a bedroom community. The CNV is home to many of the businesses and services used by residents of DNV (not the least of which is health services, since the Lion’s Gate Hospital, which services the entire North Shore is in CNV). Thus there is almost a symbiotic relationship between the two municipalities: one is the residential area, the other the business area. The previous figures each showed LQs for DNV and CNV compared to the GVRD – it is also possible to compare them to each other. Table 3 summarizes the relative advantages of DNV and CNV:

Table 4: LQs – DNV/GVRD vs CNV/GVRD

	DNV/GVRD LQ >> CNV/ GVRD LQ (DNV advantages)	CNV/GVRD LQ >> DNV/ GVRD LQ (CNV advantages)
Industry – usual place of business (Figure 2)	Construction Educational services Arts	Information & cultural activities Finance Health
Industry – home based (Figure 3) <i>It should be noted that the work at home population, as a percentage of total workforce of DNV is much higher than the GVRD average – CNV is approx the same as the GVRD)</i>	Wholesale Retail Information & cultural activities Professional & scientific activities	Real Estate Arts <i>(two others, Manufacturing and Public Administration are based on very small samples that are not significant)</i>
Occupation by place of business (Figure 4)	Education & social sciences Culture & recreation Trade & transport Primary manufacturing	Health Natural sciences & engineering
Occupation by place of residence (Figure 5)	Professional & scientific activities Arts Educational services	Retail Information & cultural activities

Clusters in DNV

Industrial clusters, while they may have a region-wide economic significance, are often concentrated in very small geographic areas. At a first glance, DNV has a number of industrial clusters of varying sizes that have been established over the years. We looked at the database of business licences. This database, along with the Statistics Canada data, suggest that business in DNV is concentrated as follows:

Transportation and logistics: this includes bulk transfer and stevedoring, warehousing and storage.

Manufacturing: “conventional” manufacturing, ranging from large scale chemicals and shipbuilding to small firms making custom products for the construction sector

Knowledge-based manufacturing and services : small scale high-tech manufacturing and consulting engineering; arts (but these businesses are not usually registered)

Film and multimedia: film production, preparation and provision of special equipment for the industry, special effects, computer animation services

Recreation and tourism: includes recreational ski and golf facilities, marinas, small boat building and servicing, retail stores focussing on recreational activities and tourist accommodation ranging from B&Bs to full scale hotels.

Post-secondary education: Primarily Capilano College; there at least a couple of private colleges and schools, but they are small. Capilano, of course, is not a “business” in the usual sense

Construction: there are a large number of small contracting firms, mainly directed at the retail housing market

Retail and personal services: This includes the retail stores and professional services required by the residents of DNV

Of these, the last two are “local” in scope, in that, while numerous and important, are based on the resident population. Their market is relatively constrained in terms of growth potential, and they have significant competition from similar goods and services providers on the North Shore in particular and the GVRD in general

Numbers of establishments from the business data licence data base review are shown below – we deliberately did not include day-to-day retail and service establishments (including doctors and dentists) that serve the resident population. These are solely numbers of establishments – it is clearly difficult, without a detailed census, to determine

the magnitude of each sector whether based on revenues or the number of employees. The aggregation is also somewhat arbitrary, in that some business licence classifications clearly are part of another (*e.g.* Vancouver Shipyards is part of the transportation sector, not “shipyards, not elsewhere classified”).

Transportation 12
 Manufacturing 70
 Knowledge-based manufacturing and services 18 plus 124 professional services
 Film and multimedia 15
 Recreation and tourism 60
 Post-secondary education 2
 Construction 174

There were very few home-based businesses in this sample, which is surprising given the percentage of home employment found by Statistics Canada. The answer likely lies in several causes – many of the workers may be in lines of business that we did capture in the clusters above and some may well be contract employees who contract to some other business either in DNV or elsewhere that has a business office.

