

The background of the top half of the page is a green gradient with several 3D ball-and-stick molecular models of various chemical structures, including what appears to be a polymer chain and several smaller organic molecules.

# InnoVenton

*Institute of Chemical  
Technology*

**RALIS**

## **Report on Inventon Organisation Issues**

30 November 2007

RALIS Team

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## **Introduction**

InnoVenton was formed during 2005 when three units of the former PE Technikon, namely the Port Elizabeth Technikon Catalysis Research Unit (PETCRU), ChemQuest (semi-commercial analytical laboratory of the PE Technikon's Chemistry Department), and the Materials Resource Centre, decided to amalgamate to form one operating entity. At the start of the 2006 academic year, InnoVenton was awarded a "Technology Station" by the Department of Science and Technology's Tshumisano program. The NMMU Institute of Chemical Technology and Downstream Chemicals Technology Station (abbreviated as InnoVenton/DCTS) was established.

Two years later, an already well established organisation serves many customers, including some large corporates and concludes many transactions. A rapid appraisal of the local innovation system (RALIS) was executed to explore options to improve. This report explores the findings concerning the internal organisation and should be read in conjunction with the report on the findings of the innovation system that Innoventon contributes to.

## **The Organisation**

The stated strategic Intent of Innoventon is captured in the mission, vision and values statements below.

### **Mission Statement**

InnoVenton's mission is to provide chemical R&D expertise, technology support and services, technology transfer and professional teaching services to the chemical and allied industries.

### **Vision Statement**

InnoVenton/DCTS's vision is to be internationally recognized as a world class industrial chemical research, technology transfer and training institute.

## Values Statement

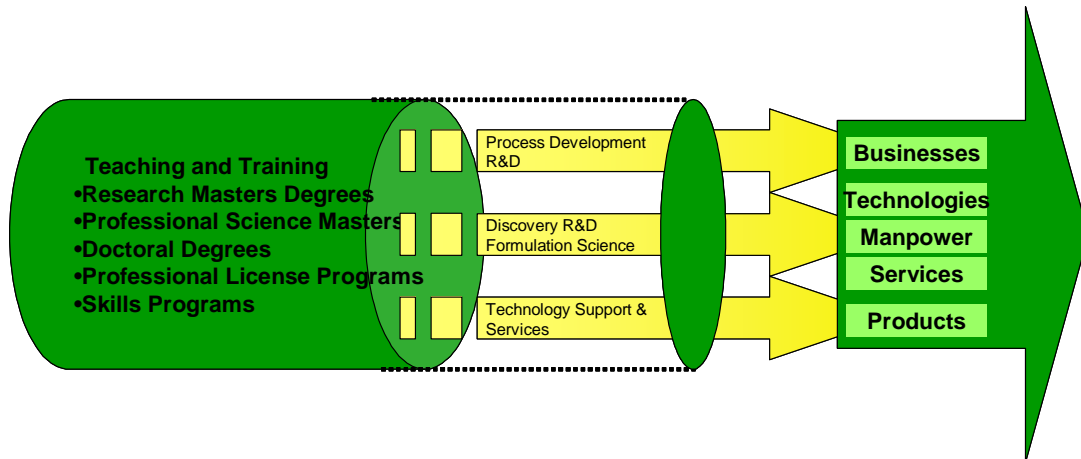
We believe that as a Technology Institute:

- Our outward-looking focus (customer/stakeholder);
- Our integrity and ethical behaviour in scientific and business activities;
- Our commitment to the journey to an empowered team/organization; and
- Our drive to become a performance-driven organization;

