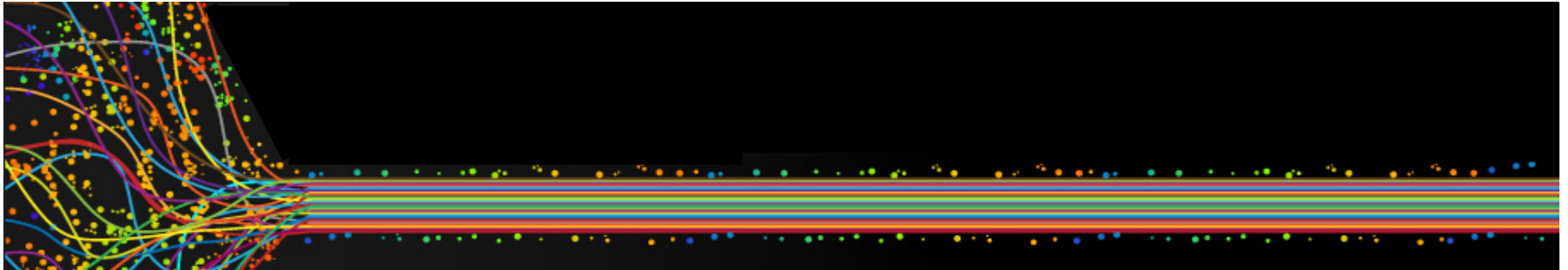




# **How did Mexico do it?**

## **The National TSP Initiative**

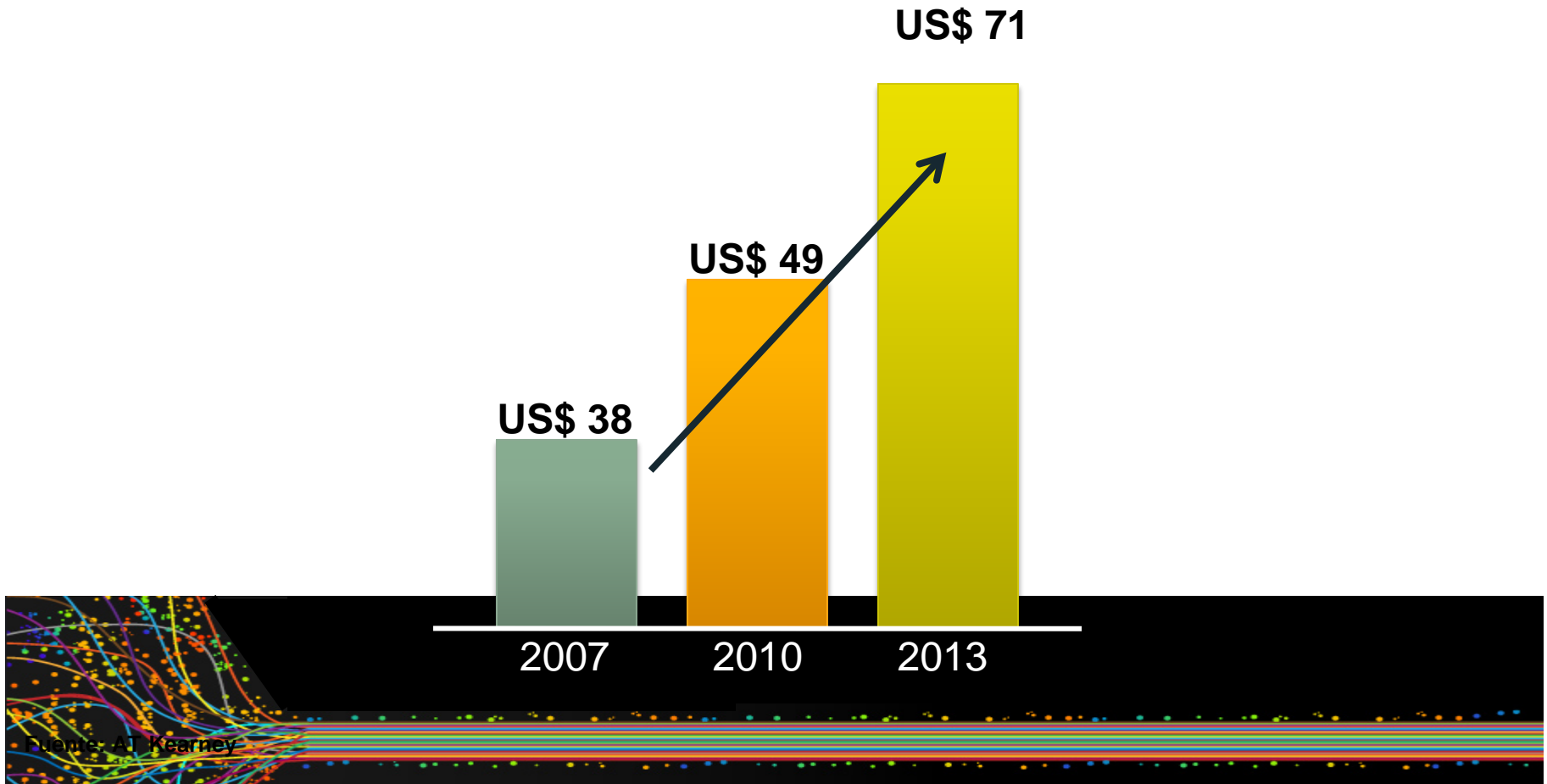
**Fernando Jaimes Pastrana**  
**Tecnológico de Monterrey Fellow**



