Identifying and Deploying Technology to Address Issues of Public Interest:

STI FOR STI

Alfred Watkins

Global Solutions Summit

November 29, 2021

STI FOR STI

Science   **S**olve

Technology   **T**ransform

Innovation   **I**mpact

Source: R.A. Mashelkar presentation at World Bank Global Forum, "STI Capacity Building for Sustainable Development," Washington, DC, February 2007

Principal Theme of Day 1

"How can TISCs facilitate
the transfer of technologies
into local communities to
create social and economic
impact?"

In other words, how can we
harness STI for STI

Patents and IP are essential parts of the solution, but not the entire solution

A research result or patent is not a product

A product is not a business

A business with a product based on patented and non-patented technologies will not be financially and operationally <u>sustainable and scalable</u> unless it solves problems -- STI
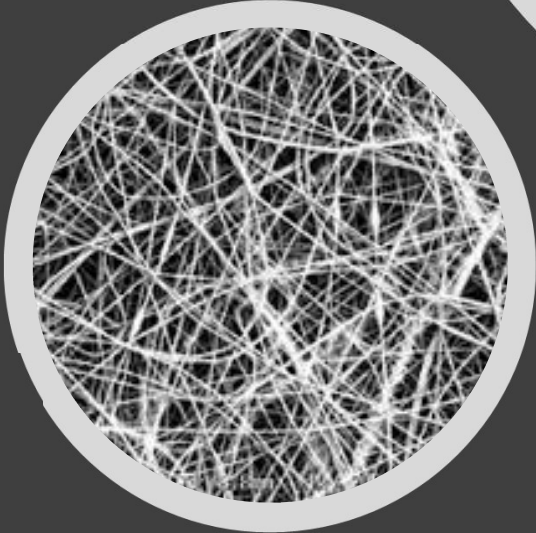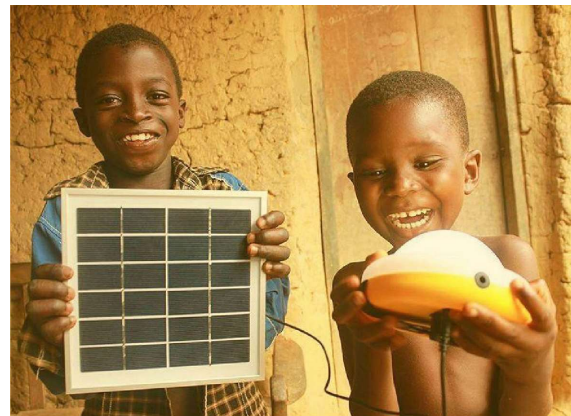
Dr. Vanu Bose
1969-2017

The STI for STI Challenge

"It takes more creativity and innovation to market a new invention than it did to invent it in the first place."

- **7 Countries in East Africa**
- **122 Franchises**
- **174 Million Liters of Water**
- **2100 Retail Points**

1.5 Million People

10,000 Villages

3,500 Local employees

TISCS CAN PLAY A VITAL ROLE IN SUPPORTING All 3 STEPS OF THE STI FOR STI PROCESS – From Patents to Scalable Solutions

- SEARCH FOR TECHNOLOGY OR SEARCH FOR SOLUTIONS TO PROBLEMS?

- TECHNOLOGY IN SEARCH OF A PROBLEM TO SOLVE?

- SOLUTION IN SEARCH OF HELPFUL TECHNOLOGY?

- WHO USES TECHNOLOGY? WHY? HOW?

- ENTREPRENEURS, NGOS, AND GOVERNMENT: WHO IS DOER AND WHO IS ENABLER?

TISCS AND ENTREPRENEURS

Entrepreneurs:

- Identify a problem/business opportunity
- Develop a potential solution
- Find combinations of technologies, operational procedures, and business models that they believe will solve the problem
- Test proposed solutions in the market – people who will use the solution to solve their problem
- Adjust plans
- Launch and attempt to scale the business
- Hope and pray they are correct

Defining a Problem is Difficult

What is the problem or the job to be done?

Solve one problem in isolation?

People know their problems even if they can't articulate a solution

How do you know if you've defined the correct problem?

Top-down problem and solution ID vs. bottom- up implementation?

Optimal technical solutions vs. cultural norms

Who has the problem/who will implement the solution?

