

## Adoption, Innovation and Experiences in the Sugar Industry

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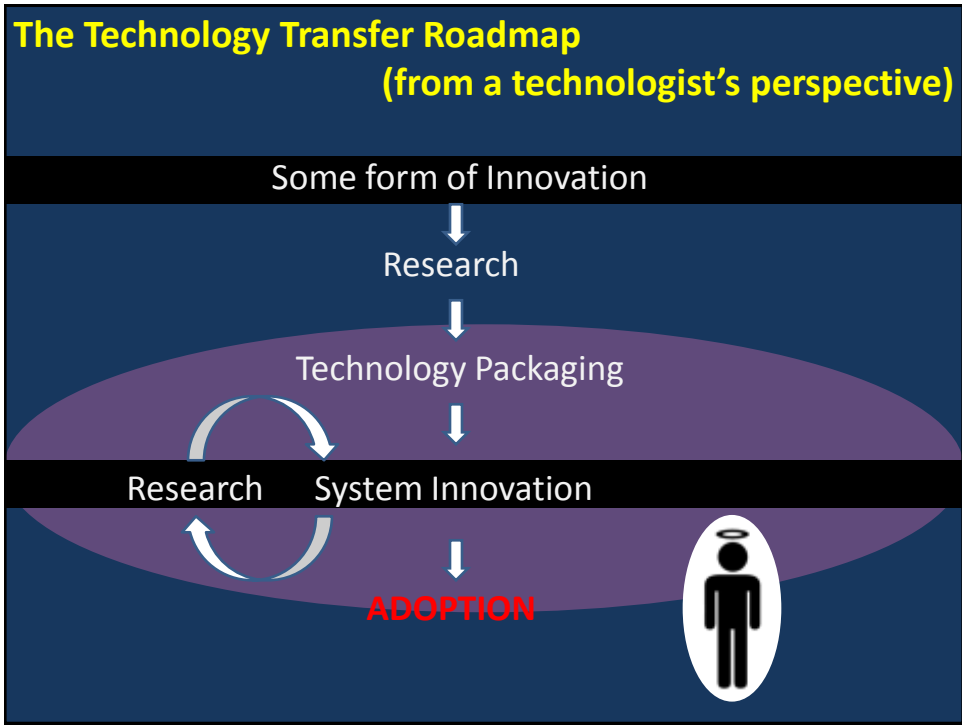
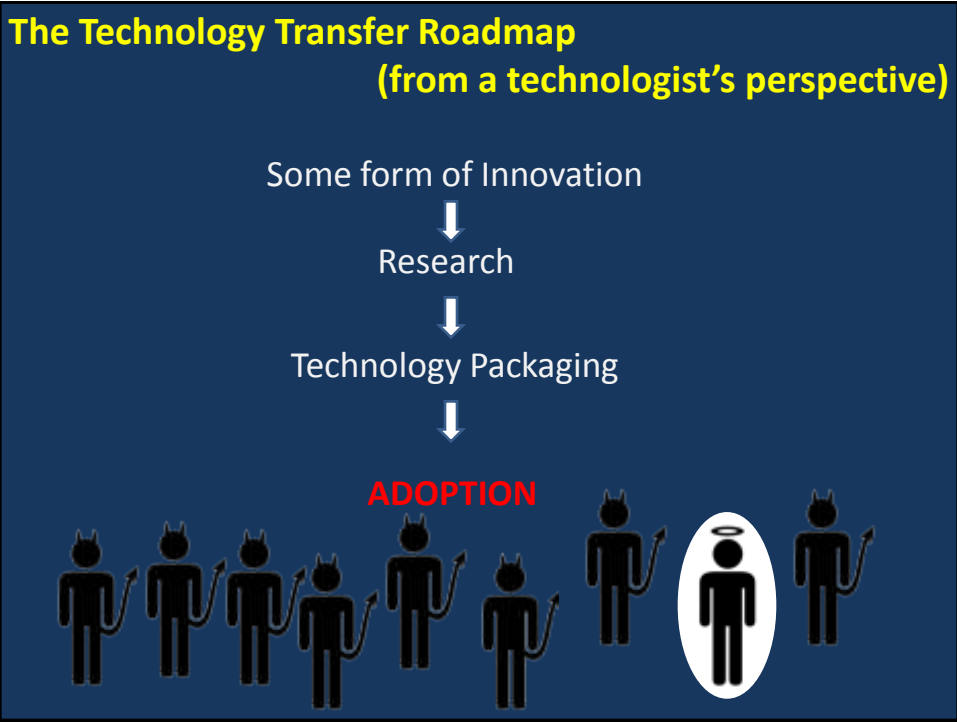
### Background