1

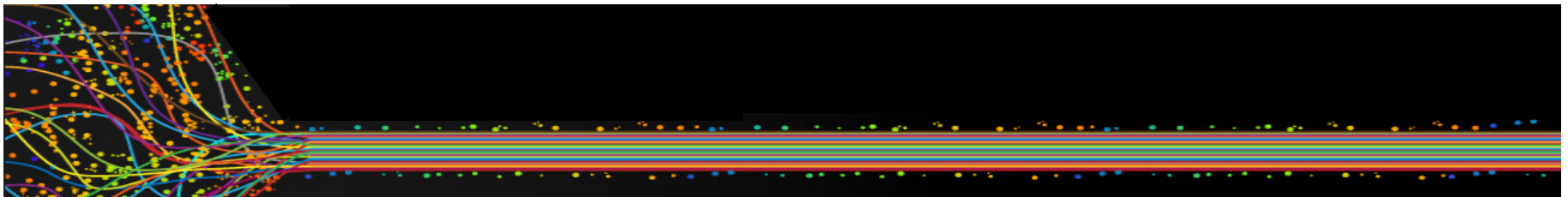
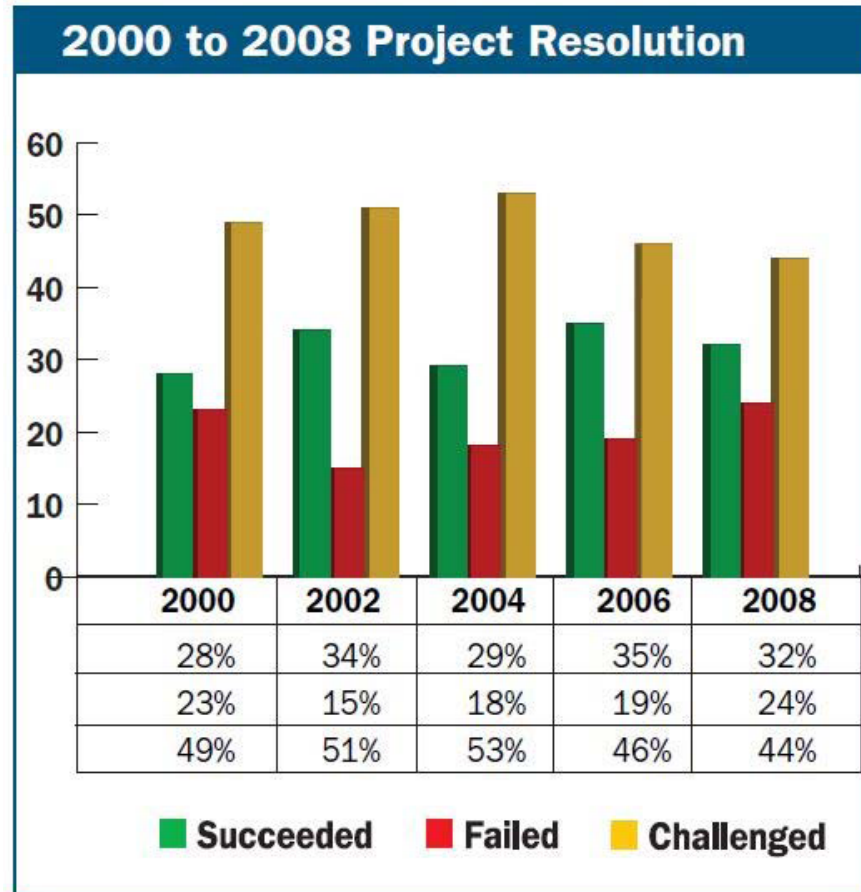
# A great business opportunity

