

A Research Report on

Gujarat Model of Entrepreneurial Innovation: A Study of Surat Diamond Industry

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Chapter : 1 The Research Overview

1.1 Introduction:

This research forms a part of research on Gujarat model of innovation and has been carried out as part of EU-India Cross Cultural innovation network project.

Gujarat model of entrepreneurial innovation is developed on the basis of innovative behaviour at the grass root level displayed by small entrepreneurs and entrepreneurial orientations typical of culture of Gujarat, which resulted such innovation. Gems & jewellery is one of the five industries selected from Gujarat, which has displayed great innovation at small enterprise level.

Gems & jewellery industry is second largest foreign exchange earner in India and concentrated in south Gujarat with number of small scale units engaged in diamond processing, doing innovations locally to serve 80% of world's diamond market.

1.2 Research Objectives:

- 1.2.1 To study the Gems & jewellery industry and identify key characteristics
- 1.2.2 To identify innovations made by the entrepreneurs in the diamond processing industry
- 1.2.3 To study Innovation orientation, entrepreneurial orientation and develop model describing Pioneering – Innovating behaviour of the entrepreneurs of Gujarat in Diamond processing industry.

1.3 Research Methodology:

A year long research is divided into two sub researches: Exploratory & Conclusive

1.3.1 Exploratory Research Design:

(a) Literature survey:

Extensive literature survey was carried out to get insight into the Gems & Jewellery Industry in India, Surat Cluster of Diamond industry, its structure, growth and characteristics. Literature survey also gave broad idea of industry organization innovations in Surat cluster of Diamond Industry.

Various sources of secondary data used are:

- Prism (Gems & Jewellery Export Promotion Council, Mumbai),
- Diamond World (International Journal House, Jaipur),
- Diamond Samrajya (Surat Diamond Association, Surat),
- Diamond Handbook of Surat (Gems & Jewellery Information Center, Jaipur)
- Saket Industrial Digest (Ahmedabad),
- Business Magazines
- Books

(b) Experience survey:

In-depth personal interviews of experts with a non-structured questionnaire method was undertaken of the following experts:

- Director, Indian Diamond Institute, Surat;
- Director, Gujarat Diamond Training Institute, Ahmedabad;
- Chief Editor, Diamond Samrajya, Surat;
- President, Gujarat Chamber of Commerce & Industry, Surat
- Chairman, Gems & Jewellery Export Promotion Council, Mumbai

1.3.2 Conclusive Research Design:

(a) Story building:

Personal interviews, Company record & literature, Published information were used to develop stories/cases.

40 units were identified as sample for data collection. Samples were selected on judgmental basis from Diamond processing industry in south Gujarat – Surat, Navsari, Vyara districts. Local experts and Industry Association office bearers were asked to identify units, which were highly Pioneering – Innovative on their judgment. 40 cases were compiled on the information collected out of which 36 were included in the analysis. Eligibility criterion to include a case was that the case should contain information about at least 5 decisions, which fall into at least major areas of enterprise creation and management. List of enterprises contacted is given vide Annexure 4.

Data collection instrument was structured questionnaire with open-ended questions as shown in Annexure 5. Personal interviews allowed probe and collection of information, which was quite difficult to gather because of limited comprehensibility of the entrepreneurs. Data were collected in Gujarati, which were transliterated in English for analysis.

(b) Content analysis and scoring:

Each case was content analyzed and the decisions with relatively high discretionary content were listed. These decisions served as a basis for inferring the managerial heuristics involved.

First major heuristics from each case was identified and then each case was re-read to see if the heuristics were present, uncertain or absent. A 3 point scale with weights 1, 0 and –1 for present, uncertain and absent heuristics respectively, was developed for finding overall strength of the heuristic in the cluster. An illustration is given vide Annexure-2.

Descriptive data on Enterprise were collected on No. of mills, Year of establishment, geographic base, etc. through an instrument illustrated in Annexure 5.

Chapter : 2 The Gems & Jewellery Industry

2.1 Indian Gems & Jewellery Industry:

2.1.1 Structure, Size & Growth:

Indian gems & jewellery industry is country's second highest foreign exchange earner after textiles. Today, it contributes about one fifth of the country's exports. The gems & jewellery industry in India is structured. The total export by this segment in the year 99-00 is approximately US \$ 6500 mn. Which is about 16% of India's total exports of US \$ 35 billion. The industry has been growing at 15-17% annually since last few years.

The Gems & Jewellery industry in India is structured as diamonds, jewellery and precious/semi precious stones. These segments are further divided into sub segments. However, diamonds dominate the total

Gems & jewellery exports and contribute US \$5.5 bn which means about 81% of the total exports by the industry.