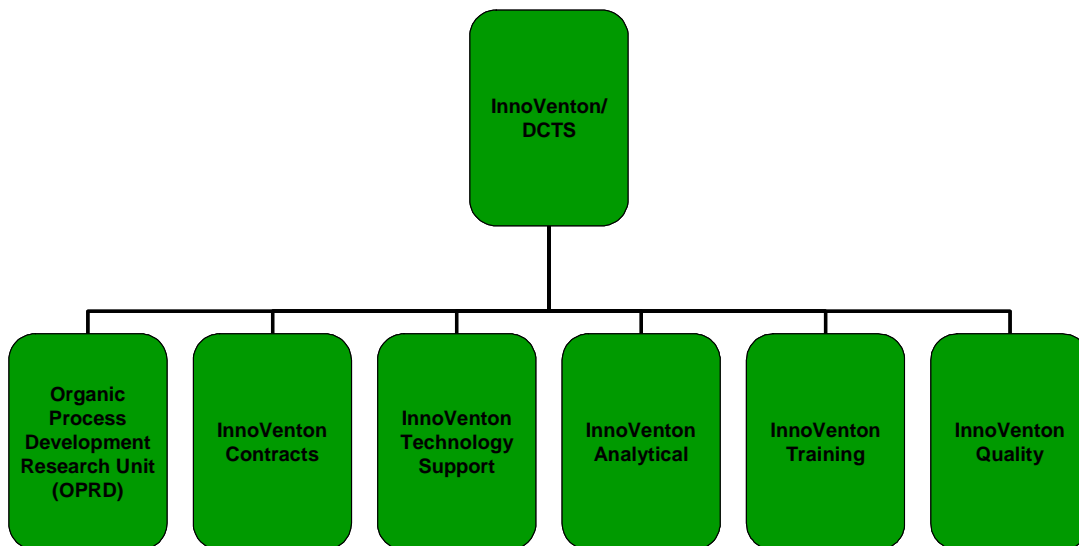
are not negotiable.

The organisation and its services are based around the core competencies of testing, analysis and research in downstream chemicals. Value is typically added by means of Teaching and Training; Research and Development; and Networking. Accordingly the products/services offered are extremely varied, including trained manpower, new knowledge, new products, new technologies, analytical and testing services, problem solving services, and so forth.

InnoVenton/DCTS's overall business model can be illustrated as follows.



To give effect to the above business model, InnoVenton/DCTS has been structured into various operating units (as depicted below) including teaching and training, short, medium and long-term R&D, and technology transfer.



These operating units are briefly:

- The Organic Process Development Research Unit (OPRD), which incorporates the recently announced NRF Niche Area for Innovative Batch Chemical Technologies. The OPRD currently has nine program leaders (six full-time academic and three InnoVenton fixed-term contract academic staff members) and 30 registered masters and doctoral students are currently studying within these programs.
- InnoVenton Contracts, which incorporates the only multi-purpose kilo-lab facility at a higher education institution in South Africa.
- InnoVenton Technology Support which supports various industries with technology related services.
- InnoVenton Analytical, a SANAS accredited commercial analytical service in the environmental, agric-food, pharmaceutical, and manufacturing industries.
- InnoVenton Training that provides corporate short courses and skills programs to individuals or industries in the chemical and allied chemical sector.
- InnoVenton Quality that provides a quality support function for InnoVenton activities, as well as a service to external clients in the chemical and allied chemical sector.

## **Industry (Customer) Performance Perspective**

The many different customers Innovention serves have different types of need and expectations. Customers requiring for example analytical and testing services, require quick turnaround times and accurate results from predictable processes. On the other hand, the research service customers prefer innovation and technical breakthroughs which are seldom time predictable. It entails higher risk of success and typically takes a long time, the concept of high risk high return.

By understanding and responding to the most important patterns of demand, offerings (products and services) and processes (of supplying these offerings) can be designed to fit the differing needs. Innovention has already seen these patterns and started organising accordingly. The different operating units therefore have different performance requirements and should continue to organise the deployment of resources accordingly. This implies different business processes and different skill sets (even though many of the skills remain common). It may even imply different organisation culture - research may require emphasis on innovation and breaking of previous paradigms, whilst testing may require very disciplined compliance in following set procedures. The important point is to recognise that each of these operating units be allowed the freedom to adapt to be different, according to their own best "business model", responsive to their target market and strategic goals.

The same argument applies when comparing the Innovention customers needs and business concept, with that of the University. Accordingly, for Innovention to perform optimally, it needs the freedom to become commercially responsive to provide professional services to industry and not be constrained by the university culture, policies, processes and systems designed primarily to respond to the business of producing students and academic research activities.