## Software outsourcing World market



## 1

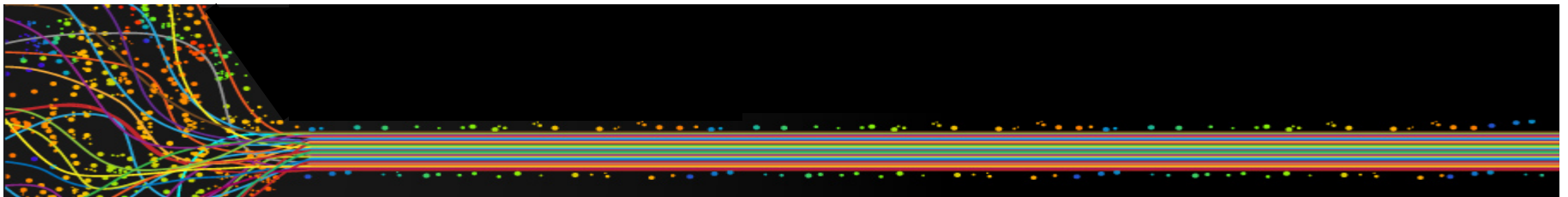
# Software quality challenge



# 1

## TSP Initiative: Context

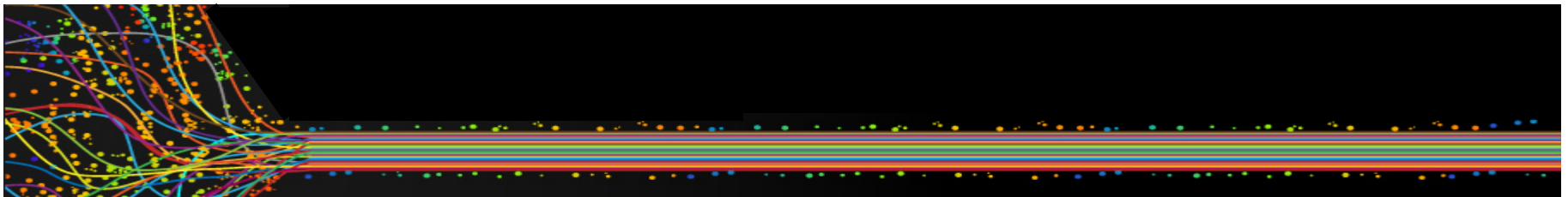
- The opportunity of a high growth on global sourcing of software development and maintenance.
- The imperative to improve the quality of software development worldwide.
- The challenge to substantially increase the Mexican market share of the global sourcing market.



# 1

## TSP Initiative: Objective

- **International recognition of the Mexican software industry as a high quality industry**
  - High quality human resources
  - High quality projects
- **Establish TSP capabilities**
  - Software development companies
  - Developers
  - Instructors
  - Coaches



1

# TSP Initiative: Benefits of TSP

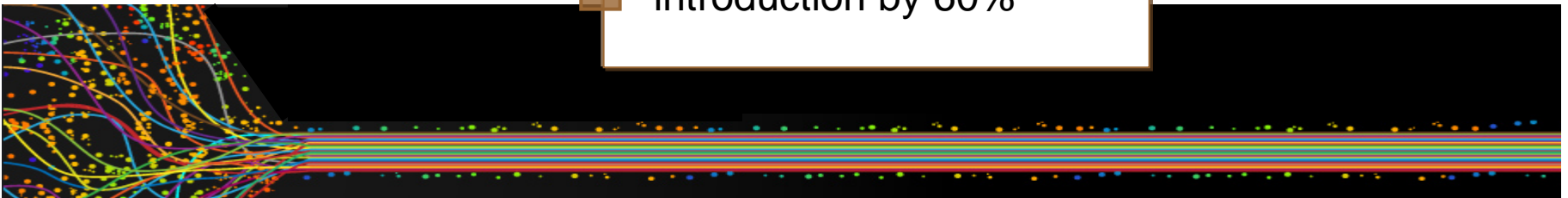
2 to 20 times improvement in product quality

2 to 10 times reduction in testing time

Estimate improvement:  
estimate difference  
between +/- 10%

Quality equivalent to  
5.2 sigma (60 defects  
per MLOC)