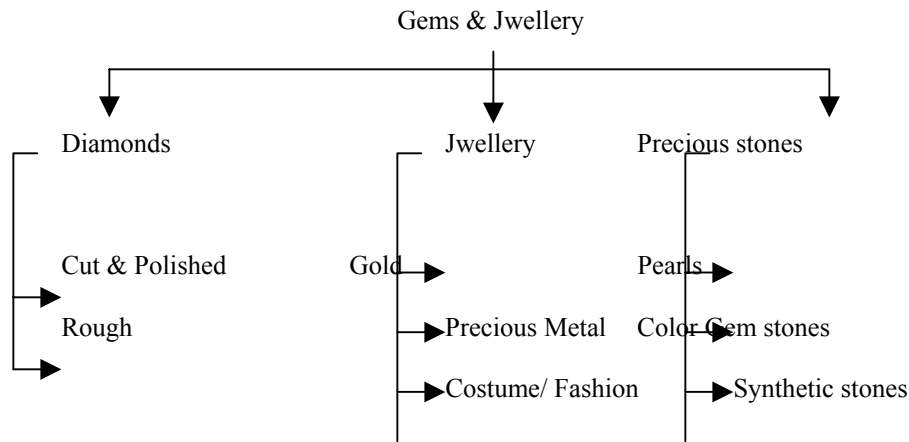


Fig. 2.1 Industry Structure in India

Over four decades ago, the Indian gem & jewellery industry was small and concentrated on processing. Last 3-4 decades it registered a phenomenal growth. However, India's position is now threatened by the entry of Asian countries like China, Sri Lanka, and Thailand, which have targeted small diamond (below one carat) market –India's stronghold. Last four years' figures show that the growth rate has now reduced. The Indian industry had been unable to adapt to changing global conditions resulting in accumulation of stocks. Multi-channel purchasing system needs to be accepted. International market conditions are also affecting and important markets like Japan, Singapore & gulf countries have shown sluggish demand. Overall exports of gold jewellery suffered mainly because of interrupted supply of precious metal.

Year	Total Exports (G&J) US \$ mn.
1966-67	28
1970-71	56
1975-76	155
1980-81	764
1985-86	1194
1990-91	2987
1995-96	5427
1999- 00	6715

Source: Gems & Jewellery Export Promotion Council

Table1.1 Growth of Indian Gems & Jewellery Exports

The industry growth pattern in India in last four decades is shown above, which indicate that since 1975, the industry exports have been growing leaps & bounds every year. The exports of gems & jewellery are concentrated in 13 countries that account for 87% of the gem & jewellery exported by India to the world markets during FY 98-99. USA,

Hong Kong, Japan, Belgium, Thailand & Israel have been the major markets for exports of gems & jewellery. Table 2 below shows the world exports of Indian gems & jewellery.

Country	Exports 1998-99 US \$ mn. (diamonds)	Country	Exports 1998-99 US \$ mn. (gold jewellery)
USA	1868.61	USA	139.21
Hong Kong	1179.48	UAE	124.96
Thailand	95.05	UK	66.36
Belgium	821.09	Kuwait	21.62
Japan	342.62	Singapore	19.41
Israel	249.97	Hong Kong	16.21

Source: Gems & Jewellery Export Promotion Council

Table 2.1 India's exports of Gems & jewellery in major markets

Gems & jewellery industry in India is labor intensive and employs over 1 mn. people, which indicates its massive socio-economic impact on Indian sub-continent. The industry is mainly fostered in Gujarat, Maharashtra, Uttar Pradesh, Rajasthan, Tamil Nadu, West Bengal and Kerala.

2.2 SWOT analysis of Indian G & J Industry:

2.2.1 Strengths:

- One million craftsman associated with it. their skills can be harnessed for designing and making modern jewellery.
- Abundance of cheap and skilled labor in India.
- Excellent marketing network spread across the world.
- Supportive government industrial/ exim policy.

2.2.2 Weaknesses:

- High domestic interest rates compared to elsewhere
- Small firms lacking technological/ export information expertise.
- Low productivity compared to labor in china, Thailand and Shrilanka.
- As the major raw material requirements need to be imported, companies normally stock huge quantities of inventory resulting high inventory carrying costs.

2.2.3 Opportunities:

- New markets in Europe & Latin America
- Growing demand in south Asian & far east countries.
- Removal gold control act.

2.2.4 Threats:

- China, Sri Lanka and Thailand's entry in small diamond segment
- Infrastructural bottlenecks, frequent changes in exim policies, irregular supply of gold.
- Over dependence on single-channel supply chain. Decisions of De Beers and Argyle's terms for renewing their supply contract.

2.3 The Diamond Processing Industry: significant segment of Gems & jewellery industry in India:

Diamond has lion's share in Indian gems & jewellery exports. Export of cut & polished diamonds is almost 81% of total gems & jewellery exports.

India is considered to be one of the world's largest centers for cut & polished diamonds. Indian cut & polished diamonds account for about 45% of international diamond production in value terms & 70% in terms of carats.

2.3.1 Diamond & India – historical significance:

From ancient times, India is very well known in the world as the birthplace for diamonds. It has remained the home of diamonds for over two millenniums. It is difficult to trace the origin of Diamond but the history says that in the remote past, Diamonds were mined only in India. Diamond production in India can be traced back to almost 8th century B C. India in fact, remained undisputed leader till 18th century when Brazilian fields were discovered in 1725 followed by emergence of South Africa, Russia and Australia. World famous diamonds such as Koh-I-noor, The Orloff, The Great Mogul, Sancy Hope, Florentine, Nassak, Regent, Pitli, Nizam etc. were the products of India and many of these world famous diamonds were recovered from India in 16th & 17th centuries.

Although, India produces about 33000 carats of rough diamonds, the cut & polished diamonds produced by India account for 70% of 1104 mn. carats of world cut & polished natural diamonds, i.e. 800 million carats of cut & polished diamonds. This clearly shows that Diamond polishing industry in India is very significant.

2.3.2 Indian diamond polishing industry & Global Diamond industry structure:

Australia's Argyle mine is the number one rough diamond producer in the world with annual 40 million carats of rough diamonds, more than one third of the world's total output. Another significant producer of diamonds is De Beers producing 31mn. Carats of the world output. Though, Argyle's production is higher, it accounts for only 5% of the world diamond output as more than 50% of its output is categorized. Until the middle of 1996, De Beer's controlled entire supply of rough diamonds. In June '96, Argyle broke away from De Beer's Central Selling Organisation (CSO) and started parallel channel. Russia also started selling outside CSO.

India is the main center for processing of diamonds, i.e., making cut & polished diamonds from roughs. India processes 100mn. Carats of rough diamonds against the worlds total output of 117 mn. Of rough diamonds. And thus, the largest diamond polishing center. USA on the other hand is the largest market for loose polished diamonds and diamond jewelry.