Technical expertise, facilities and equipment can/are shared by various business units that operate in different ways. Business units can compete fairly for the best resources in a shared pool of resources, according to clearly defined rules that avoids sub-optimisation. Resources in high demand can earn more and resources in low demand need to lower their rates or improve their "market value".

Persons that find themselves working for business units with different performance models need to be flexible to behave according to the needs of that unit. This business unit effectively is then their “customer” (the business unit which they sell their time to). Some people are not flexible and may be particularly suited to one or other unit. They should be deployed consciously, according to their strengths.

It is the responsibility of each business unit to ensure that people working for it, understand the performance model, and not leave it to chance by hoping that the new recruits will figure it out for themselves.

## **Tshumisano (Sponsor) Performance Perspective**

The Tshumisano performance model for technology stations includes the following results areas:

1. Orientation of more graduates and R&D outputs towards SME needs
2. Contribution to the national systems of innovation
3. Skills development and training
4. National and International collaboration
5. Contribution to SMEs /BEE

These result areas and the sentiment at DST strongly emphasize support to SMEs, but does allow for working with larger organisations in terms of contributing to:

- the national system of innovation,
- supplying more commercially employable graduates, and
- strengthening networks for collaboration in learning and innovation.

By working with the larger organisations, Innovention is not only stimulated to strengthen their capacity, competencies and their commercial viability, but also enables identification of high potential future market opportunities for SMEs. By supporting larger organisations to improve their competitiveness, these larger firms also increase employment and purchases from their supply chains, which also include SMEs. The main issue here is that Innovention should continue to also work

with large organisations and Tshumisano should not suppress this, as it has many pro-poor benefits, albeit not by directly working with SMEs. Focussing too narrowly just on SMEs will have detrimental long term effects. Rather define the focus as contributing to developing the competitiveness of the various sub-sectors, with special emphasis on SMEs and pro-poor economic growth.

## **University (Owner) Performance Perspective**

The University performance expectations differ from the Tshumisano and customer expectations. Different stakeholders within the university also have differing expectations from Innovention. The most common error is assuming that Innovention's sole purpose is to contribute to the university's goals. Innovention is not viewed as a public sector funded economic asset, a partner to the university in a different "business" that adds substantial value to the university, SMME's industry and the state. Accordingly its existence should be recognised and rewarded fairly and accurately for value added to all the customers and stakeholders.

The university gains from the partnership through FTEs, more employable and innovative graduates, access to state of the art equipment, linkages to industry, feedback to improve the relevance of curricula and the return on investment. The university currently treats Innovention unfairly, thereby undermining its performance. The accounting practices currently employed do not account properly for value generated through:

- Exploitation of IP,
- Subsidy value of post graduate training, FTEs generated accredited to Chemistry department,
- Research outputs are accredited to the faculty,
- Capital equipment contribution towards research infrastructure that benefits students not recognised as "income", and
- The 15% levy on revenues by the university strips the surplus generated which restricts further development of a successful organisation.

Other factors also detract from Innovention's performance, such as:

- The workload model of staff does not factor in IV involvement,
- University accounting system not appropriate for INNOVENTON requirements,
- The procurement system is not efficient, especially for the many small transactions, and
- Staff end using their own private credit cards to compensate for the university systems that do not match their business needs.

In defence the university administration system may claim the need for control to ensure good governance. However, a well functioning board, with well defined administration policies, delegations, reporting and regular audits will provide appropriate system of governance whilst freeing up operational efficiencies.

The relationship between Innoventon and the University can further be improved by:

- The university formally accepting Innoventon as a strategic partner,
- Improved communication between decision makers on both sides,
- Development of policy guidelines that govern the relationship of the university and its entities such as Innoventon,
- Formalisation of reward and recognition,
- Separate accounting and administration systems,
- Improved business systems, and
- A separate bank account for Innoventon to manage.

