Functions of Government, Academe and Industry in Philippine Food Innovation Centers for Regional Development

A Public Lecture and Presentation by:

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Lecture Outline

• FIC and its Regional Establishment in the Philippines
• Experimental Framework of the Research
• Identified Functions of DOST-FIC Stakeplayers
• Actual Functions of DOST-FIC Stakeplayers
• Variation in the Functions of FIC Stakeplayers
• Developed Conceptual Framework of the Research
• Project Recommendations
FOOD INNOVATION CENTER

“FIC provides a platform that offers facilities for food processing and testing, and often includes technical assistance for marketing, business development, and regulation compliance”

(Babcock, 2008)

Philippines
FICs in Academic Institutions

Operational FICs:
Present (as of Jan 2017) – 10 FICs
By end of 2017 – additional 8 FICs

Government RDI designed FIC
Processing equipment:
1. SPRAY DRYER
2. VACUUM FRYER
3. FREEZE DRYER
4. WATER RETORT
The Food Innovation Center in Triple Helix Platform

“regional growth towards national development”

Source: http://america.pink/triple-helix_4525383.html
EXPERIMENTAL FRAMEWORK OF THE RESEARCH

**ARCHIVAL ANALYSES**

**MEMORANDA-OF-AGREEMENT**
**PROJECT REPORTS**

**CONSULTATIVE DISCUSSION**
**INTERVIEWS**
**DIRECT OBSERVATION**

**FUNCTION VARIANCE**

**FUNCTION REDEFINITION**

**Improved Performance**

**IDENTIFIED FUNCTIONS**
- Government
- Academe
- Industry

**ACTUAL FUNCTIONS**
- Government
- Academe
- Industry

**COMPARATIVE ANALYSIS**

**FIELD DOCUMENTATION**
**Methodology**

**IDENTIFIED FUNCTIONS**

- **Review of MOA and Project Reports:**
  - Design and Development of Process Equipment for the Food Processing Firms
  - HITS: Roll-Out of DOST-Designed Food Processing Equipment to the Regions
  - Development of Competence of the DOST Food Innovation Centers (FICs) and Recognition of Most Innovative Products

**ACTUAL FUNCTIONS**

- Field Visits
- Submitted Organizational Chart
- Interviews, Direct Observation, Consultative Discussion of FICs in Regions 2, 6, 8, 10, 11 and NCR

**COMPARATIVE ANALYSIS**

- Variation in Function
- Additional Function

**RECOMMENDATION**

- Redefined Function

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*Identified* - document written function

*Actual* - document written function with variation in terms of who and how it will be performed

*Additional* - function that is not document written but is actually being performed
CONCEPT ROLES OF PHILIPPINE FIC STAKEPLAYERS

GOVERNMENT
• Developer of FIC concept
• Provider of 1st generation Science, Technology and Innovation (STI) knowledge for FIC
• Provider of STI regional infrastructure
• Provider of venues for industry linkages
• Over-all steward of FIC growth

ACADEMIA
• Incubator of STI infrastructure
• Developer of succeeding generation STI knowledge
• Link with STI knowledge adaptors

INDUSTRY
• Recipient and beneficiary of STI knowledge
• Initiator of STI-based businesses
• Engines of economic growth
DIRECTIVE/CONSULTATIONS

NATIONAL GOVERNMENT

Proj 1: Equipment Design and Development
  ✓ Industry/research experts consultation for needs
  ✓ Benchmarking
  ✓ Prototype fabrication/IPs
  ✓ Functional/performance testing
  ✓ Operations manual preparation

Proj 2: Regional Equipment Roll-Out
  ✓ Fabricator ID
  ✓ Functional/performance testing
  ✓ HRD Region
  ✓ Facility GMP Compliance Assessment
  ✓ Monitoring of product testing

Proj 3: Competence Development/Recognition of Most Innovative Products
  ✓ Training and monitoring for Product Development, Prototyping
  ✓ Assistance in sales and technical pitching
  ✓ Recognition of most innovative product

REGIONAL GOVERNMENT

Proj 1: Equipment Design and Development
  ✓ No identified written roles

Proj 2: Regional Equipment Roll-Out
  ✓ Needs validation of prospective FIC clients/users
  ✓ Identification of FIC Academic Incubator
  ✓ Resources and infrastructure identification
  ✓ Assurance of infrastructure compliance to GMP/food safety
  ✓ Production/performance runs and monitoring

Proj 3: Competence Development/Recognition of Most Innovative Products
  ✓ No identified written roles

ACADEME

Proj 1: Equipment Design and Development
  ✓ No identified written roles

Proj 2: Regional Equipment Roll-Out
  ✓ Provision of building/facility with recommended GMP compliant plant layout
  ✓ Provide manpower and maintenance and other operating expenses (MOOE) requirement of FICs

Proj 3: Competence Development and Recognition of Most Innovative Products
  ✓ No identified written roles
Oversight Committee
- Provide policies, directions and recommendations for continual improvement in FIC operation

Techno-transfer Group
- Oversee intellectual property (IP) protection and commercialization activities

Technical Advisory Group
- Provide technical advice and consultancy through technical review and evaluation

Center Director
- Implement project; Manage, monitor and evaluate overall operation

FIC Operations Manager
- Supervise operation by overseeing work of functional units

FAD
- Ensure efficient finance/administrative services

Technical Operations
- Undertake technical services for efficient operation

Billing & Accounting
- Implement project; Manage, monitor and evaluate overall operation