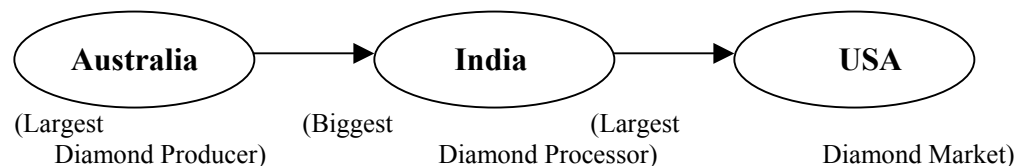


Fig 2.2 Global Diamond Industry Structure

The Indian diamond polishing industry has come a long way from mere US \$ 38mn. in 1970-71 to US \$ 5500 mn. in 1999-2000. Almost 81% contribution in total Gems & jewellery industry since beginning make the gems & jewellery industry of India a diamond centric. Table 3 below shows the significance of G&J industry in total Indian exports and that of diamond polishing industry in the total exports of G & J.

Year	Total Exports (US \$ man.)	G & J Exports (US \$ Man.)	% share of G & J in India's Exports	Cut & Polished Diamond Exports (US \$ mn.)	%Share of diamonds in G & J exports
86-87	9599	1644	17.13	1511	91.91%
87-88	12108	2041	16.86	1877	91.96%
88-89	13924	3145	22.59	2910	92.53%
89-90	16626	3291	19.79	2986	90.73%
90-91	18143	2987	16.46	2641	88.42%
91-92	17865	2934	16.42	2500	85.21%
92-93	18488	3272	17.70	1868	57.09%
93-94	22306	4139	18.56	3649	88.16%
94-95	26439	4681	17.7	4021	85.90%
95-96	31991	5458	17.05	4662	85.42%
96-97	33357	5258	15.76	4235	80.54%
97-98		5562		4493	80.78%
98-99		6220		5013	80.59%

Source: Gems & Jewellery Export Promotion Council

Table 2.2. Share of Diamond Exports in India's Total Exports

2.4 Diamond Processing Industry in Gujarat : Surat & other clusters:

Out of every batch of 10 diamonds made in the world, 7.5 are made in India. It shows that India has established itself as the world's largest diamond processing center. In India, the diamond processing units are mainly located in Gujarat, particularly in Surat, Navsari and some parts of Saurashtra & north Gujarat region. About 80% of country's diamond processing work is being done in Gujarat, out of which more than 50% is conducted at Surat only. The diamond processing industry in India, thus, is quite unique as it is developed at one location in an industrial cluster. Surat city is known as diamond city of India.

The Industry comprises of about 2000 units of cutting & polishing out of which about one third are located in Surat. It employs about 15 lakh people directly and provides employment opportunities to more than 25 lakh people. Their wage bill comes to Rs. 1500 crore per annum. An investment of Rs. 5 crore in this sector creates an employment for 1000 people. The industry is, thus, a major employer.

The processing capacity of each unit ranges from 4 to 400 carats, While production capacity depends on the type, shape and size of the diamond, it also depends on the skill of the workers.

There are about 7000 different types of diamonds. The processing is done through ingeniously manufactured and manually operated machines

The industry developed in 60s in Surat because of its proximity to Mumbai, where most of the export houses are located. Later, industry has developed its footing in some of the centers of Saurashtra like Amreli, Bhavnagar, Mahuva, Palitana and some of the centers of Naorth Gujarat like Visnagar, Mehsana, Sidhpur, Palanpur, etc.

2.5 Key Characteristics of Diamond Processing Industry in Gujarat:

1. Most of units are in the cottage & small sector.
2. Labor intensive & not capital intensive – so more entrepreneurs, more employment
3. It is not power-intensive nor polluting,
4. Traditional business approach
5. High level of product innovation
6. Family owned businesses
7. Based on imported raw materials
8. Uses inherited skills of domestic workers
9. Wholly export oriented
10. high working capital as high inventories
11. The technology & skill required for cutting and polishing of diamonds have been largely developed within the country and at industry's own costs
12. Most of the diamond dealers are inter-connected with each other and have developed a collective interest in achieving higher & higher export targets.
13. 95% of active diamond exporters are based in Mumbai and Surat thus making it possible for the trade to serve the varied requirements of the numerous foreign buyers from different countries
14. Vast manufacturing base and marketing network
15. Large volumes, wide varieties & economical costs
16. Gradual switch over from contract processing to in-house processing, modern quality control and healthy working conditions.
17. The professional expertise and venture some spirit of youngsters resulting into diversification of export markets
18. Varied product mix, consistent assortments, prompt deliveries and sales on credit, reputation for quality
19. Infrastructure facilities in terms of :
20. Cutting down on export duties on capital equipments, fully free import of gold and other metals, movement of imported goods free from sales tax & octroi, exemption of export profits from income tax and cutting down red tape procedural delays.

Chapter : 3 Entrepreneurial Innovation at Surat

3.1 Entrepreneurial Innovation – the concept:

Innovation as a part of entrepreneurship was proposed by Schumpeter more than six decades ago. He pointed out that the essence of entrepreneurship is innovation. Schumpeter specified five areas of innovation by entrepreneurs: (i) product, (ii) process, (iii) market (iv) supply source, and (v) industry organization. Entrepreneurial innovation, however, in an industry of cottage & small scale type can be grouped under four broad areas and revolve around major functions (marketing, operations, finance & personnel) of an enterprise. The study attempted to identify innovations by diamond processing industry in Gujarat in these four major types of innovation and the industry organization innovation as suggested by Schumpeter.

Thus the theoretical framework to study innovation in Diamond processing industry in Gujarat was developed on following five broad areas:

Operations Innovation : This include the product, the process, the raw material (supply source) and R&D innovation.