Applying the life-cycle model (see the discussion earlier in this paper) to these clusters, one can classify them as follows:

Table 5: Characteristics of clusters

Latent	Developing	Established	Transformational
	Knowledge-based manufacturing & services (including arts)	Recreation & tourism	Transportation & logistics
		Film & multimedia	Construction
		Post-secondary education	Retail & personal services
		Manufacturing	

Table 6: Clustering within DNV by neighbourhood (where at least 25% of all DNV employment occurs):

Neighbourhood	Clusters by industry
Deep Cove	-
Maplewood	Construction Manufacturing Wholesale Information & Culture Educational services Public Administration
Lynn Valley	-
Grouse Mountain	Public Administration
Northgate	Construction Manufacturing Wholesale Retail Transportation Finance Professional & Scientific Accommodation & Food
Capilano	-

Mobility and sustainability of businesses

Some, but by no means all of the industries where DNV has a competitive advantage, are highly mobile. Film and multimedia, and to a lesser extent, construction, can easily move to localities if they think they can find a better working environment. But most DNV clusters are location dependent, and are unlikely to move. Transportation, manufacturing and post-secondary education all have large existing infrastructures, and recreation and tourism is dependent on the natural facilities that are abundant in DNV. Thus the issue of mobility may not be as large an issue, as for example, how to exploit DNV's particular locational advantages within the GVRD.

This leads directly to sustainability issues. DNV has locational advantages that make its industrial base sustainable in the long term. It has direct access to Burrard Inlet, and thus access for both commercial and recreational marine activities. This type of access is relatively limited, both within the GVRD, and along the west coast in general. It is also the gateway for all freight moving up Howe Sound to Whistle/Pemberton and the

Sunshine Coast. Every item used by the 2010 Olympics in Whistler will pass through DNV, from food and fuel, to champagne and the Olympic medals themselves(!)².

It also has direct year-round access to the wilderness, and near-wilderness of the Coastal Mountains. These mountains support recreational infrastructure, such as ski facilities, as well as truly sustainable outdoors recreation such as hiking and mountain biking, and are highly accessible. DNV has the topography to support major outdoors recreation literally within metres of roadways and other transportation (unlike most major alpine recreation areas – including Whistler – which are usually some distance from major cities and transportation hubs, such as international airports). Similarly retail and support services are close by, with greater choice and competition than is usually found in tourism economies (eg. Whistler).

These industries are not based on extractive or non-renewable resources. Although the major manufacturing facility, Canexco, provides inputs to a resource industry, it is likely that the wood fibre and pulp industry in BC will become more sustainable over time, and less dependent on unsustainable extractive wood harvesting.

A Strengths/Weaknesses/Opportunities/Threats (SWOT) Analysis

One way to review the options open for economic development in DNV is to carry out a brief SWOT analysis on each of the significant clusters identified above. The easiest way is to consider them in a grid (Table 7). This table is somewhat speculative. It would be better to use this table as a format for a planning workshop at which a number of experts from both within and without DNV could come together and debate the material in each cell of the table.

² Since no commercial traffic is supposed to use the Lions Gate Bridge, all supplies coming by road will cross over the Ironworkers Memorial Bridge and hence through DNV, and all rail freight will move through the Pemberton yards.

Table 7: A SWOT analysis of DNV industrial clusters

	Strengths	Weaknesses	Opportunities	Threats
<i>Developing</i>				
Knowledge-based manufacturing and services (including arts)	- attractive residential location for skilled labour - strong post-secondary institution (Capilano College)	- relative lack of small scale commercial manufacturing space - high land and labour costs	- develop links to other clusters with locational advantages (eg recreation, transportation)	- strong competition from rest of GVRD - CNV shares same strengths/weaknesses - large scale manufacturing will move to low wage rate countries
<i>Established</i>				
Recreation & tourism	- unequalled natural environment (both mountain and sea) - close proximity to transportation and retail services - highly sustainable	- lack of public image - competition from other similar areas near Vancouver - high land and labour costs	- use natural environment to develop niche market manufacturing and services to support the recreational activities (e.g. high-end skiing, mountain-biking and boating equipment) - development of training facilities based on environment (e.g. enhanced mountain rescue training)	- risk of features and facilities being seen as of purely local interest - indiscriminate development will reduce options for long term
Film & multimedia	- attractive residential location for skilled labour - strong post-secondary institution - good location for filming, without congestion found in Vancouver	- relative lack of small scale commercial space - high land and labour costs	- enhance links to strong programs at Capilano College - diversify skills base through development of more film & media support services	- strong competition from rest of GVRD - CNV shares same strengths/weaknesses - lower cost competition from outside Canada; US competition based on US\$ exchange rate
Post-secondary education	- attractive residential location for skilled labour - strong post-secondary institution	- competition from other post-secondary institutions in the GVRD	- link programs to other clusters with locational advantages (eg recreation, transportation) - encourage spin-off enterprises	- risk of institution being seen as of purely local importance - strong competition from institutions in rest of GVRD