Buying Technology Is Difficult

❑ **What problem will it solve?**

❑ **Who buys the technology?**

❑ **Who will solve the problem? For Whom? How? Combined with what?**

❑ **Will the solution be cost effective?**

❑ **What are the technical merits of different solutions? Will it deliver the expected benefits?**

❑ **Is it tailored to the needs of a specific company, country, or region?**

❑ **What are the requirements for successfully deploying this technology at scale and in in new markets?**

11

Selling Technology is Difficult

- Who is the customer?
- Who is the seller -- vendor or service provider?
- Local partners, O&M, Supply chain, financing
- Business model and market studies
- Combine with other technologies
- Financially and operationally viable business
- Community interest and support
- Government support
- Permits
- Workforce training and skills
- User training
- Scale-up strategy
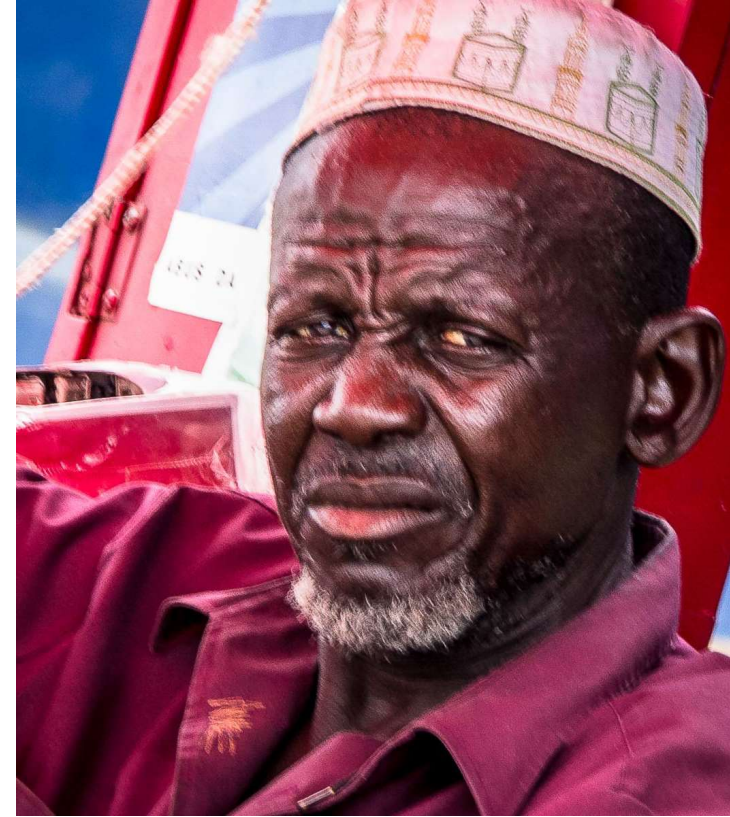
Organizing the the Deployment Ecosystem is Difficult
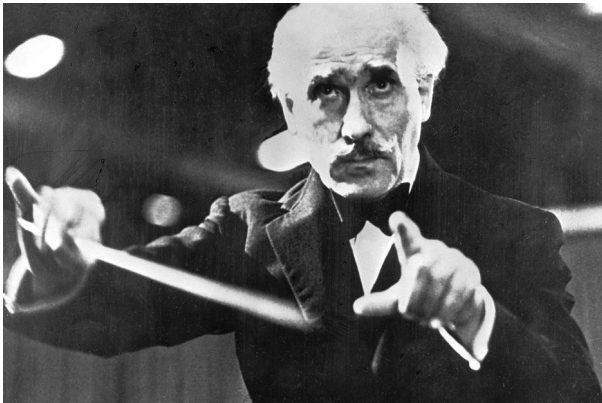
Arturo Toscanini