Marketing Innovation : This relates not only identifying & targeting the new markets or market segments, but also new marketing strategies employed in existing markets. Marketing innovations are so varied and situation specific, that their success apparently depends primarily on the entrepreneur's ability to perceive the total situation, rather than on any universal principles. Marketing innovations are so closely associated with entrepreneurship, that they do not consider these as innovations, but as a part of the 'routine' job.

Organizational Innovation : This comprise of innovations related to organizational structure, recruiting & developing people and making them fit in the structure of the enterprise as also innovativeness in the work culture developed. Thus, innovations related to structure, culture and human resources can be included under this area of entrepreneurial innovation.

Boundary Management Innovation: Considering the fact that finance innovations are related largely to the arrangement of financial resources from outside, the same along with innovations related to management and sometimes manipulation of external agencies including government is combined under this area.

Industry organization innovation: This pertains to managing co-existence of various operators in the same industry and innovativeness in making the whole industry growth remarkably.

3.2 Innovation in Diamond Processing Industry in Gujarat:

Literature and Experience survey highlighted that there's high amount of innovation in more or less all areas so far as this industry is concerned. The entrepreneurs independently or collectively have contributed in most of the above areas during different phases and of different degrees of contributions. The key innovativeness is summarized here below:

3.2.1 D/D Product-mix Innovation:

The diamond industry has developed unique aspect in developing D/D product mix, i.e. dynamic/ diverse product-mix. The Gujarat diamond processing industry is the world's largest center for cut & polished diamonds and hence has to cater to virtually the whole world. Jewelry is fashion driven & hence very dynamic in terms of customer tastes & preferences time-wise as well as place-wise. Diamonds are demanded of variety of assortment in various parts of the world. Industry innovated in the product mix keeping it dynamic & diverse by non-standardizing the processing of diamonds, mastering the craft and maintains large raw material inventories.

3.2.2 Fancy cut diamonds:

There are innovation in product by improvements in its cut, carat, color and clarity. Through unmatched skills in cutting & polishing, there have been variety of new cuts the Indian industry has been able to produce. US market has great demand for fancy cut diamonds processed in India. The popular cuts are: Marquise, Pear shape, Heart shape, step cut, baguettes, tapers, etc.

3.2.3 Use of Indigenous machines of non-perfect crystals:

Israel may use fully automatic diamond bruiting machine, computerized centering machine or girdle faceting machine or other innovative automatic machinery, India which uses non-perfect diamonds like polycrystalline, macles, distorted crystals, 'near gems' or 'near industrials', processing is not easily amenable to automation and has developed machinery to suit these applications as also to take advantage of cheap skilled labor. Indian entrepreneurs have, to their credit, indigenously developed laser kerfing and sawing machines.

3.2.4 Small diamond-Export market Niche:

Indian diamond industry has identified a niche and has decided to stick to it. The niche of small diamonds (below one carat), Belgium & Israel process bigger diamonds. Also, the industry has not lost focus from overseas export market. The domestic market is just US \$ 120 mn. compared to US \$ 5500 mn. export market.

3.2.5 Small Scale, Cottage business:

The entrepreneurs in this industry have maintained organic growth model and most of the units are low key with skilled workers directly working under the entrepreneurs. The units have 2 to 50 mills each equipped with 4-5 skilled labors. On an average about 30 craftsmen work in a unit.

3.2.6 Roll-over skills, on-the-job training:

The entrepreneurs have unique way of employee recruitment, development way. The skills are passed on from generation to generation and identification of roughs, cutting, polishing and even marketing skills are inherited by people from their senior family members. Education is not emphasized, but learning by experience is what practiced.

3.2.7 Networking:

Marketing of diamonds by cottage scale units world over is something, which is very surprising. The most crucial model of marketing, which is working for this industry, is networking. Maintaining contacts, keeping relationships with family members and

friends abroad does the trick. As the whole industry is clustered around one or few locations, networking works beautifully.

Bharat diamond bourse and Surat diamond bourse are the trading centers helping this activity.

3.2.8 Harmonious Co-existence:

The Industry organization is quite unique. Thousands of small units work in harmony. As 95% of the units are clustered around Mumbai & Surat, they are more complimentary than competitive. They collectively serve diverse needs of customers from across the globe.

3.2.9 Self Finance:

The industry with the such values as borrowing is sin, low start-up capital requirement, and few easy, organized financing options have made it follow unique model of self-financing. Most of the units have started with entrepreneurs' own money and have grown organically.

Chapter : 4 Gujarat Model of Entrepreneurial Innovation

4.1 Conceptual Framework of Entrepreneurial Innovation model:

The main objective of developing the model is to study entrepreneurial orientations or policies/ strategies, which result in innovation in this industry. The entrepreneurial orientations reflect the Pioneering-Innovating (PI) behaviour of the entrepreneurs. The Enterprise innovation model thus will highlight the PI behaviour in the particular industry in Gujarat. The PI behaviour is the result of various Micro Organization behaviour aspects and macro –organizational behaviour aspects.

Thus, the model has to answer what are the Micro OB aspects viz., personality traits, values, attitudes and motives and Macro behavioral aspects viz., strategic choice and environment determination.

As the Micro & Macro OB aspects are reflected in the policies and strategies, they can very well explain the PI behaviour. But the difficulty in identifying real policies and strategies from unorganized, small scale industry like this can be solved by identifying rules of thumb or heuristics reflected in the stories narrated by themselves. Heuristics or entrepreneurial orientations explain the PI behaviour that justifies the innovation in the industry.

The model can then be applied for finding desired PI behaviour for the level and type of innovations the Gujarat diamond industry has shown.

