



# Technological Learning in SMEs: A Case of the Wood Furniture Industry in Dar es Salaam

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# Introduction

- SMEs are engine of economic growth
- Contribution to GDP (35%) & Job generation (20%) (Mwamila & Temu, 2006)
- The sector is labor intensive in nature & covers variety of businesses that provide multiple jobs & alleviate poverty

# Research Problem

- Despite its significance to the socio-economic development, the sector is largely underperforming, and it requires innovation to enhance growth & sustainability
- Inadequate information about the ability to learn & innovate. This study was an attempt to fill this knowledge gap using the case of wood furniture enterprises

# Objectives

- Main objective
  - To investigate innovation capabilities among wood furniture enterprises
- Specific objectives:
  - To identify innovative activities carried out in wood furniture enterprises
  - To examine the sources of innovative activities in wood furniture enterprises
  - To identify the constraints to technological learning in wood furniture enterprises

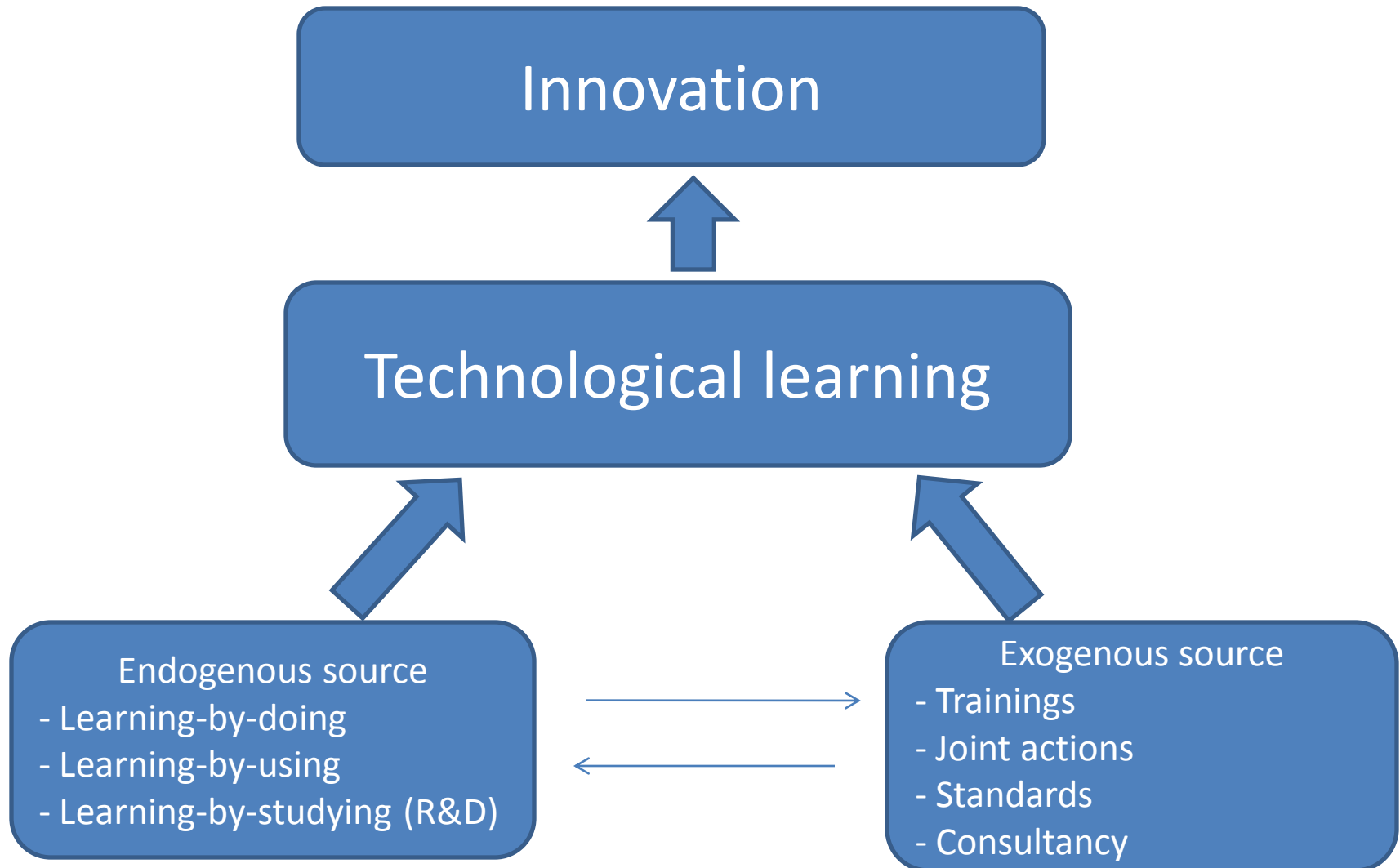
# Significance of the study

- Highlight the importance of technological learning in the firm's competitive success by identifying determinants and barriers to the learning process
- Inform policy makers & other stakeholders to set mechanisms for engaging SMEs in technological learning and innovation