Accelerates CMMI  
introduction by 60%



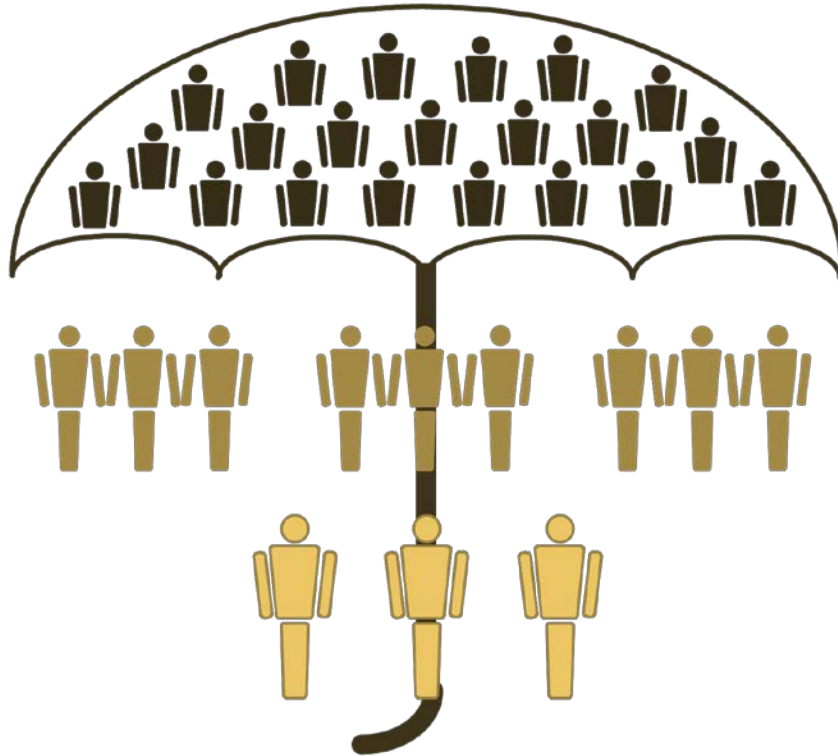
# 1

## TSP Initiative: Operational levels

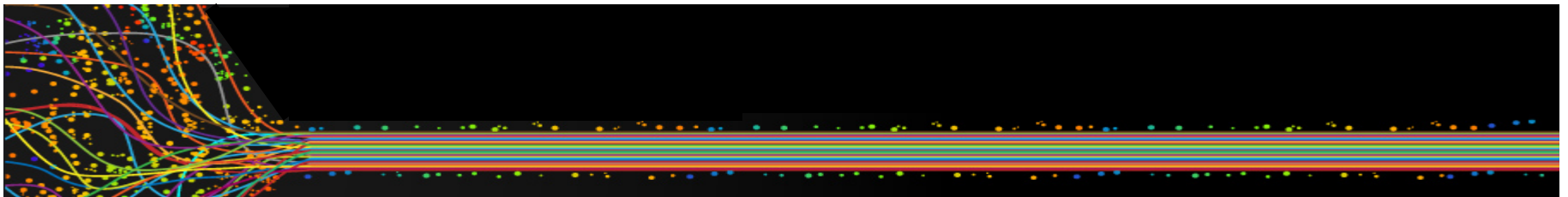
CMMI – for  
*organizational*  
capacity

TSP – for  
quality products  
on cost and  
schedule

PSP – for  
individual skill  
and discipline



Source: Watts Humphrey, CMU/SEI-2000-TR-023



1

# TSP Initiative: Plan

Year:

New this year

Mkt

USD

Proj

Dev

Coach

Inst

Total this year

Mkt

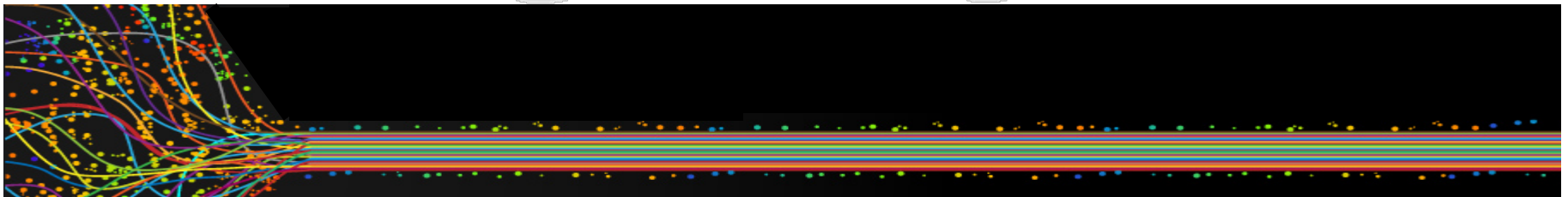
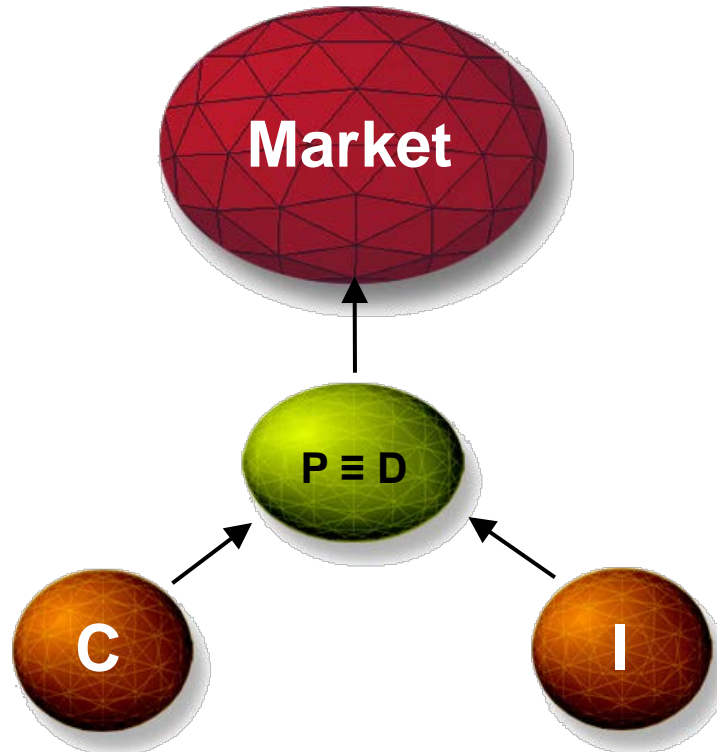
USD