Source of knowledge

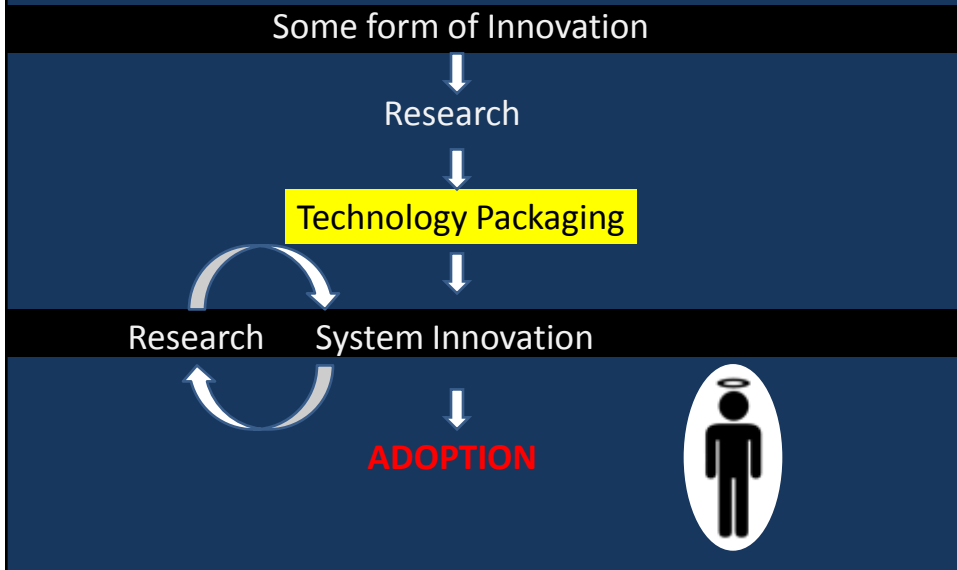
- 2 year supply chain diagnostics project (2008-2009) – included issues on innovation (widespread non-adoption of own research)
- Engagement with complexity systems

I am not:

- A specialist in action research and extension
- A sociologist, psychologist or psychiatrist



## The Technology Transfer Roadmap (from a technologist's perspective)



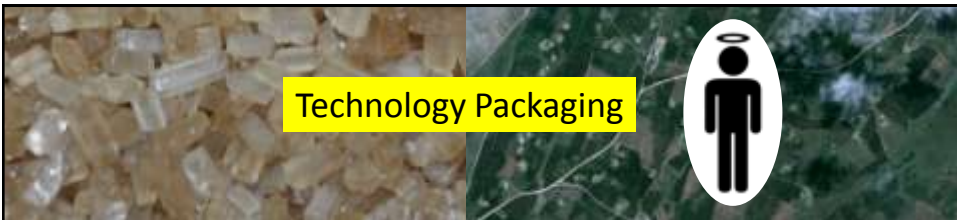
Standard sugar crystal = mean  $\pm$  standard deviation  
Processes are designed to fit the standard specification

But what if the variability is too significant for a single process setting?

Complexity Analyses focus on the factors that drive variability. Many well developed theories, such as:  
Theories on resilience and thresholds, Requisite variety, Self organisation, co-evolution and emergence

