

Enterprise Model for Vendor Development: A Study at Selected Technology Park

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ABSTRACT

The study addresses the issues of skills enhancement that need be implemented in three distinct phases of enterprise development. Phase I is the developmental phase where potential entrepreneurs are provided with skills needed for venture take-off or start-up. Phase II is the enterprise creation phase while Phase III is the market development phase. This paper also discusses the multiple roles of the Techno Center during each of these distinct phases. Based on the analysis, the study found that there are gaps across industrial sub-sectors in term of various skills needed to create sustainable enterprise and entrepreneur development. Those gaps are cognitive, interpersonal, technical, creativity, computation, communication, intrapersonal, conceptual, managerial, analytical, technological, acoustic, design, self-management, innovative, basic managerial, supervisory, and marketing. The Techno Centre Enterprise Development Model highlights the central and multiple roles required of The Techno Centre in order to effectively provide support and services during various phases of enterprise development. The services include skill development, networking and linkages services; technology transfer and consultancy services; advisory services; and after-care services have different contents at different stages of the enterprise development.

Key words: technology park, sustainable enterprise, technology transfer

1. Introduction

As Malaysia step forward to achieve a developed country and as well as to achieve the objective of Vision 2020, Malaysia had extend its export market which was traditionally agricultural-based economy to manufacturing and production-based economy. At the same time, local market had increase simultaneously with current trend. This is base to Growth Domestic

Production, which had augmented to 8.8 percent per year for 8 years continuously in 90's decade. The dynamic current economic growth in 90's decade had situated Malaysia as an example among the developing countries. However, succeed is thorny to arrive at. Together with growing in manufacturing, attention also had been given to increase the usage of local resources as is to create job opportunities in the country.

The current economic growth indicates that economy currently is in the process of recovery after the recession. Therefore, all the economy activities will get back to usual as it

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before the recession period. Thus, to achieve the economic growth before recession, government had introduced several programs to encourage the production sector such as Vendor Development Program (VDP).

2. Supplier Development

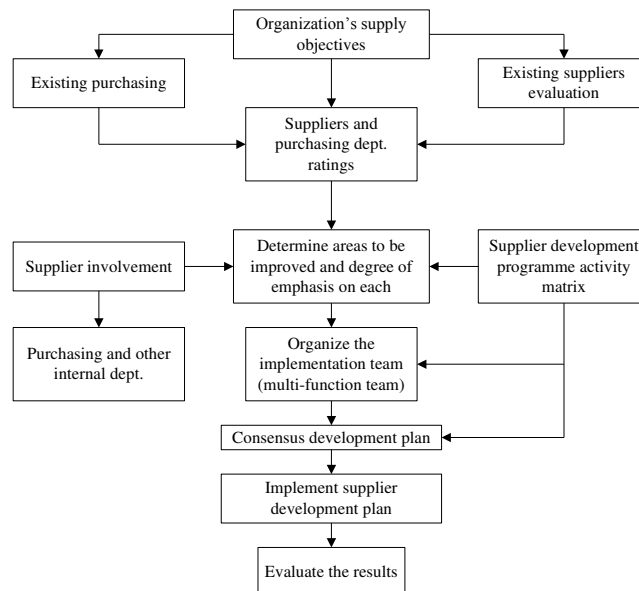
Supplier development is a formal operation undertaken to elevate supplier performance and capabilities. (Hahn, et al. 1990); Hines, 1994; Hartley and Chai, 1996).

other's success". Watts and Hahn (1993) arguably states that the most important goal of supplier development programme is the improvement of product quality and because of that, many of the supplier development practices were quality related. Among the supplier development practices are as follows: importance of quality in the selection of suppliers, utility of data-based supplier rating system, reliance on few dependable suppliers, appropriate education provided to the suppliers, technical assistance provided to the suppliers, involvement of the buyer in the supplier's product development process, extension of long term contracts to the suppliers and clear specification provided to the suppliers.

Supplier development in a definition provided by Partnership Sourcing (1992) is "where customer (buyer) and suppliers develop such a close and long term relationship that they two work together as partners. The principle is that teamwork is better than combat. If the end customer is to be best served, then the parties to a deal must work together and both must win. Supplier development works because both parties have an interest in each

(Leenders 1966; Leenders and Blenkhom 1988; Burt 1989; Lascelles and Dale 1989,1990; Hahn et al. 1990; Newman and Rhee 1990; Galt and Dale 1991)

Forker, Ruch and Hershauer (1999) states that "for suppliers to reduce defects and production costs, cross organizational cooperation between the supplier's quality department and the buyers procurement department is essential." The supplier's quality department is chosen because it the one that will most likely to work with the buyer's procurement department in a supplier development programme. (Watts and Hahn 1993).