Proj

Dev

Coach

Inst





# 1

## TSP Initiative: Time Line

2005	2006												2007							
Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug

Tec visits  
SEI

Ministry of Economy support  
& funding for phase I

CMU-ITESM MOU signature

• TSP initiative launch  
• Faculty Workshop

• Undergrad student training (1/3)  
• Faculty training (1/2)

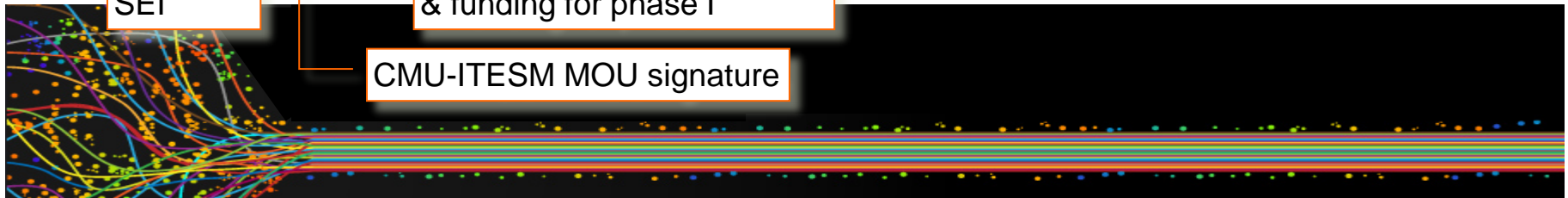
Softtek

IBM

Undergrad student training (2/3)

Towa

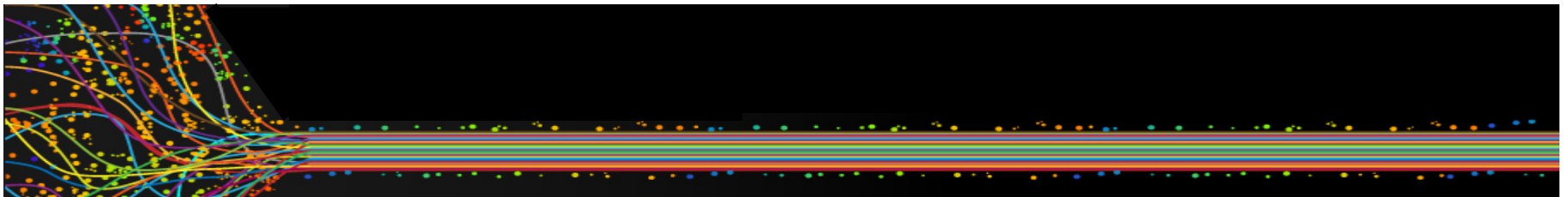
• Undergrad student training (3/3)  
• Faculty training (2/2)