# Conceptual Framework

- This study is about technological learning & innovation
- Technological learning refers to gathering of information & turning of it into useful knowledge (Massey *et al.*, 2013). Acquisition of knowledge & skills through experience, practices, study/training
- It is a determinant of growth through its impact on innovation (Canuto *et al.*, 2010)
- Innovation: process of introducing something new & useful (Luecke & Kartz, 2003). Improvement in product, process, organization, or marketing
- Much of technological knowledge required by SMEs is incremental & could often be acquired through “elementary learning” (Lall, 1985). Elementary learning is through interaction among actors: enterprises, customers, suppliers, institutions, organizations
- 2 sources of technological learning: endogenous & exogenous

# Conceptual framework (cont...)





# Research Methodology

- Area of the study: Dar es Salaam. The region has high concentration of both furniture enterprises & market
- Population: technical personnel of furniture enterprises
- Sample & Sampling technique: 50 obtained through systematic sampling & snowballing
- Data Collection & Analysis: Mixed methods research.
- Use of questionnaire, observation & interviews as well as compiled literature

# Methodology (cont...)

- Identifying innovative activities consisted of finding novelty in product, techniques, organization & marketing. The process consisted of finding what was introduced or improved after the inception of the enterprises.
- Sources of technological learning: collecting determinants of the changes for the innovative activities carried out
- Constraints to technological learning consisted of gathering barriers to information & implementation of innovative activities

# Findings

- Year of establishment: Most (42%) are relatively new (2001-2010); Emergence of more enterprises indicates an increase of interest in dealing with furniture businesses
- Education: 86% - primary school; & 14% - secondary school. Educated people can influence efficiency (innovation capabilities)
- Years of experience: 70% range from 1 to 5 years. Majority are new in the furniture business & had limited practical knowledge of furniture making. This may have an impact on innovation, which requires training to develop & become creative

# Innovative activities

## 1. Quality Product

- Ventures have improved quality through gradual modification of designs (100%). The changes were on small scale; with impact on knowledge, materials & inputs

## 2. Production Techniques:

- Equipment: 8% adopted new types of equipment. Majority used to add or replace tools by another of the same type

# Innovative activities (cont...)

- Observation of hand tools & machines. Most of the machines were observed in furniture making clusters, e.g. Keko Furniture Centre
- Elsewhere, hand tools are dominant. For efficiency, they carry out and pay for logs and planks to be cut for specification by small-scale operators of saws & turning machinery
- Use of plywood as raw materials to replicate imported furniture: Adoption

# Innovative activities (cont...)

## 3. Work organization

- Organization into Sub-Clusters: some aspect of specialization

## 4. Marketing strategies

- 96% displayed furniture in open areas
- 70% relied on old customers to praise the quality of furniture to new ones.
- However, there was adoption - business cards (6%); Salerooms & showrooms (8%), and Transport provision (2%)

# Sources of technological learning

## 1. Designs:

- Customers (72%);
  - Photographs, catalogues and brochures (70%);
  - Competitors (70%),
  - Showrooms (Imported furniture) (58%),
  - Own initiation (32%),
  - Media (8%)
- Obtaining designs from various sources makes innovation in the quality of furniture an interactive factor between markets & supply

# Sources (cont...)

- The level of Own initiation is interesting
- *“I have designed a Sofa named “Water guard”. Honestly speaking, the idea was not completely new. That design resulted from a combination of parts of different existing designs whose marketability had been by then low. I have also borrowed some ideas from a retail catalogue & introduced such sofa design. I am proud of that success as the design excels in the market for me & for other furniture makers”*
- This indicates capabilities to make changes & openness to learning and sharing



# Sources (cont...)

## 2. Production techniques

- Internally developed (as routine) & Competitors
- Observation of size & appearance of furniture/design on display

## 3. Marketing strategies:

- Internally developed (as routine strategies): 74%
- Competitors: 56%
- Attending workshops: 4%

## 4. In fact, Sub-clusters establishment helped to learn technologies by facilitating knowledge exchange & tools borrowing

# Constraints to technological learning

- Designs
  - Scarcity of catalogues & brochures: 30%
  - Limited finance to buy catalogues/brochures: 22%
  - Lack of design skills: 4%
- Majority does not consider challenges in getting designs for furniture
- Production techniques
  - Lack appropriate finishing machines: 74%
  - Lack of technical expertise: 26%
  - Lack of raw materials for prototypes: 66%

# Constraints (cont...)

- Work organization
  - Orders are limited (demand): 56%
  - Shortage of equipment (number & types): 52%
  - Drainage of workers: 46%
- Marketing
  - Failure to afford the cost of advertisement (72%)
  - Failure to afford the cost of marketing skills (42%)
  - Fear of TRA (30%)
- Lack of capital appears the most prevailing hindering factor

# Conclusion

- Furniture enterprises have capabilities of learning - adopting innovation & make changes
- Most of the sources are external to the enterprises, mostly facilitated by professional networks that act as conduits for knowledge
- Shortage of advanced equipment hinders to put technology learning into practice and enhance competitiveness of furniture in the market

# Recommendations

- Furniture enterprises should take advantage of institutional technical assistance programs (workshops, market orientation, financial facilities) to enhance their expertise
- Furniture enterprises should provide incentives to attract and retain experienced workers
- Government should facilitate the acquisition of machines; e.g. exemption of import duties on finishing machines to enhance competitive furniture
- Related study should be extended to other sub-sectors for comparative analysis



Thank you very much for listening