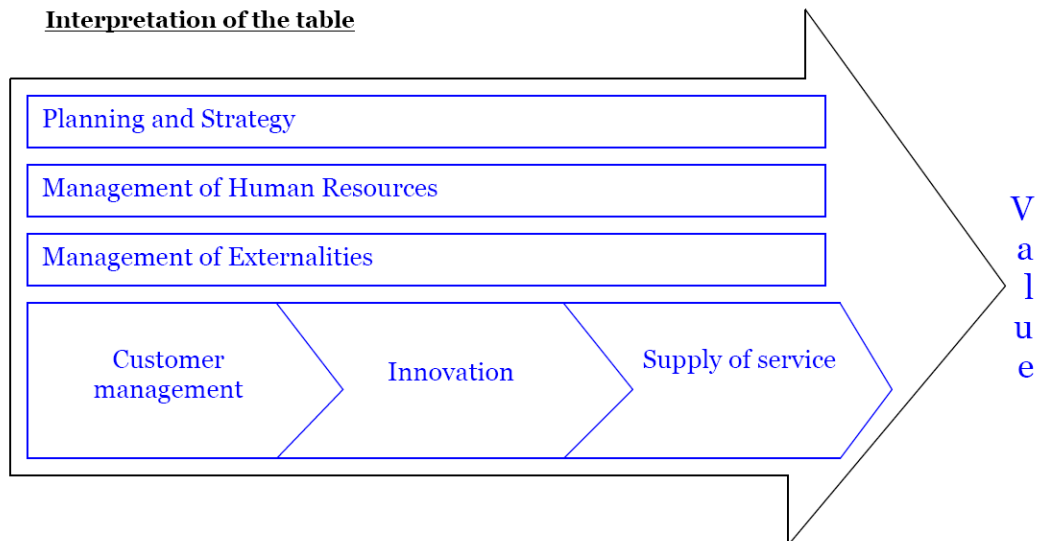
## **Benchmarking of Business Management Practices**

### **Objectives**

The relative strengths and weaknesses of the Innoventon business management practices were evaluated utilising an International Best Practice benchmarking process. The purpose of the exercise was not to judge performance but rather identify areas that require priority attention for improvement.

## Approach

The performance framework used in the benchmarking is based on the principle that any business activity should aim at producing value. Here, value is meant in terms of sustainable success, the organisation's ability to create satisfaction in its main stakeholders (customers, owners and employees). The underlying hypothesis is that



their satisfaction is the first necessary step to succeed not only in the short term, but also in the long term.

The critical dimensions of success are illustrated below.

The picture shows that, in order to create value, there is a main flow of activities going from the identification and management of the customer and his needs, to the design and delivery of a service that meets customers' needs effectively and efficiently. Besides this flow, some activities are necessary to coordinate and orientate the main process flow. This takes into account planning and strategy, management of human resources and of externalities, relating to the organisation's external stakeholders (suppliers, competitors, associations, etc.).

**Planning and strategy.** It includes the coordination and orientation activities the company has to perform. It is proved that the organisation's value develops firstly through the selection of market segments with a high added value, the identification

of those competitive levers that are organisation-specific and a planning of investments addressed to these capabilities. Through this program, the organisation may aim at achieving a sustainable success in the medium and long term. Unfortunately, a small company, on the contrary, tends to focus on short term goals and mainly on technical aspects of its business, thus missing a remarkable opportunity to improve its competitive level.

**Management of Human Resources.** The process of human resources management, which is of prime importance in those labor markets with high employment rates, implies the capability to develop a team of dependable people. To do so, the management should implement systems to delegate, systems which would lead individuals to work knowingly and develop the organization's skills growth. In other words, it means to invest in internal marketing to raise also the motivational level, together with the wage one.

**Management of Externalities.** Within the current market framework, being able "to create a system" is becoming more and more necessary for an organisation, that is to say being able to connect all the resources that a territory or, more generally, the global market puts at its disposal. As a matter of fact, the products/services that customers get are often the results of the work of a series of stakeholders that bring added value, each of them with their specialization. Therefore, the most satisfying product/service for customers will be that where not only internal activities, but also - more generally - all the activities of the chain of organisations that contributed to achieving it, have been optimized. Within this framework, every organisation should contribute by improving not only its internal activities, but also the way in which it is linked to the other stakeholders of the system.