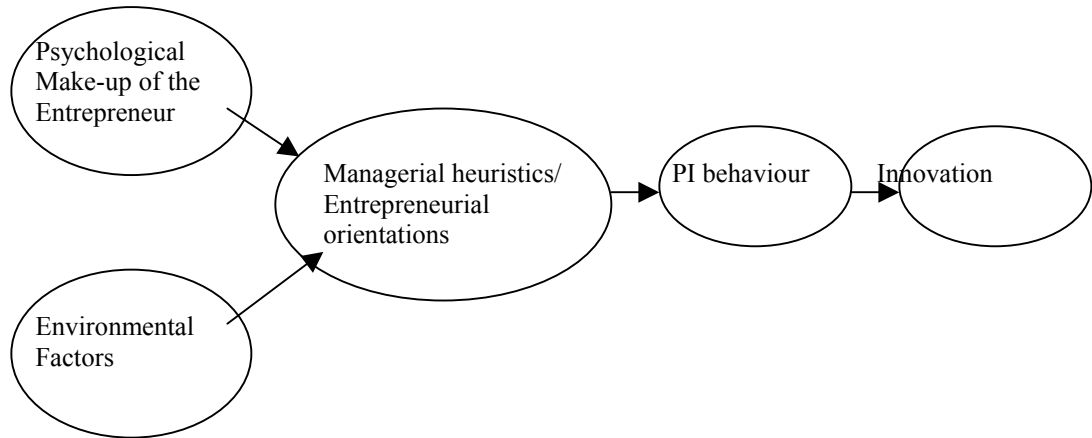


Fig. 4.1 Entrepreneurial Innovation Model – Conceptual frame work

4.2 Gujarat Model of Entrepreneurial Innovation – Diamond Processing Industry:

4.2.1 Enterprise Profile:

a) Classification Based on Area

District	No. of Cases	%
Surat	26	72.2
Navasari	5	13.9
Vyara	3	8.3
Bardoli	2	5.6
Total	36	100.0

- Surat has majority units and hence almost 72% cases are from Surat itself.

b) Classification Based on year of Establishment

Year of Establishment	No. of Cases	%
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1960-69	2	5.6
1970-79	9	25.0
1980-89	12	33.3
1990-99	13	36.1
Total	36	100.0

- Diamond processing industry has witnessed tremendous growth in late seventies and hence many units have come up in last two decades.
- More than 60% units in the industry are established in 80s & 90s and this represents the population.

c) *Classification Based on Number of Mills owned*

No. of Mills	No. of Cases	%
<10	14	38.9
10 to 25	19	52.8
>25	3	8.3
Total	36	100.0

- Most units, almost 85-90% are small with up to 25 mills to process diamonds. However, few large units have even up to 100 mills.

d) *Classification Based on Number of Workers*

No. of Workers	No. of Cases	%
<10	2	5.6
10 to 50	21	58.3
>50	13	36.1
Total	36	100.0

- Units generally have 4-5 workers on each mill. On an average each unit employs 40-50 workers. Few large units in Surat employ up to 500 skilled workers.

e) *Classification Based on Start-up Capital*

Start up Capital (Rs.)	No. of Cases	%
<10000	7	21.9
10000-50000	24	75.0
>50000	1	3.1
NA	4	
Total	36	100.0
		Base = 32

- Almost all units started with very small capital limited up to Rs. 50000. It takes generally Rs. 7500 to start a diamond-processing unit even today.

4.2.2 Heuristics:

a) Heuristics pertaining to Starting and growth of Organization

Sr. #	Heuristics	# of cases giving info.	Present (1)	Uncertain (0)	Absent (-1)	Total score	Strength
1	Start small and grow big organically	32	30	0	2	28	0.88
2	Start with as much capital as you can manage on your own and then expand as you earn from it.	34	25	2	7	18	0.53
3	Consult your relatives and friend in the industry before you invest in this business	29	29	0	0	29	1.00
4	Start where other such businesses are located so that skilled labor and other facilities are readily available	30	22	5	3	19	0.63
5	Go for expansion in existing business only	30	28	1	1	27	0.90
6	Grow by internal impulse, not by merger and acquisition as the cultures won't match	27	21	3	4	17	0.63

b) Heuristics pertaining to Managing and developing the Organisation

Sr. #	Heuristics	# of cases giving info.	Present (1)	Uncertain (0)	Absent (-1)	Total score	Strength
1	Keep the control with own self	31	20	9	2	18	0.58
2	Get the maximum out of your workers by exploiting their ideas and skill expertise	26	10	13	3	7	0.27
3	Make use of professional/ scientific knowledge	30	8	1	21	-13	-0.43
4	Talents don't matter, supervision does	33	28	0	5	23	0.70
5	Share information and profits with stake holders	21	10	0	11	-1	-0.05
6	Concentrate on core competence, never try untested areas	26	12	2	12	0	0.00
7	Develop skills and knowledge on the job, not in school	24	17	3	4	13	0.54
8	Take calculated risks	21	19	1	1	18	0.86

c) Heuristics pertaining to developing new products and markets

Sr. #	Heuristics	# of cases giving info.	Present (1)	Uncertain (0)	Absent (-1)	Total score	Strength
1	Be a pioneer in choice of products	28	24	1	3	21	0.75
2	Choose tried and tested products even if they are highly competitive and less profitable	26	8	7	11	-3	-0.12
3	Look for new product ideas from personal contacts, others failures	35	20	6	9	11	0.31

4	Explore personal contacts and relations for marketing	35	16	12	7	9	0.26
5	Respect customers requirements and satisfy them and don't bother about profit margin	31	24	2	5	19	0.61