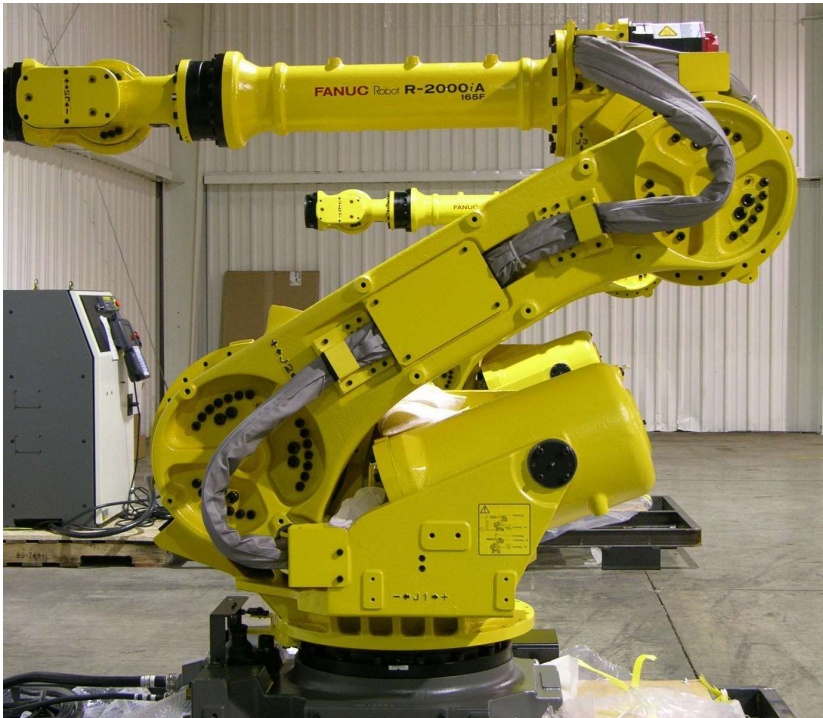|			
Entrepreneurs	Community Leaders	Technology Vendors	Local Suppliers
Social Enterprises	Local and National Governments	Foundations	NGO's
Financiers	Local Universities, Scientists, and Engineers	Multinational Corporations	Multilateral and Bilateral Agencies

Using Technology is Difficult

"Anyone can buy a sophisticated machine. Not everyone can use it to produce a globally competitive product" or provide inclusive goods and services.

Scaling Solutions is Difficult

- **Scale is not a bigger version of small**
- **What gets you launched doesn't get you scaled**
- **Different skill sets for finance, mgmt., etc.**
- **Requires systems innovation; not only technology innovation**

http://animal.memozee.com/view.php?tid=2&did=1111

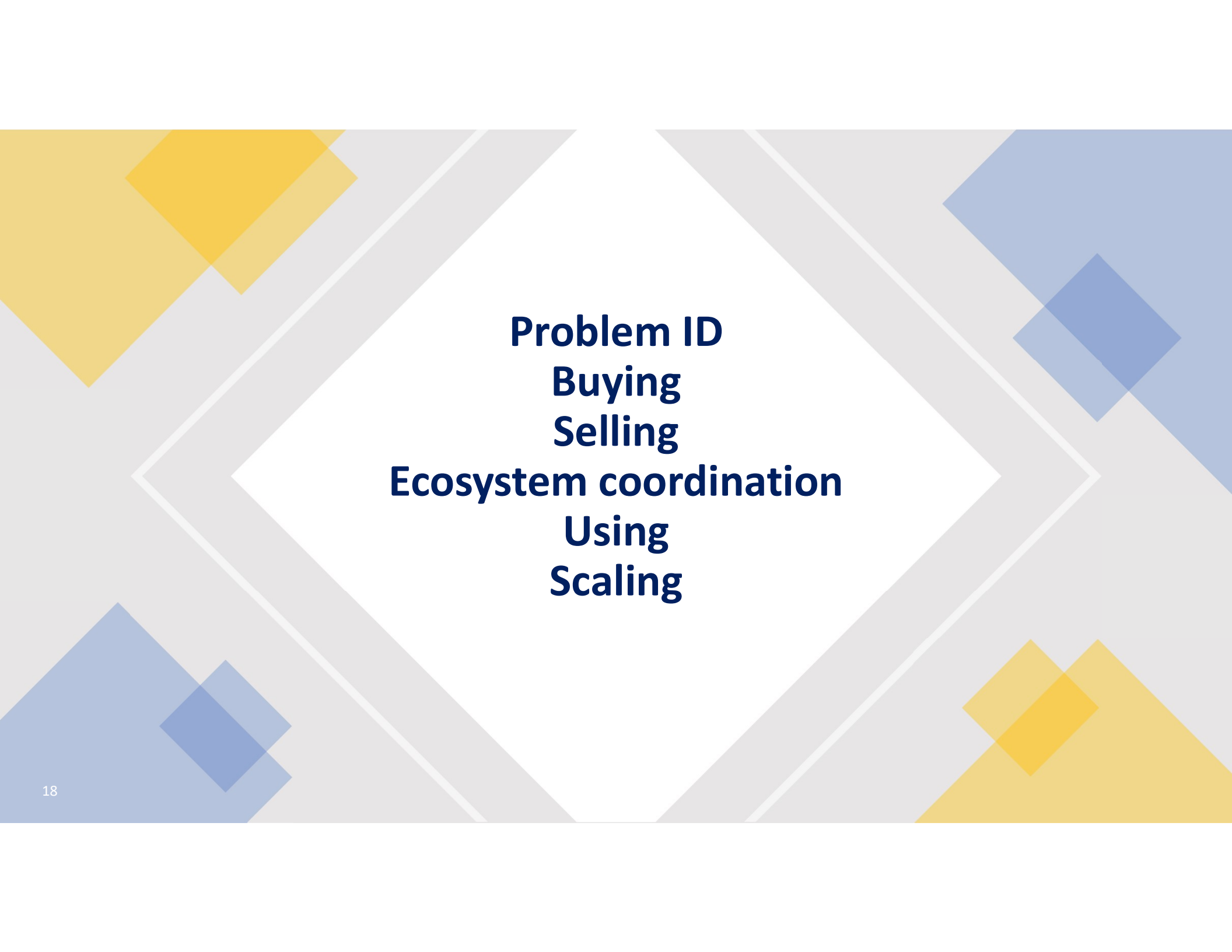The Way Forward: TISCs can help countries and communities solve problems via STI for STI