**Customer management.** A right approach to customers has to pass through market research, the definition of a strategy aimed at attaining the customer, and a management over time to create a trustworthy relationship able to produce value for both parties – organisation and customer – involved in the business relationship. Customers and their needs determine the kind of services the organisation should plan and bring out. The picture also underlines how "internal customers" of this

process are the downstream processes of service innovation and development. Besides the customers for whom to work, it shall also provide downstream processes with the inputs (identification of customer needs and demand forecasts) necessary so that they can perform their activity efficiently.

**Innovation.** A company working upstream of the whole value-chain can bring innovation, if it succeeds in modularizing its specialized skills to sell them on the various outlet markets. In this way it can abandon the mono-customer based relationship. To do this, the management orientation to innovate has to be strong, the structure has to be directed towards innovation and relational exchanges with customers and suppliers have to take place frequently.

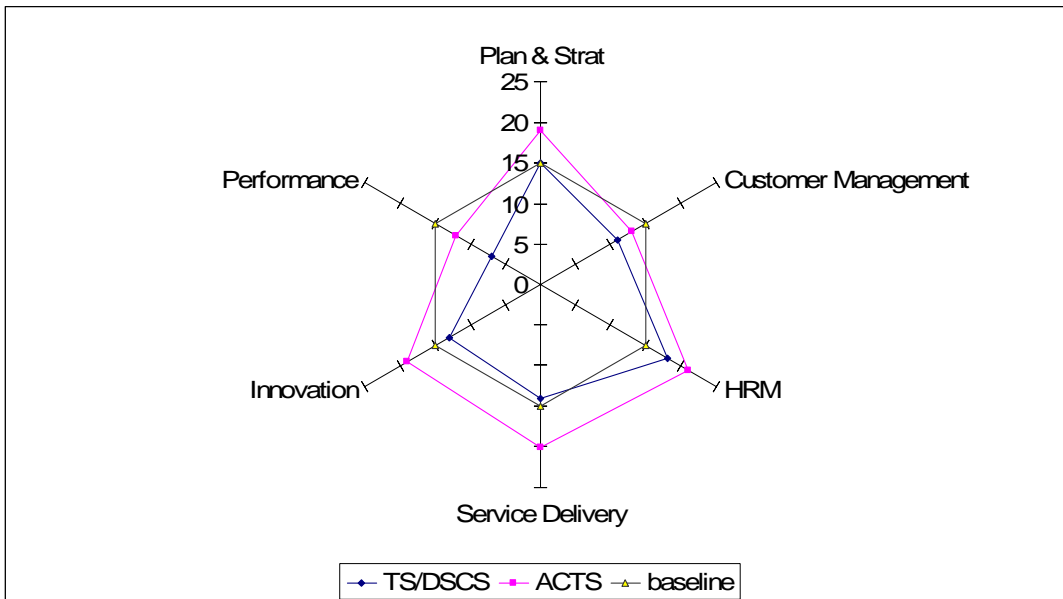
**Supply of service.** In an organisation which is founded on strong technical skills, service design and development are often considered as the main process to be protected. In order to create a quality service process, it is necessary:

- to receive reliable information from upstream processes (customer management, innovation and development) in order to plan the activities and reduce inefficiencies.
- to have efficient and up-to-date equipment and facilities.

**Value.** It is here measured as the organisation's capability to satisfy its main stakeholders. In this case, owners, clients and employees, since the final target must be that of creating value for those who invested capital: customers who, if satisfied, will go on buying, and employees who benefit from an efficient organisation, as it ensures them their remuneration but, at the same time, they themselves with their job contribute, to keep the standards offered to the market high quality.

## Results Graph

Innovention was compared to the Automotive Component Technology Station (ACTS) and the average score for organisations across various industry sectors. Each dimension was evaluated by asking 2 performance questions and 3



management practices questions. From the graph above, it is evident that the main areas of concern to Innovention relate to *customer management* and *performance*. The performance dimension was severely reduced by the errors in accounting of revenues generated.