Source: Hahn et al. (1990).

Figure 1. Supplier Development Programme Framework

Pender (1993) promotes supplier development process to recognize and develop suppliers with the highest standards of quality. This supplier development process is strongly based on a clear quality policy with the sole objective (both on the part of buyer and supplier) of exceeding customer expectations

Rusinak (1996), in a study of Australian industry, argued that a company's competitiveness and future depends on the improvements that it and its supplier can make together. Focusing on supplier development and the Kaizen process can assist both buyer and supplier and provides significant benefits to the buyer.

How does a company go about in implementing a supplier development programme? Hahn et al. (1990) provided a more comprehensive model for supplier development programme. According to Hahn et al. (1990), "the basic objective of the purchasing function is to secure competent supply sources that will provide an uninterrupted flow of required material at a reasonable cost. This involves first the selection of competent suppliers in terms of technological, quality, delivery, and cost capabilities- and second, it requires working with them to upgrade their capabilities." He went on to say that the supplier development programmes, then, can be defined as any systematic organizational effort to create and maintain a network of competent suppliers."

3. Vendor Development Program in Malaysia

Vendor Development Program concept had been implemented widely in Malaysia, mostly in the automotive production industry which had been dominated by PROTON. Yet, a small number of publications had been published about VDP. Therefore, this section will discuss a number of key concepts for Vendor Development Program, mainly on the efforts from the perspective for entrepreneur development.

For the purposes of this section, VDP refers to the efforts carried out by an organization on how to develop and provide qualified vendors' network or linkages, which can fulfill short-term and long-term needs. It will also include short-term and long-term collaborations between buyer and vendors to increase technical capabilities, quality, delivery and ability cost as well as to provide continuous progress.

Generally, the main goal for this program is to build the relationship, which gives a number of advantages to both parties to compete more effectively in the market. The main objective of VDP as had been determined by Ministry of Entrepreneur Development is to develop local entrepreneurs especially Bumiputera entrepreneurs of joint-venture companies to participate in business as component suppliers and producers, spare parts or similar equipments required by which are multinational companies and other anchor companies for the local market and/or export purposes.

In general, PROTON Vendor Development Program objectives also includes:

- To accelerate the country industrial process
- To provide open up market to the vendors
- To develop competent support industries
- To increase local product usage
- To reduce dependency toward imported sources
- To create stable supply
- To control rising prices
- To guarantee quality requirements
- To encourage the technology transfer from foreign country to local company
- To reduce administrative tender process workloads.

Agencies that involve with the implementation of Vendor Development Program are:

- Ministry for Entrepreneur Development

- Anchor companies
- Financial institutions
- Vendor companies
- Other government agencies such as SIRIM, MARDI, MIEL, PUNB, etc.

VDP gives priority to the company, which have participated in providing those programs. The Malaysian anchor company that provide VDP are PROTON, Sapura, SHARP, SONY, Land and General Bhd., MATSUSHITA, Philips and JVC, Hitachi, PERODUA, EPE Power Corporation Berhad., MOTOROLA Penang, SGS-Thompson Muar, Copal Precision and RC Centronic Electronics.

Upon the implementation of the VDP, the anchor companies experienced several advantages such as:

- Local product price advantage compared to imported goods
- Capability to control price changes
- Advantages in ensuring supply through frequent inspection as well as monitoring of the vendor site and during receiving of goods
- Capability to have continuous supplies
- Decreasing the level of stocks especially when Anchor Company implements the Just In Time (JIT) system.
- Standardized designs, specification and manufacturing compared with using annual tender process.
- Continuous supply can be assured as the supplier willing to increase their investment as the long term contract justify such action.

Before getting involved in the VDP, the interested company should fulfill a number of terms that are required by the Ministry of Entrepreneur Development. These include:

- Being registered under the Company Act 1965
- Has paid-up capital of between RM 100,000 to RM 2.5 million

- Have at least 70% local participation through equity and senior management by Malaysian.
- Has skilled and experienced workers/labors in related industry
- Has 3-5 years cash flow, assets, technology increment and management
- Can accept instruction, facilitation and consultation service.