Manufacturing	- attractive residential location for skilled labour	- high land and labour costs	- link product lines other clusters with locational advantages (eg recreation, transportation) - encourage spin-off enterprises	- strong competition from rest of GVRD - CNV shares same strengths/weaknesses - large scale manufacturing will move to low wage rate countries
Transformational				
Transportation & logistics	- geography provides gateway to Howe Sound, Sunshine Coast and Whistler	- high land and labour costs	- develop DNV as “Gateway to Howe Sound” - make use of 2010 Olympics to develop transportation infrastructure (eg Hydrogen Highway, passenger rail traffic)	- both freight and passenger will bypass DNV if direct links from airport, etc are developed to Howe Sound and beyond - Olympic boom and bust - no transition into new transportation-related industries
Construction	- current construction boom in GVRD	- high land and labour costs - competition from CNV technical services industries	- development of niche markets during current boom - link to skills developed at Capilano College	- Olympic boom and bust - no transition into new construction-related industries
Retail & personal services	- stable, high income, residential population	- high land and labour costs - competition from CNV	- development of niche markets, particularly related to recreation and tourism	- Olympic boom and bust - no transition into new construction-related industries

Flagship initiatives

The SWOT analysis brings to the fore some, not all, of the major clusters on which the DNV might wish to focus. For example, retail and personal services are strong, but their growth, is, for the most part, dependent on the growth of the population of DNV, and the degree to which DNV can get its residents to “shop locally”. All clusters could benefit from lower taxes, for example, but only a few will have a future that can be influenced by specific actions. Thus the municipality may wish to focus on a number of “flagship initiatives”.

These could include:

Recreation and tourism: As noted above DNV has all of the advantages (and few of the disadvantages) of many of the other recreational areas in BC (and further away). Thus the question is how to:

- develop existing recreational facilities
- start new facilities on undeveloped natural features (both mountainside and seaside)
- encourage the development of manufacturing and retail enterprises that are based on the recreational facilities (both niche manufacturers, and accommodation/hospitality enterprises)
- use the natural features as a basis for new or enhanced activities (such as enhancing the training element of the North Shore Rescue teams, to provide training for other jurisdictions)

Film and Multimedia: DNV is in competition with a number of areas within the GVRD. In order to attract or retain film and multimedia, it has to stand out among the competition. Thus

- determine DNV’s competitive advantages in film and multimedia (possibly natural locations for film, and a pleasant residential environment for home-based multimedia businesses)
- determine DNV’s niche in the overall GVRD film and multimedia cluster

Manufacturing: Everywhere in North America, manufacturing is in decline, with major competition coming from low wage rate countries. Yet there are some successes, where either the niche is too narrow to be open to a high-volume, low cost type of operation. Artisanal manufacturing, preferably with strong links to some other DNV strength could be a way in which this cluster transforms into the future. Thus :

- attraction and development of niche manufacturing that will support existing strong clusters, such as recreation and tourism, and residential home improvement

Transportation: The transportation cluster in DNV is well-defined by geography. The main elements cannot move – the incentive for DNV is to extract more value from the transportation systems as they move passengers and goods through DNV. Thus

- development of DNV as a transportation hub (particularly for the 2010 Olympic Games)
- development of DNV as a the “gateway” to Howe Sound, the Sunshine Coast, Whistler and beyond

Post-secondary education is also a strong cluster. Clearly DNV’s relationship with Capilano College (and indeed all of the post-secondary institutions in the GVRD) is crucial. As a public sector institution, Capilano College is not in the same category for development initiatives as the business sector, yet, there could be many ways to improve the economic and social well-being through closer cooperation with Capilano. Spin-off companies are often thought of as being the preserve of universities, but many of Capilano’s programs have generated spin-off enterprises. These should be analyzed with a view to determining what DNV could do to enhance the process. Coordination of cultural and recreational programs could enhance the competitiveness of DNV as a recreational and tourism destination.