Performance Areas	TS/ DSCS	ACTS	Baseline	Tech. Stat. Variance
Plan & Strat	15	19	15	-4
Customer Management	11	13	15	-2
HRM	18	21	15	-3
Service Delivery	14	20	15	-6
Innovation	13	19	15	-6
Performance	7	12	15	-5

## Improvement Priorities

The most critical factors that lead to low scores above are listed below for attention:

Improvement Priorities	TS/ DSCS	ACTS	Median	TS Vari- ance	Desired state to achieve “World Class”
Promptness	2	5	3	-3	Staff go beyond their systems of work in order to meet customer’s needs and all staff members are seen as helpful
Customer Loyalty	3	5	3	-2	Customers are exceptionally loyal (around 100% of purchasers buy again in our company) as proved by the loyalty rate measurement
Perceived value in Market	3	5	3	-2	All its stakeholders (clients, customers, employees, financiers and local community) consider the organization as offering high value
Profitability	0	0	3	0	Account properly for value added (revenue) and costs. Profit/surplus increasing.
Turnover (from Customers not state)	1	1	3	0	Account properly for value added (revenue) and costs. Profit/surplus increasing.
Productivity	0	1	3	-1	Account properly for value added (revenue) and costs. Profit/surplus increasing.
Service efficiency	1	1	3	0	Processes and activities are clearly described. A constant activity is performed aimed at reducing those activities that do not provide customers with an added value. The level of service efficiency is excellent. Times are kept at the minimum necessary to supply the service. The aim is a continuous improvement
Innovation environment	2	5	3	-3	The management encourages and rewards innovative ideas relating to all aspects or organisation success. There are some moments specifically created to favor the development of innovative ideas thanks to these opinion exchange
Investment in	2	4	3	-2	Invest also in training of business practices,

<b>Improvement Priorities</b>	<b>TS/ DSCS</b>	<b>ACTS</b>	<b>Median</b>	<b>TS Variance</b>	<b>Desired state to achieve “World Class”</b>
training					i.e. other than just the core field of study
Customer & Supplier Involvement	2	4	3	-2	Partner suppliers and customers are fully involved in designing new process/services and supported by a suitable IT system (e.g. intranet, CRM)
Employee decision making	2	4	3	-2	Employees have a broad decision-making capacity that allows them to take initiatives whenever they deem it is necessary; they are authorized to solve problems
Leverage of External Resources	2	4	3	-2	The company has assessed, through a specific analysis (costs/benefits) the key activities on which to focus its internal activity, the strategic activities to implement external partnerships, and the less critical ones to be supplied by the market.
Accessibility	3	5	3	-2	All customers may count on total willingness from the reception clerk and the whole staff that show great attention and flexibility, even beyond working hours
Knowledge Management	2	3	3	-1	There are predefined paths to systematically implement innovative ideas for all service lines, with reduced times and paths simplified from learning through experience
Analysis of Customer needs	2	2	3	0	Both the needs of regular and potential customers are known specifically thanks to analysis methodologies that, used systematically, have determined the company's market strategies
Pricing	2	3	3	-1	The price varies according to the typology of customers and market segments, on the basis of the price policy decided by the company, market analysis and competitors' prices, and is supported by a detailed internal cost analysis that is specific for each product and customer
Service customisation	2	2	3	0	People in charge of contacts with the customer acquire information that are actually used - thanks to computerized

Improvement Priorities	TS/DSCS	ACTS	Median	TS Variance	Desired state to achieve "World Class"
					customer archives - to provide the same services in a customized way and to develop new methods of service supply
Reliability of Service delivery	2	3	3	-1	Fully satisfied customers, often beyond their expectations. There are assessment criteria of customer satisfaction
Business Planning	2	3	3	-1	Long-term strategy (from 3 to 5 years), anticipating the market trend understood and pursued by all employees

## Further Suggestions from the RALIS team

Wisdom of crowds: Brainstorm with groups of diverse people.

Leverage resources from other faculties.

Establish strategic internal partnerships.

Utilise capacity of staff to the fullest.

Delegate as far as possible and stretch staff.

Appoint a business manager and an accountant – free up technical competencies.

Review high repetition business processes and define performance standards.

Manage expectations of all stakeholders.

Define systems for innovation- and knowledge management.

Develop improved procurement system.

Simplify financial structure.

Establish accurate accounting practice.

Explore marketing and PR options

Ensure marketing messages are clearly defined, simple and consistently communicated.

Promote thought leaders.

Host some great promotional events.