# 1

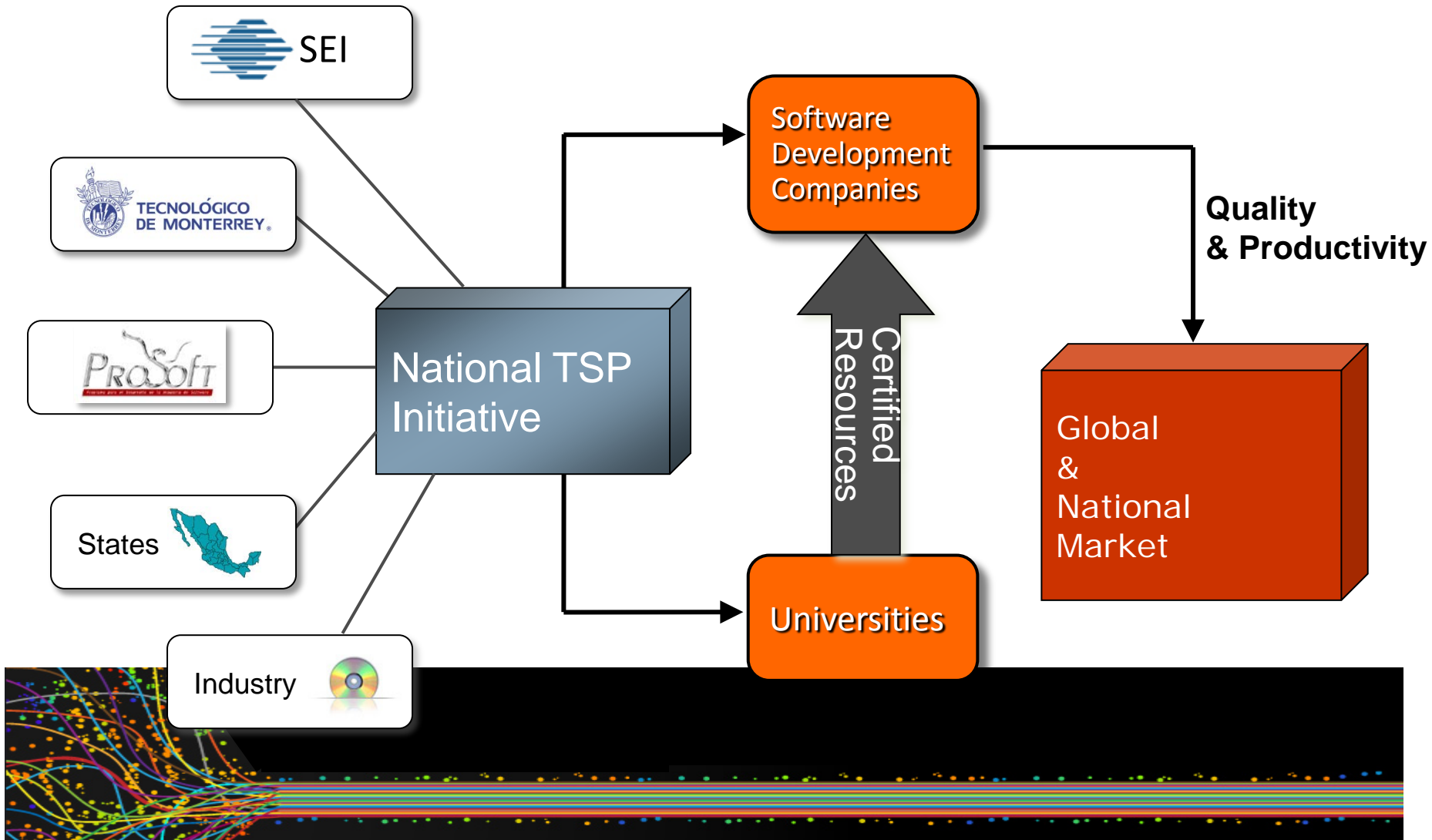
## TSP Initiative: Barriers

- Understanding of TSP and PSP methodologies
- Culture
- High costs
- Availability of certified developers, instructors, coaches and mentor coaches
- Language



# 1

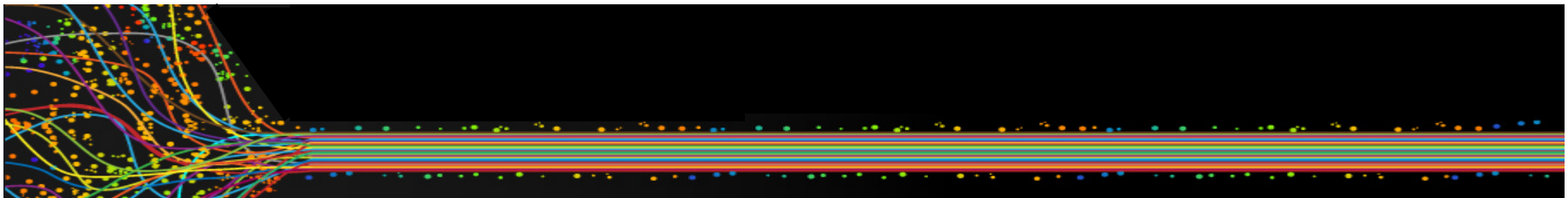
## TSP Initiative: Conceptual Diagram



# 1

## TSP Initiative: goals, policies and organization

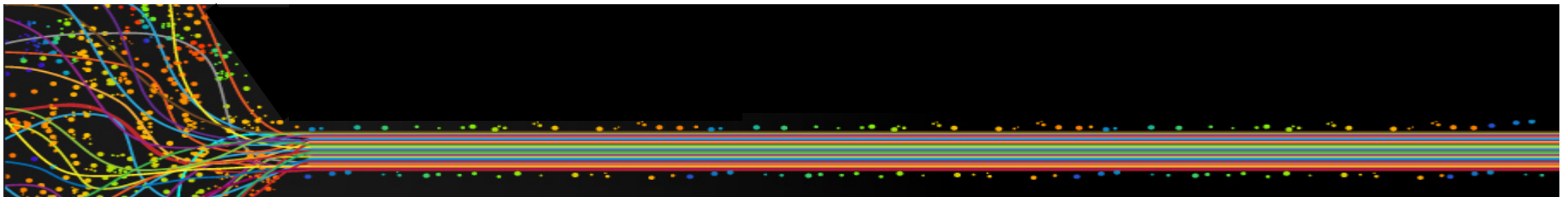
- **Social benefits for Mexico**
  - Global sourcing revenue
  - Growth of existing companies and creation of new ones
  - Creation of high value jobs
- **Public policy and specific plan to promote it**
  - Prosoft: National TSP project
  - Participation of government, industries and universities
- **Organizations needed to successfully execute the national project**
  - National promotion committee
  - State promotion committees
  - National operational organization
  - SEI-Tec certification organization