Technology Packaging

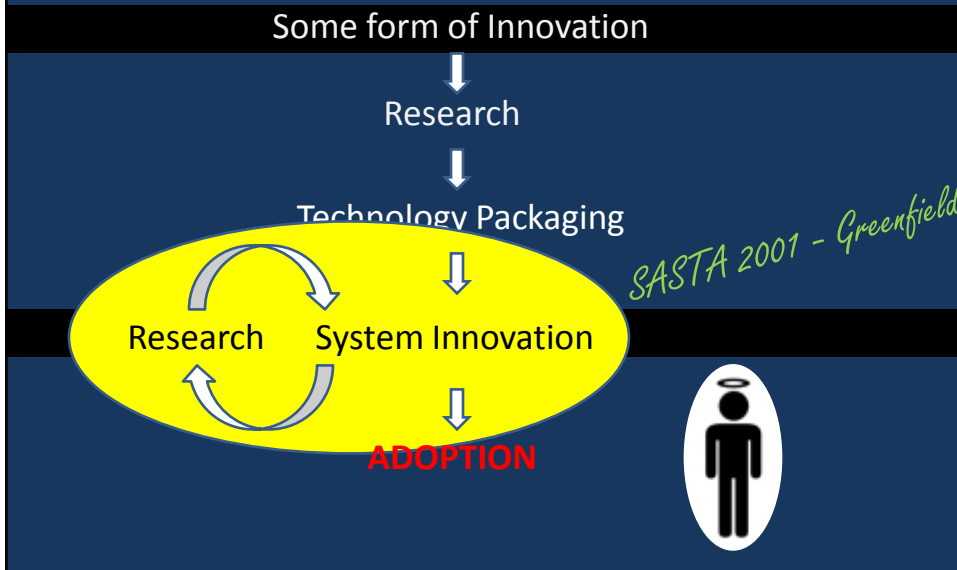




## Difficult Questions

1. Can we expect technology packaging to increase adoption?
2. What is the requisite variety in technology transfer?

## The Technology Transfer Roadmap (from a technologist's perspective)



### Greenfield (2001) – Factors that contribute to an innovative climate

Mill management enjoyed the confidence and support of the Company Board (total autonomy in technical decisions)

The technical management team was small, but included high skills in mechanical, chemical, electrical and instrumentation engineering, allied in all cases to practical 'hands on' involvement with the plant.

The team was well balanced in terms of the 'Belbin' personality criteria

(creative ideas men (plants), specialists, resource investigators, implementers, co-ordinators, monitors and completer-finishers')

Committed & competent foremen and supervisors.

The implementers were also the originators of the innovations, commissioning was always informed, efficient and free from any 'blaming'.

The KISS slogan (Keep It Simple, Stupid!) was prominently displayed in the design office.

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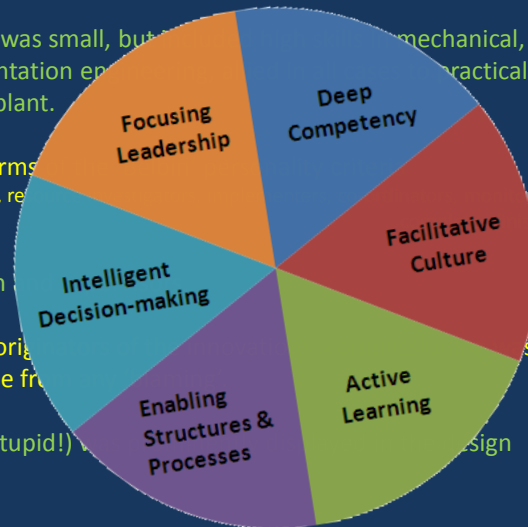
The technical management team was small, but with deep expertise in mechanical, chemical, electrical and instrumentation engineering. They had 'hands on' involvement with the plant.

The team was well balanced in terms of skills and experience ('creative ideas men (plants), specialists, researchers and others')

Committed & competent foremen

The implementers were also the original designers. They were always informed, efficient and free from constraints

The KISS slogan (Keep It Simple, Stupid!) was used in the design office.



### Difficult Questions

1. Can we expect technology packaging to increase adoption?
2. What is the requisite variety in technology transfer?
3. Do organisations (farms, mills, hauliers, etc...) actively promote an appropriate innovative culture?

*What is the response when things go wrong?*

*Social learning*

*Trial & error*

# Thank You

Technology Packaging

Research   System Innovation

UNIVERSITY OF KWAZULU-NATAL

SASRI

The diagram illustrates a process flow. At the top, the text 'Technology Packaging' is positioned above two downward-pointing arrows. Below these arrows are the words 'Research' and 'System Innovation'. To the left of these words is a circular flow diagram consisting of two curved arrows forming a loop. The background of the slide is a collage of images, including a grid of mobile phones, a person with horns, a person with a halo, and logos for the University of KwaZulu-Natal and SASRI.