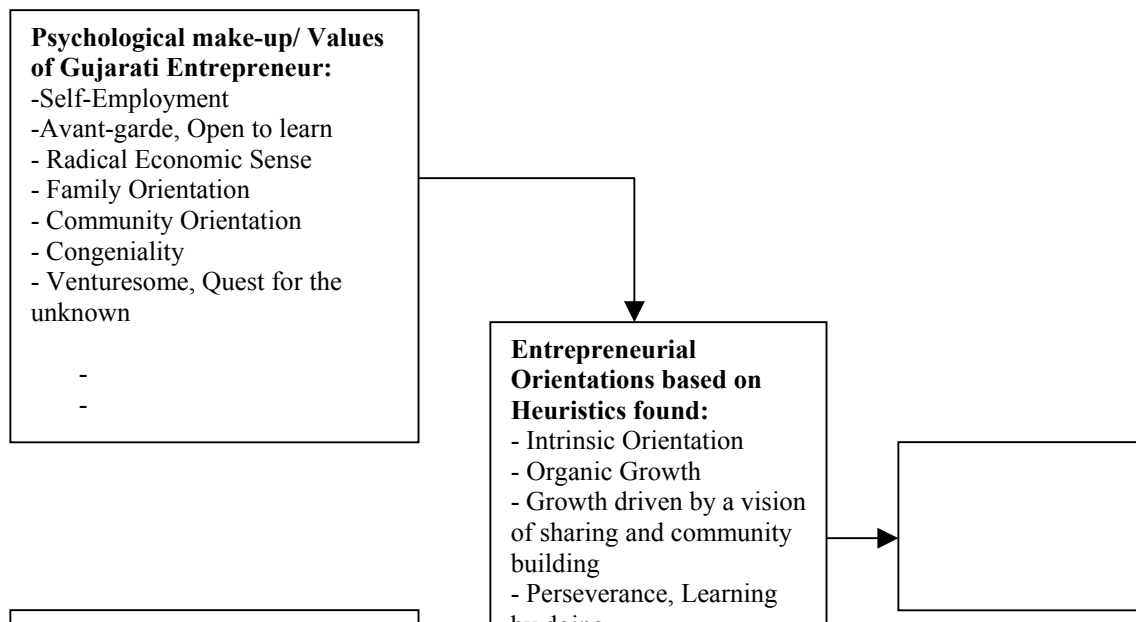
e) *Heuristics pertaining to Competition*

Sr. #	Heuristics	# of cases giving info.	Present (1)	Uncertain (0)	Absent (-1)	Total score	Strength
1	Try for collective export target, rather than individual	26	16	4	6	10	0.38
2	Competition is not with other diamond processors in Surat, it is with the other processors in other countries	29	20	6	3	17	0.59

f) *Heuristics pertaining to dealing with regulatory bodies*

Sr. #	Heuristics	# of cases giving info.	Present (1)	Uncertain (0)	Absent (-1)	Total score	Strength
1	Government doesn't support, Association of industry only can help solve individual and group problems	35	28	2	5	23	0.66
2	When it comes to finance, manage your funds on your own, from within the family	36	32	0	4	28	0.78
3	Government policies hardly help, what helps is industry/community norms and operative	28	18	2	8	10	0.36
4	Persistence, pressure and patience pays in dealings with government bodies	29	23	6	0	23	0.79

4.3 Conclusion:



Gujarat, better known as entrepreneurial hub of India has enterprise as base of Innovation. The Enterprising behaviour in Gujarat is largely attributed to typical culture of the state.

In the study conducted, Heuristics of the entrepreneurs of Gujarat especially in Industrial cluster of Surat (South Gujarat) Diamond processing Industry were identified as above and can be grouped to arrive at certain entrepreneurial orientations of Gujarati entrepreneur.

Key entrepreneurial orientations observed are as explained below with the influence of Internal stimuli viz. beliefs, values, attitudes, learning (Psychological make-up) and external stimuli mainly environmental factors.

4.3.1 Intrinsic Orientation:

Many heuristics, as many as ten, can be taken under this composite factor. Innovations in Gujarat are largely evolving around self-employment and entrepreneurship. Gujarati innovator prefers intrinsically viable projects to externally supported ones. It is noted that the risk reduction strategy focuses on testing the outcomes in advance, and taking calculated risks. In matters of external support and assistance, the Gujarati entrepreneur takes care to develop his strengths first i.e. he seeks assistance only for a unit which intrinsically viable and self supporting. Thus one of the fundamental orientations resulting in unique entrepreneurial behaviour seems to be orientation for intrinsically satisfying activities.

4.3.2 Organic Growth:

The Gujarat model of innovation emphasis organic growth. About 7 of the identified heuristics can be grouped to arrive at this orientation. It is hardly found in the particular cluster, the mergers or takeovers of units. This is largely due to culture clashes envisaged by the entrepreneurs. Values such as family orientation and community orientations result in this sort of orientation. The unit holders in Gujarat that are studied here want to keep a tight family control over their business.

4.3.3 Growth driven by a vision of sharing and community building

Environmental stimuli such as childhood family environment, easy availability of resources and negative stimulus such as lack of government support coupled with strong values of family and community orientations lead to this sort of orientation. As seen in chpt. 3, the industry innovation such as harmonious coexistence can be a result of such orientation. Heuristics pertaining to competition are grouped to arrive at this particular orientation. 2 strong heuristics support presence of such orientation.

4.3.4 Perseverance, Learning by doing

Diamond processing is a very traditional and one of the oldest industries in India. Entrepreneurs have tested feasibility of new ideas before investing into them through their informal networks. This strategy to reduce their risks seems to have worked well. It was observed that many decisions in the enterprise are based on ones own experience and poor formal education of the entrepreneurs support that. It was observed further that since child hood their family members who are in this particular business train them

and skills are passed on from generation to generation. Unfortunately not many heuristics were identified in the cases studied.

However persistence in getting from external sources shows strength of 0.79 in the decisions made by these entrepreneurs.