The VDP has clearly provided many advantages to the participants involved including the anchor company and related vendors. There is a program known as “Tripartite Arrangement” that involved Ministry of Entrepreneur Development, Anchor Company and financial institutions to provide the financial sources needed. The banks that are involved in this program are Perwira Affin Bank, MAYBANK, Bank Pembangunan, Bumiputra Commerce Bank, D&C Bank and MIDF.

The effectiveness of VDP efforts to develop Bumiputera entrepreneur is clearly indicated by the increasing number of Bumiputera vendors that participate in the programs. For instance, at an early stage there are only 27 Bumiputera vendors participate. Then the number has increased to 45 vendors in 1993, 71 vendors in 1995 and 85 vendors in 1996 respectively. Therefore, the increment is 19.7 percents.

There are many VDP that had been organized by several companies like PROTON, Perodua, Land and General Bhd., Hitachi and Motorola Penang. PROTON initiated the program that had been the first to be implemented and is one of the successful VDP. Thus, this paper will use PROTON VDP as reference in following.

4. Benefits of “Shared Resources” in Vendor Development Program (VDP)

- Risk Reduction – Reduce F/C
- Lower total capital investment
- Faster entry and payback

- Economics of scales – lower A/C (large volume)
- Lower cost (share competitive advantage)
- Complementary technologies – technology synergy
- Access to government fund
- International expansion
- Value chain added
- Breakdown technological complexity
- Breakdown technological uncertainty.

By using the PROTON VDP as a benchmark, VDP can support Bumiputera entrepreneurs through:

- Structural changes
- Technical capability and product quality
- Product development
- Network, support, and market linkages
- Pricing and delivery system
- Vendor association
- Upgrading overall competency compared to international manufacturers or producers.

VDP also developed Bumiputera entrepreneurs by providing support in term of:

- Jump-start/ initial step in venture creation
- Technology
- Finance (like “Tripartite Arrangement” program).

The main constraints in implementing and increasing vendor development programs are:

- Vendors ability to design/create good business planning
- Lacking in knowledge with regards to the anchor company as requirement and terms of supply
- Failure to fulfill factory audit and quality control standardization
- Low commitment in terms of attitude, capital and time.

Therefore, to enhance the VDP program, the agencies involved especially anchor company and vendors have to create reciprocal relationship through:

- High level of trust
- Adopting an open/transparent approach
- Maintaining close communication
- High level of commitment.

5. Objective

The main objective of this study is the development of a conceptual framework for the proposed Techno Centre from the business perspective after taking into account successful experience elsewhere. In addition the study also suggests roles for the proposed Techno Centre in entrepreneurship and vendor development.

6. Methodology

Information was obtained from primary and secondary data. The secondary data was sourced from publications such as industry reports and previous studies. The primary data was obtained through field survey and interview using structures and semi structured questionnaires. The key sources of primary data were gathered from SMIs around the Kulim High Tech Park areas. The data will be processed and analyzed using statistical and other approaches. The presentation of the information obtained was made in line with the objectives of this study.

7. Findings of the Study

This section analyzes the skills required for managerial and professional staff, scientist/researcher, engineers and designer, non-professional technical and supervisory staff, sales staff, factory workers, clerical and supporting administration staff. The second part of this section also analyzes the management service and training needs and service area needs by industry group.

8. Skills Requirement

8.1 Skills Required for Managerial and Professional Staff

The study indicates the skills needed according to profession. The study finds that 45.6% of managerial skills are required for managerial and professional staff followed by conceptual background (16.2%), analytical and intrapersonal (10.3%), computation (5.1%) technical (4.4%) and others skills. However, only 0.7% of creativity skills required for managerial and professional staffs.

8.2 Skills Required for Scientist/Researcher

The study reveals that among scientist/researcher, managerial and analytical skills are placed as the most important skills (30%) rather than computation skills, conceptual background and cognitive.

8.3 Skills Required for Engineers and Designer

Among engineer and designer the skills that most required are design (20.9%), technical skills (20%), technological (15.7%), conceptual background (3.8%) and others. The smallest percentage goes to computation skills (1.7%).

8.4 Skills Required for Non Professional Technical and Supervisory Staff

Moreover, the study shows that basic managerial skills contribute the highest percentage of 36.5% to the skills required for non-professional technical and supervisory staffs whilst supervisory contributes the lowest percentage of 2.9%. Innovative, self-management and technical (computer) skills show the percentage of 3.8% required for non-professional technical and supervisory staffs.