High Technology Industries

Every regional government wishes to emulate the economies of Silicon Valley or Route 128 in Massachusetts. But few have had the benefits of the combination of heavy public spending (mainly on defence) and the presence of world-class research universities to help attract leading edge industries. In studies of clusters of innovative industries in Canada, researchers (including the author of this report) have identified a number of characteristics that are both necessary for the creation of high-tech clusters, and those conditions that are required for ongoing success:

Necessary features for start-up of a cluster:

- a research university, capable of spinning off companies
- public sector research labs (either university or government)
- supportive government agencies
- skilled human capital

Sufficient conditions for continued existence:

- at least one private firm with a global reach
- manufacturing and/or service support resources
- an active/interventionist public sector

In a municipality the size of DNV, it is unlikely that these conditions could be met. Indeed many of them can only occur at a higher level, such as at the level of the GVRD. It is likely DNV would be much more successful in attracting small, high-tech niche firms that can link to existing, competitive, clusters (such as high-tech equipment manufacturers associated with DNV recreational facilities).

The Arts Cluster

While the Statistics Canada data do not identify it exactly, there is a large amount of artistic activity going on in DNV. This ranges from professional film makers and their support services (often reported as information and cultural industries) through to individual artists and artisans (such as weavers) working part-time from their homes. In this instance, the presence of Capilano College, and its many highly rated arts programs (film, music, fabric arts) is a major factor in stimulating arts activities outside the academic world. There is likely a geographic clustering as well, though this may be difficult to illustrate since it is often difficult to identify the location of individual artists. Nevertheless, identification of a location such as Deep Bay as an arts district may well assist in enhancing the overall level of artistic activity in DNV.

Recommendations and Conclusions

DNV enjoys the benefits of region-wide infrastructure investments. These include the international airport, a safe harbour, transcontinental rail and highway links, a light rail transit system, world-class universities and hospitals. It also enjoys, along with the rest of the Lower Mainland and Vancouver Island a temperate climate and stunning scenery. Of specific competitive advantage to DNV is the fact that it sits astride the transcontinental highway and railways. DNV should also benefit from the investments associated with the 2010 Olympics. But DNV is a relatively artificial geographic construct. It completely surrounds another municipality (CNV); CNV is the business district for DNV. The CNV also shares the same locational advantages as DNV. Thus, any discussion of the economic development of DNV has to include some discussion of the economic development of CNV.

In the “old economy” economic development by governments took the form of job creation , and with that attraction on new firms to their jurisdiction. The attraction process was usually a mix of tax incentives, infrastructure development and marketing.

In the “new” economy, the focus must be on higher quality jobs, rather than necessarily more jobs, and thus on more highly skilled workers. This means that implementation can no longer be simply focussed on the businesses the District wishes to attract, but also on the people it wishes to attract and retain. It also means that the District must focus on its existing competitive advantages to draw both the individuals and their potential employers in. The District cannot decide, for example, to focus on building a biotechnology cluster – there is simply no competitive advantage for DNV over any other municipality in the GVRD or in North America. But there are clusters – recreation being an example – where DNV has considerable competitive advantage.

The overall trend in industrialized economies, and indeed in the GVRD and DNV, is to move away from resource-based industries and labour-intensive manufacturing industries towards industries whose competitive advantage rests on their acquisition and maintenance of human capital. High-tech knowledge-based industries are the clearest example of this, but many other industries rely more heavily on the skills of their labour force than they do on their physical investments. Hence DNV’s over-arching objective should be to foster and retain human capital. There is ample evidence that human capital is a highly mobile asset and that one of the greatest roles a government can play is to provide an environment favourable to the attraction and retention of human capital..

Two major failings can also be seen from this analysis. There are few (if any) firms that could fall into the latent or developing categories of clusters. At the same time there are a number of “transforming” clusters, which, unless they reinvent themselves will slide slowly downhill in terms of economic importance in DNV and the GVRD in general. The DNV is strong in the “established” clusters. These clusters should be based on new clusters, by combining their activities with firms from the latent or developing categories, and on firms from the transforming clusters – again by combining their strengths.

Some Next Steps

- the SWOT analysis needs to be refined. This should be done through a workshop involving stakeholders from DNV (business, Capilano College) and DNV staff.
- possible areas for the development of high technology manufacturing and services needs to be pursued, in the context of specific niches associated with existing competitive clusters such as the film industry and recreational industries. This would include liaison with Capilano College to ensure that the skills and competencies within the Capilano faculty can be brought to bear on developing niche companies, including spin-offs from Capilano.
- DNV may wish to carry out a study (quickly, since time is limited) of the possibility of capitalizing on the transportation requirements for the 2010 Olympics, and the creation of a transportation gateway for the Howe Sound region.

- stakeholders should be called to together by DNV to develop an arts strategy, perhaps with the assistance of the Creative City project