Cultural impact

As depicted in the figure 4.2, psychological make up especially values, beliefs and attitudes of Self-Employment, Avant-garde, Open to learn, Radical Economic Sense, Family Orientation, Community Orientation, Congeniality, Venturesome, Quest for the unknown have great impact on the Gujarat Model of innovation. All these have sound evidences in the cases studied and exploratory studies conducted earlier.

Annexure 1 : Brief outline of successful cases of Enterprises in Diamond Industry

1. Mani Exports Ltd., Surat. Entrepreneur: Mr. Nagjibhai Bhimjibhai Patel

Mani exports was started by Nagjibhai Patel in 1977, with the start-up capital just Rs. 5000 only. Nagjibhai Patel was called from Palanpur where he belonged by his uncle Ramjibhai to start a unit of Diamond polishing. Ramjibhai knew a lot of people and was already in the same business. Nagjibhai, with the support of his uncle and other family members migrated to Surat and started this unit. He was a mill operator before that and was dreaming his own unit.

From 1977 he grew step by step from one mill and went for public limited company in 1995. Today, it produces 150000 diamonds monthly with total staff of 1000 workers and 180 mills. He saw opportunities flourishing in Diamond business and ploughed back his earnings in the business. His diamonds are exported mainly in USA, Hong Kong and Japan.

Nagjibhai's family was in the business and none of his brothers has education more than graduation. He wanted to study but was asked to work in diamond factory in youth and later on pulled to Surat by his uncle. He believes that the diamond business has high earnings and the business is quite simple. He attributes his success to strong determination to get succeed and financial, moral and networking support from his family.

He is of the opinion that the workers are not educated but highly skilled in this area and are available at very nominal wages. Government support is not very good but Diamond association is very helpful to units like his. The biggest problem he sees is the raw material shortage problem for the industry and he faced this problem initially.

Located on Varachha Road, Mani Exports has produced wide variety of small diamonds with fancy cuts and is exporting 100% of its output. Well developed contacts world over and Diamond Bourse helps him a lot.

2. Parmesh Diamond Exports, Navsari. Entrepreneur: Kiranbhai / Bhadreshbhai

Parmesh Diamond exports, located in Navsari is a famous company in Navsari today and there is a road in the town named after it. A partnership firm, established by two brothers Kiranbhai & Bhadreshbhai in 1987 today has daily output of 175-200 carats diamonds. Their family was in the diamond polishing business since 1963. They used to carry out job work for large exporters. They expanded slowly to start this company which actually started production in 1991.

They are exporting mainly in Belgium, USA and Hong Kong among other countries. They believed in training and development of workers on the job. They have been training workers since 1977 and these workers then are working for them since then. Trust, they believe is very important in this business and hence they develop their own staff. Mumbai is very close, lot of industrial development in Surat Navsari, Vapi, Good infrastructure and Cheap labor are the key factors which they believe why the diamond business has flourished in South Gujarat.

Parmesh Diamond exports has unique way of catching young workers, training them and recruiting them. They believe that raw material problems and working capital management has given them the success. They have always believed in taking risks, exploring contacts abroad for exports and putting business before their own personal lives. Family support and support from their own community is very pivotal in their success.

3. Nagin Patel & Co., Bardoli. Entrepreneur: Naginbhai Patel

Naginbhai's family was into agriculture. Even today, along with this diamond polishing business he owns farms and does agriculture. His father forced him to leave education and start earning so at a very young age, he joined a diamond company and learnt the art of polishing diamonds. After working for 10 years there, with the advice of a couple of friends, he started his own company in 1978. Taking no loans from banks, he managed capital from his own family and farmer friends to start the business. They are mainly into contract work for companies from Surat and Navsari and work on commission.

With 15 mills and 60-70 workers, his is a good case of developing a unit in Bardoli. Fancy cut and Syndicate type of diamonds are its specialties and he believes that producing a good diamond demands great skills. 'Once you have known working on the mill you can develop variety of cuts and innovate in terms of product design & style. We have developed a lot of unique diamonds for the companies we work for' Naginbhai boasts. He has found unique ways to work and take work efficiently from skilled workers and believes that workers are not paid for the amount of value they add to the diamond across the industry.

4. Sweta Diamonds, Surat. Entrepreneur: Vallabhbai

Vallabhbai migrated from saurashtra along with many people who were migrating from that region to surat in 70s because the region was prone to natural calamities especially famines. Surat was buzzing with diamond business which gave huge profits. He entered into a diamond polishing unit, started doing polishing work and developed skills in the same. He conceived a dream of owning a unit around that time and after many years in 1996 his dream came true.

He faced a gamut of problems initially and to settle a huge debt of two to three lacs he had to sell his properties. He did not get any help from financial institutions or government. He started buying small number of rough diamonds and slowly reached to one hundred and fifty diamonds per day today. He believes that sheer hard work and perseverance has helped him to reach this stage.

He is presently training his sons and expects them to expand his business.

5. Vishnubhai Rana - Vishnu Gems, Surat.

Vishnubhai Rana, originally from Surat started working as a diamond polisher since his childhood and in 1990 he established Vishnu Gems. Friends from the business circle offered financial assistance critically required as working capital for providing wages to workers and raw materials initially. He had deep desire to become a big businessman as lot of his friends and community members were having their own business. His brothers also were trained in the business of polishing diamonds. They joined hands to put up this business.

Today with fourteen mills and 105 workers Vishnu Gems exports diamonds primarily in USA and Japan. He says that high technology machines are not profitable as he has wide variety of diamonds which are non perfect crystal type. Surat he believes has the best environment for this business, providing vast pool of skilled labour, diamond exchanges, information from diamond associations and proximity to Mumbai.

Annexure-2 : Illustration of how heuristics & their strengths were identified

Excerpt from a case: (Mani Exports, Surat)

‘... it was 1977, when I started my small unit with just Rs. 5000, which I managed from my own family. I was a mill operator and was dreaming of my workshop. ...From 1977, till 1995, I grew step by step and established in 1995 Mani Export Ltd. Today, I own two such workshops.’