8.5 Skills Required for Sales Staff

For sales staff the skills required are accounted for communication skills (46.2%), followed by marketing skills (28.2%) conceptual background (7.7%), supervisory (6.4%), interpersonal and analytical (3.8%), motivation (2.6%) and computation skills (1.3%).

8.6 Skills Required for Factory Workers

The skills required for factory worker are mostly basic skills. The study shows that basic operation skill is required most (28.3%) cognitive (product knowledge) (18.2%), conceptual (17.2%), interpersonal (self-discipline) (15.2%), supervisory (8.1%), analytical (6%), computation skills (4%) and communication (3%).

8.7 Skills Required for Clerical and Supporting Administration Staff

The study indicates skills required for clerical and supporting administration staff which 18.9% is accounted for administrative skills, 15.3% is accounted for accounting skill, 9% is accounted for communication skills and 7.2% is accounted for intrapersonal appearance.

9. Management Services and Training Needs Within Industry Groups

Table 1 shows the survey result for management service and training needs by five industry groups, such as E&E, Chemical & non-metallic, Mechatronics, Biotech, and ICT. The areas of management service and training needs by industry group are industrial management, financial management, accounting, marketing, ICT, human resource management, quality control, TQM, Export management, technology, economics studies, market studies, and project appraisal/feasibility studies.

Table 1. Management Services and Training Needs Within Industry Groups

Area	Industry group					
	Automotive (%)	E & E (%)	Chemical & non-metallic (%)	Mechatronics (%)	Biotech (%)	ICT (%)
Industrial management	N/A	65.2	53.8	63.6	53.8	85.7
Financial management	N/A	43.5	43.1	45.5	38.5	42.9
Accounting	N/A	26.1	30.8	45.5	61.5	42.9
Marketing	38.5	30.4	29.2	59.1	58.3	14.3
ICT	30.8	47.8	33.8	45.5	38.5	71.4
Human resource management	N/A	56.5	53.8	77.3	46.2	71.4
Quality control	69.2	69.6	63.1	68.2	69.2	85.7
TQM	N/A	52.2	33.8	54.5	53.8	71.4
Export management	N/A	26.1	30.8	45.5	30.8	14.3
Technology	53.8	56.5	38.5	45.5	30.8	42.9
Economics studies	N/A	4.3	15.4	18.2	23.1	0
Market studies	N/AS	34.8	40	36.4	69.2	28.6
Project appraisal/feasibility studies	38.5	8.7	12.3	31.8	15.4	0

Table 2. Service Area Needs Within Industry Groups

Area	Industry group					
	Automotive (%)	E & E (%)	Chemical & non-metallic (%)	Mechatronics (%)	Biotech (%)	ICT (%)
Technical project guidance	57.1	34.8	23.1	54.5	30.8	42.9
Advise on selection of equipment, machinery and raw materials	57.1	30.4	38.5	36.4	84.6	14.3
Seminars/workshop on technical subjects	78.6	43.5	43.1	54.5	38.5	71.4
Energy conservation	21.4	26.1	24.6	22.7	46.2	57.1
Pollution control	21.4	34.8	36.9	13.6	23.1	57.1
Safety awareness	78.6	56.5	55.4	54.5	53.8	100
Scaling-up	21.4	8.7	12.3	18.2	38.5	14.3

The results of the survey indicate that the needs for industrial management service training are high in all industrial sectors. Other services and training that highly needed are quality control, human resource management, and the marketing skills. However, there are differences in training need across industry groups (refer to Table 1).

10. Service Area Needs by Industry Group

Table 2 shows that service area needs by five industry group, such as E&E, Chemical & non-metallic, Mechatronics, Biotech, and ICT in areas of technical project guidance, advise on selection of equipment, machinery and raw

materials, seminars/workshop on technical subjects, energy conservation, pollution control, safety awareness, and scaling-up.

The service area needs across industry group are different. For example, technical project guidance are highly need in Mechatronics industry. Safety awareness service is needed in all industry groups.