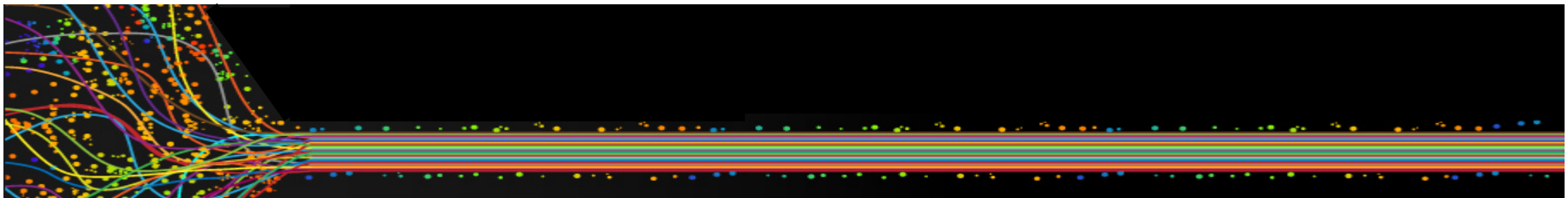
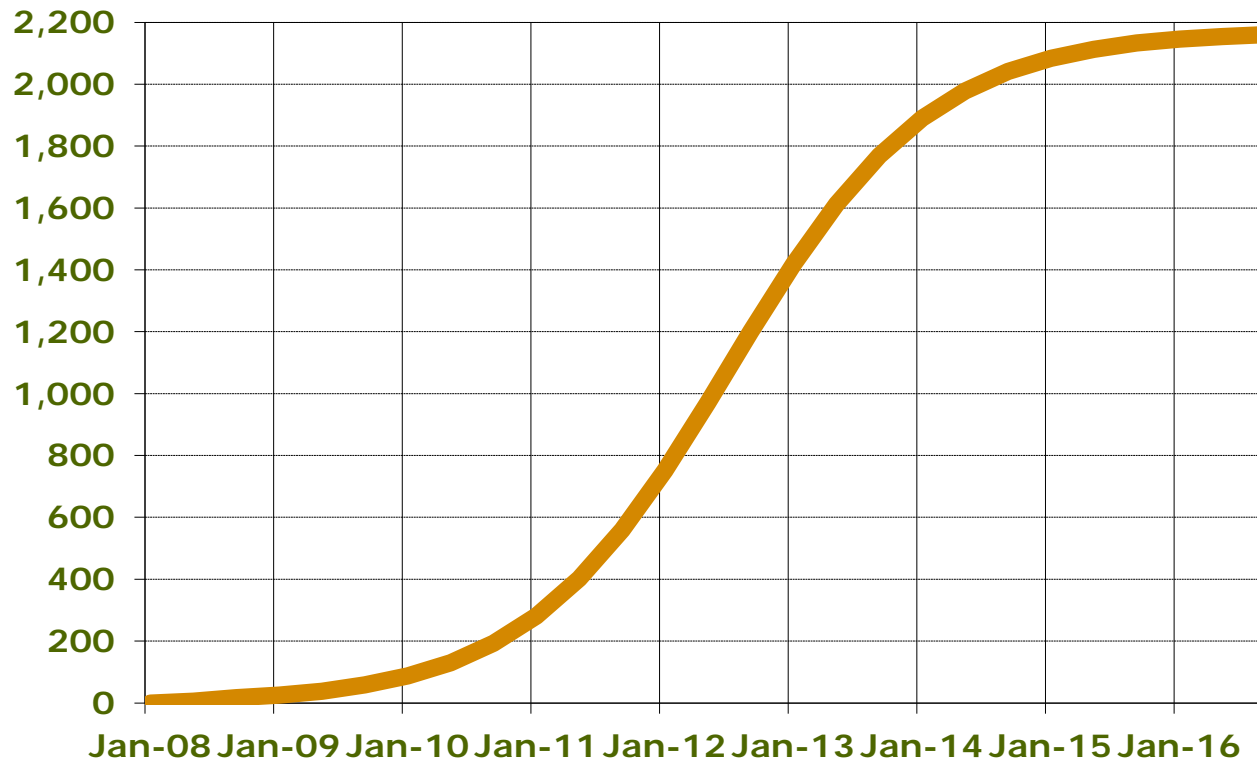
"In five years I want the world  
to be asking,  
***How did Mexico do it? "***

Watts Humphrey, 2008



# 2

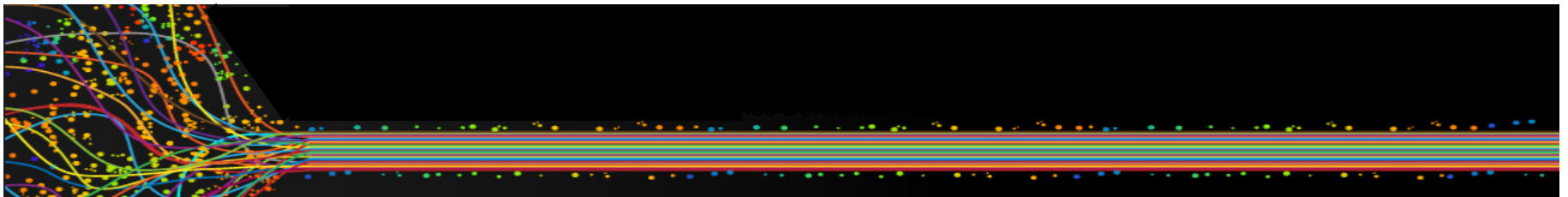
## Innovation diffusion Model Everett Rogers