Procurement Services
- Supervise operation by overseeing work of functional units

R&D & Testing
- Undertake technical services for efficient operation

Processing & Product
- Implement project; Manage, monitor and evaluate overall operation

Training, Consultancy & Promotion
- Supervise operation by overseeing work of functional units

Engineering & Maintenance
- Implement project; Manage, monitor and evaluate overall operation

Finance and Administration
- Ensure efficient finance/administrative services

Operations Manager
- A – Food technologist

Technical Operations
- A – Staff
# Role Variances in Internal Operation of FIC

<table>
<thead>
<tr>
<th>SYSTEMS</th>
<th>GOVERNMENT ROLE</th>
<th>ACADEMIA ROLE</th>
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<tbody>
<tr>
<td>• Recruitment and hiring (Academe identified)</td>
<td>✓ Position description</td>
<td>✓ Develop and finalize recruitment</td>
</tr>
<tr>
<td>• FIC Administration/Management (Academe identified)</td>
<td>✓ Oversight Committee</td>
<td>✓ Over-all management of FIC personnel</td>
</tr>
<tr>
<td>• Capability building (National and Regional Government identified)</td>
<td>✓ Competency assessment</td>
<td>✓ Application of training competencies</td>
</tr>
<tr>
<td></td>
<td>✓ Training needs assessment</td>
<td>✓ Echo of training</td>
</tr>
<tr>
<td></td>
<td>✓ Developer of training modules</td>
<td>✓ Adaptation of training modules for industry</td>
</tr>
<tr>
<td></td>
<td>✓ Training of FIC personnel</td>
<td></td>
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<tr>
<td></td>
<td>1. Equipment operation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Product development</td>
<td></td>
</tr>
<tr>
<td>• Performance evaluation (Additional function)</td>
<td>✓ Design of performance evaluation system</td>
<td>✓ Implementation of performance evaluation system</td>
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<tr>
<td></td>
<td>✓ Audit performance</td>
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<tr>
<td></td>
<td>✓ Monitoring of product development &amp; equipment efficiency</td>
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</tbody>
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**Legend:**
- **Identified** - document written function
- **Actual** - document written function with variation in terms of who and how it will be performed
- **Additional** - function that is not document written but is actually being performed
FIC PERSONNEL

Academia-based:
✓ Food Technologist
✓ Machine Operators
✓ University Experts in
  ➢ Business
  ➢ Food Science & Hygiene
  ➢ Engineering
  ➢ IP

Government-based:
✓ Oversight from national & regional DOST offices
## PRODUCT DEVELOPMENT RELATED ROLES

<table>
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<th>SYSTEM</th>
<th>KEY ROLE PLAYERS</th>
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<tr>
<td></td>
<td>GOVERNMENT</td>
</tr>
<tr>
<td>FIC-to-client interface (Govt ID for Academe)</td>
<td>✓ Provision of general types of engagement</td>
</tr>
<tr>
<td>Techno-transfer management (Govt ID for Academe &amp; Industry)</td>
<td>✓ Implementation of IPR of government ✓ Host techno-transfer events</td>
</tr>
<tr>
<td>Assistance for Product Dev’t Capability (Govt ID for Academe &amp; Industry)</td>
<td>✓ Benefactor of start-up materials and procedures for processing</td>
</tr>
<tr>
<td>Financing modes for Product Dev’t</td>
<td>✓ Provide info for public financing of start-up/upgrading</td>
</tr>
</tbody>
</table>
NEWLY ESTABLISHED FORMS OF FIC ENGAGEMENTS

A. Rent of equipment/facility = use of facility
B. A + technical service advice = technical service using training material
C. A + transfer of FIC developed technology = technology transfer
   + MOA for commercialization = licensing
D. Client driven product development/prototyping = contract R&D
E. Referral to an equipment fabricator or toll packer = referral

**Actual** - document written function with variation in terms of who and how it will be performed

Source: https://lh3.googleusercontent.com/nZD2y3WmoxLMacqLVHK2Xx-O-9w72IDCoFpSqqQexQmigOfECzcQQL_RExcUwXxvVR8PeWogc8S5
General Findings

• Identified government & academe roles in documents were all observed as actual roles
• Industry roles not written in documents
• FICs & ROs developed organizational charts/staffing patterns as actual function & to dovetail the monitoring of RO and NG within the FIC
• FIC engagement with industries completes triple helix relationship with academe and government
• Need to clarify to ROs/Academe that FIC is not for commercial production
• Techno-transfer activity with sales & technical pitching for FIC staff
• Identified roles for process scale-up & marketing protocols for FIC to be established
General Findings

• Additional functions were created to supplement the identified and actual functions in enhancing further the delivery of service and operation of FICs
  • Performance Evaluation Systems for FIC equipment and product development activity
  • Articulated financial engagements that are harmonized with DOST modes of industry assistance
Conceptual Framework on the Dynamics of Philippine Food Innovation Center Enhanced Functions to Improve Operation
**GAPS AND RECOMMENDATIONS**

### Operational efficiency
- Establish system for networking and consolidating FICs

### Supply chain support
- Develop downward and forward support for FICs

### Conformance to standards and regulations
- Secure FDA License to Operate for FICs
- Establish quality management system (ISO 9001)
- Establish food safety management system in FICs (ISO 22000)

### Knowledge translation and management
- Optimize data generation & sharing capabilities

### Marketing strategies for FIC products
- Develop spin-off programs from prototyping
THANK YOU