11. Enterprise Development Action Plan Model

Based on the analysis and findings of the study, there are gaps across industrial sub-sectors on various skills needed to create sustainable enterprise and entrepreneur

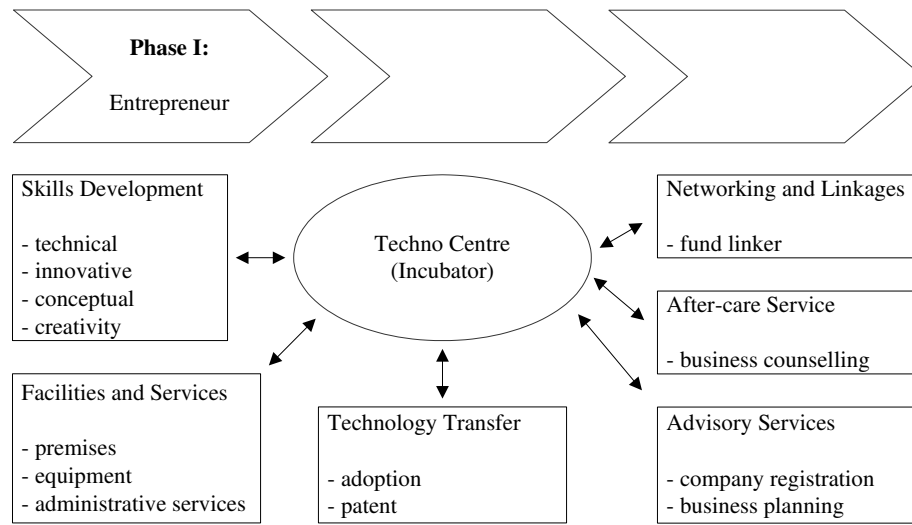


Figure 2. Techno Centre Enterprise Development Model – Phase I

development. Those gaps are cognitive, interpersonal, technical, creativity, computation, communication, intrapersonal, conceptual, managerial, analytical, technological, acoustic, design, self-management, innovative, basic managerial, supervisory, and marketing.

To address these issues, we suggest that the enterprise and entrepreneur skills enhancement be implemented in three distinct

phases. Phase I is the developmental phase where potential entrepreneurs are provided with skills needed for venture take-off or start-up (Figure 2). Phase II is the enterprise creation phase (Figure 3) while Phase III is the market development phase (Figure 4). The following sections will discuss the multiple roles of the Techno Center during each of the distinct phases.