‘... My uncle knew a lot of people in the industry and forced me to migrate from Palanpur to Surat and helped me learn how to run the workshop and export the polished diamonds.’

-Nagjibhai Patel

Heuristics & their ratings:

- | | | |
|----|--|---------------|
| a. | Start small and grow big organically | :Present (1) |
| b. | Start with as much capital as you can manage on your own and then expand as you earn from it. | :Present (1) |
| c. | Consult your relatives and friend in the industry before you invest in this business | :Uncertain(0) |
| d. | Start where other such businesses are located so that skilled labor and other facilities are readily available | :Uncertain(0) |
| e. | Go for expansion in existing business only | :Absent(-1) |

Strength of a heuristic is calculated as under:

$$N(P)*1 + N(U)*0 + N(A)* (-1) / N (Total);$$

Where, N(total) = Total no. of cases giving information

N(P)= Total no. of cases in which the heuristic is present

N(U)= Total no. of cases in which the heuristic is uncertain

N(A)= Total no. of cases in which the heuristic is Absent

Annexure 3 : List of Organisations contacted for Exploratory Study

1. The Gems & jewellery Export Promotion Council, Surat. Ph.: 435008
2. Indian Diamond Institute, Surat
3. Surat Chamber of Commerce and Industry, Surat. Ph.: 480809
4. Gujarat Diamond Training Institute, Ahmedabad.
5. Surat Diamond Association, Surat
6. Diamond & Gems Development Corporation, Surat.
7. Surat Diamond Bourse, Surat
8. Sahajanand Laser Technology, Surat. Ph.: 424168 (Supplier of Tools & Machines to Diamond processors)
9. Srinathji Engineering Works, Surat. (Supplier of Tools & Machines to Diamond processors)
10. Gems & Jewellery Information Centre, Jaipur. Ph. : 610906

Annexure 4 : List of Enterprises Contacted (Sample)

1. Parmesh Diamond Export Ltd., Navsari. Ph.: 58825
2. Mani Export, Surat.Ph.: 545747
3. Anil star, Surat. Ph.: 436077
4. Ankur Gems, Surat. Ph: 425504
5. B M Exports, Surat. Ph.: 425924
6. Bhagvati gems, Surat. Ph.: 423698
7. Crystal Diamond Pvt. Ltd., Surat. Ph.: 447053
8. Laxmi Diamond, Surat., Ph.:544165
9. Ronak Gems Pvt. Ltd., Surat.
10. Raj Impex, Surat., Ph.:540247
11. Ritesh Exports, Surat., Ph.: 418035
12. Swati Diamonds Pvt. Ltd., Surat., Ph.: 550150
13. Sweta Exports, Surat, Ph.: 412708
14. Seven Stars, Surat., Ph.:428596
15. Pavasiya Exports, Surat., Ph.:550091
16. JEEVEE Exim, Surat., Ph.: 411837
17. Dayaram Gems, Surat., Ph: 548591
18. Dhama Brothers, Surat., Ph.: 573160
19. Dholakia Exports, Surat., Ph.: 418046
20. S Vinodkumar & Co. Ph.: 435029
21. Three star Gems, Surat., Ph.: 422065
22. Yogi Diamond, Surat., Ph.: 433473
23. Mahendra Brothers, Navsari., Ph.: 50346
24. Gem Star Co., Surat., Ph.: 58097
25. H Vijay Kumar & Co., Navsari., Ph.: 56008
26. Balaji Corporation, Navsari., Ph.: 56086
27. Astuce Diamond, Navsari., Ph.: 53454
28. Navratna Enterprise., Navsari., Ph.: 52271
29. Navinbhai & Co., Vyara., Ph.: 20767
30. Rameshbhai Hire, Vyara.,
31. Rana & Co., Vyra.,
32. Italiya Exports., Surat, Ph.: 435719
33. JB Diamonds, Surat., Ph.: 543418
34. Madhav Gems, Surat.,
35. Star Jewellery, Surat., Ph.: 474623
36. Vishnu Gems, Surat., Ph.: 5517 96
37. Punam Gems, Surat., Ph.: 668614
38. N B Impex, Surat., Ph.: 426254
39. Nagin Patel & Co., Bardoli., Ph.: 22553
40. Prajapati Diamonds, Bardoli.,
41. Madhu Govind Gems, Bardoli, Ph.: 22007

Annexure 5 : Data Collection Instrument

Q/G&J/EUI/1.3/R2/00

(This questionnaire serves as guide line for data collection. Data/ Information related to the enterprise, management style, product/process/people innovations needs to be collected through probe.

Explain the objective of the data collected in the language understood by him and take permission to use the same for academic purpose.

Collect published literature, company profile, financial statements wherever available.)

A. Descriptive Information

Name Of the Enterprise:

Address:

Town/ City:

Phone:

Fax:

Name of the Entrepreneur:

Year of Establishment:

Number of Mills:

Number of Workers:

Start-up Capital:

Output : (in carats)

Product range:

B. Information on Innovativeness and Entrepreneurial decisions

1. What prompted you to get into this Business (Diamond processing)?
2. What problems did you face and how did you manage to overcome?
3. How did you managed to grow? (Probe)
4. Tell us about current practices in managing working capital which is very crucial in this business as you need to keep high inventories?
5. How do you market your products? (Probe in competition management)
6. List factors you consider that are the most crucial in this business
7. Tell us about your staff and your HR management
8. Any new products/ processes that you developed which is unique (Probe/ Give clues of possible areas of innovation)
9. Who helped you most in your journey as successful entrepreneur?
10. Describe the role of Government/ other organisations in development of your organisation.

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