TASKS FOR TISCs

FOCUS ON MITIGATING EACH OF THE DIFFICULTIES

Problem ID
Buying
Selling
Ecosystem coordination
Using
Scaling

Problem Oriented Roadmaps and Needs Assessments

- Focus on problem; not technology
- Who has this problem?
- Why does the problem exist?
- Consequence of the problem?
- When do they need a solution?
- What would a viable solution look like?
- Who would develop and deliver the final product/service?

- How does the solution get deployed/delivered?
- How do you know you solved the problem?
- How do you create an "Innovation Insurgency" around the idea?
- Who would have to get excited about the solution to adopt it?
- Who are the saboteurs?

Steve Blank

Technology, Innovation, and Great Power Competition – Class 3 – Russia

Technology Scouting

- **Most R&D occurs outside your country**
- **Technological solutions to many challenges already exist and are being used elsewhere**
- **New technological solutions are being developed at a rapid pace around the world**

Technology scouting helps you:

- Select from the vast supply of available R&D and development solutions
- Avoid wasting time and scarce resources trying to reinvent the wheel

Competitions

- Define a problem in broad general terms with community input/consultation
- Call for solutions -- crowd sources proposals for innovative solutions from entrepreneurs.
  - Although only a relatively small number of entrepreneurs win an award, the competition process encourages a much larger number of entrepreneurs to participate in the competition and to begin thinking about devising innovative solutions.
- Start-up Weekends
- Know-How Transfer Fund
- Deployment Support Fund

Innovation Entrepreneurship Centers

Evaluate

Evaluate new and existing technologies and solutions

Research

Problem oriented research with stakeholder participation
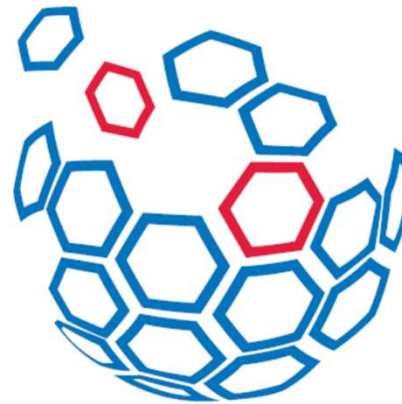
Problem focused research competitions

Use

Build local use capacity in factories, companies, and farms

Workforce Training

Manufacturing extension centers

THANK YOU!!

Alfred Watkins

Global Solutions Summit

alfred.watkins07@gmail.com