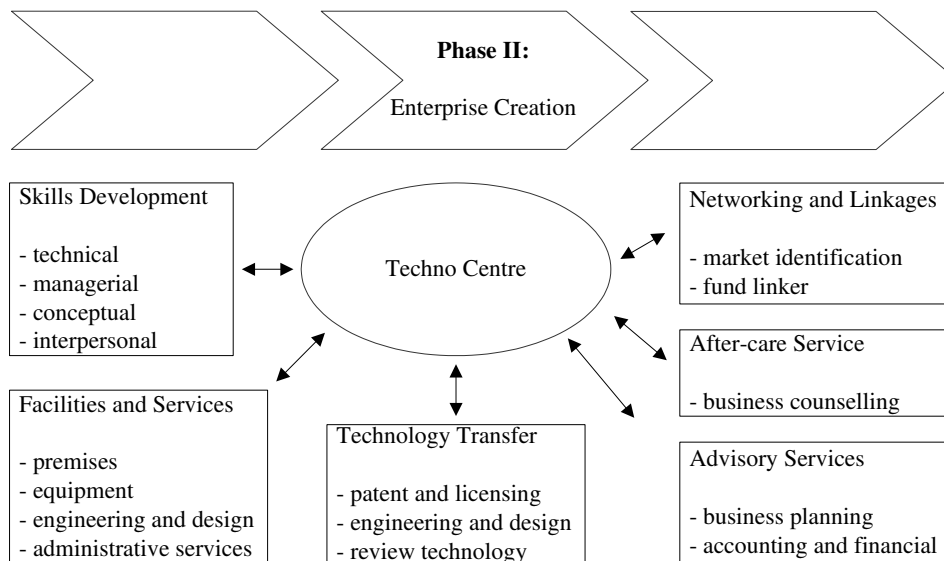


Figure 3. Techno Centre Enterprise Development Model – Phase II

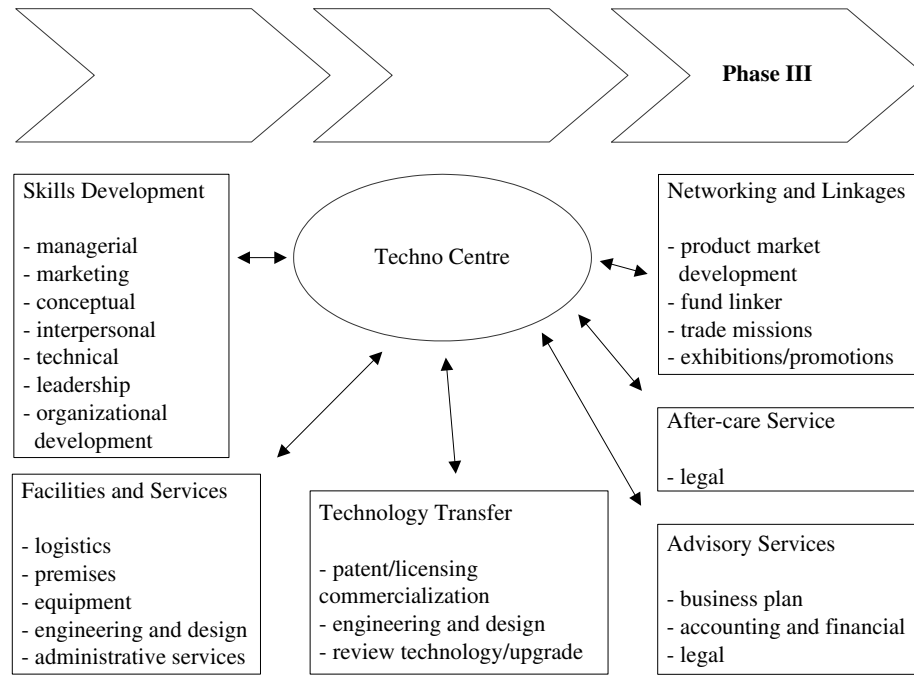


Figure 4. Techno Centre Enterprise Development Model – Phase III

During the early period of the enterprise's existence, the role of the Techno Centre could be that of a mentor. It will provide incubator facilities and support for the entrepreneur to jump-start his venture. The entrepreneur will need training in a number of skills. For example, the skills development that would be required would be such as technical, innovative, conceptual, and creativity. Besides that, Techno Centre will provide facilities and services like the business premises, equipment, and administrative services. For technology transfer, Techno Centre could participate in technology adoption and patent acquisitions decisions. In addition, Techno Centre's role in networking and linkages could be that of a fund-linker. The Techno Centre also could provide after-care services such as business counseling and advisory services such as company registration and business planning.

In Phase III, the venture would have reached a relatively matured stage where it could need support to develop its market and other potential. The role of the Techno Centre would be that of a cluster facilitator or coordinator. Techno Centre could still provide

skills development services to the entrepreneur such managerial, marketing, conceptual, and development skills. Besides that, Techno Centre will continue to provide the facilities and services like logistics, premises, equipment, and engineering & design. In technology transfer, the Techno Centre will provide services in patents, licensing and other commercialization activities, and advise on technology upgrade. The networking & linkages activities would cover product market development, fund linker, promotion, and trade mission. Techno Centre could also continue to provide after-care and advisory services such as legal, business planning, accounting and financial services.

The Techno Centre Enterprise Development Model in Figure 4, highlights the central and multiple roles required of The Techno Centre in order to effectively provide support and services during various phases of development of the targeted users of the Techno Centre. These services are skill development, networking and linkages services; technology transfer and consultancy services; advisory services; and after-care

services have different contents at different stages of the enterprise development.

Lastly, for access to facilities and equipment, it appears that there many opportunities for formalizing collaboration with businesses and is likely to grow in importance in the coming years.

Emerging trends provide some suggestions with respect to issues the Techno Centre should address:

- Ensure routine testing contributes to the Techno Centre overall mission. Adopt policies for the Techno Centre to allow routine testing and as a source for outside income.
- Systemize an approach for informing businesses of the unique facilities and equipment. If businesses are not aware of the unique equipment and facilities available at Techno Centre, it is difficult for them to access it.
- Develop customized protocols for allowing businesses to easily access the appropriate technical and administrative staff, facilities and equipment.
- Compile a directory of unique equipment and facilities having the potential for being of interest to business. Publicize this information on the web and in other marketing documents.
- Investigate approaches to assisting Techno Centre strategic business partners in addressing Techno Centre's need to upgrade facilities and equipment. This service could become part of an overall agreement between Techno Centre and those firms with which the Techno Centre wishes to establish a sustained, long-term relationship.
- Form a Technology Transfer Oversight Committee (TTOC) to give attention to this mechanism, reviewing and revising the Techno Centre policies as warranted in conjunction with relevant institute, centers, and departments. The TTOC can provide broad parameters within existing policy to provide guidance for business

collaboration. The TTOC could also investigate approaches for encouraging both business and faculty to expand collaboration in the future.

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