# TSP Initiative Promotion Strategy



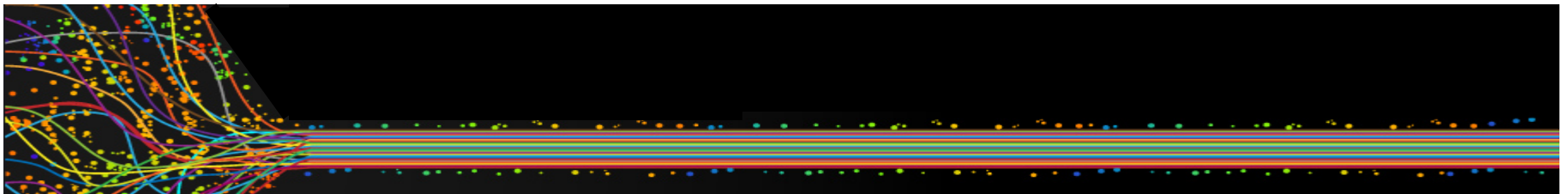
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# 2

## Value proposition

### Focus group results



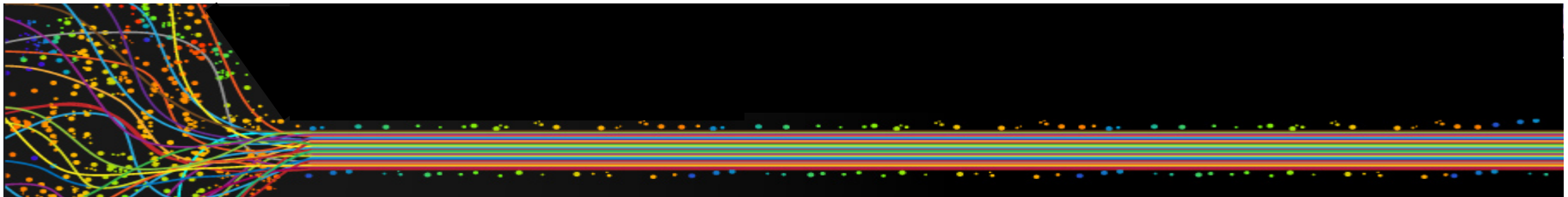
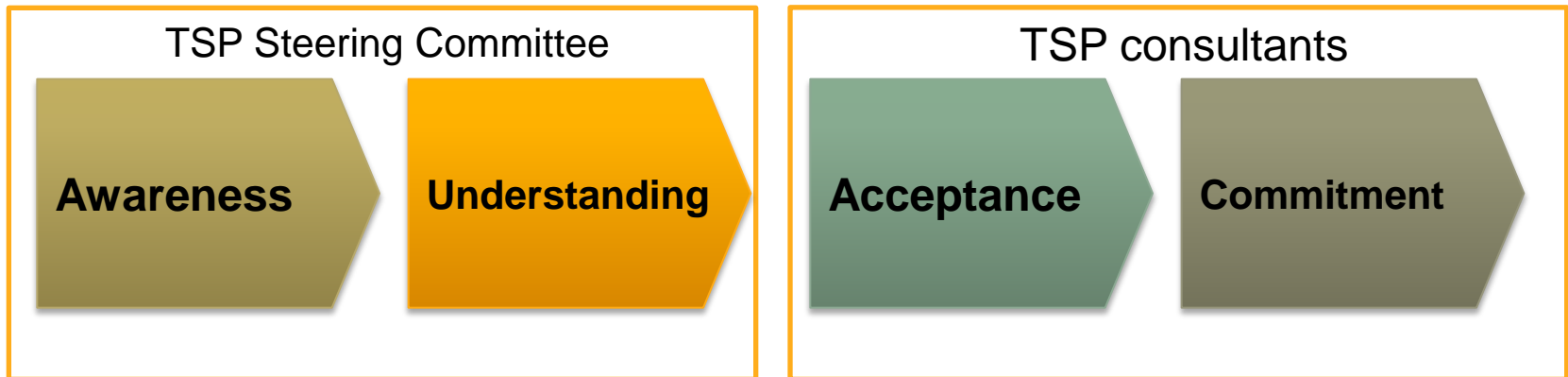


# 2

## Promotion Strategy

The goal of the NL TSP initiative is to lead specific business companies to understand the benefits of the discipline in the software development practice and embrace TSP.

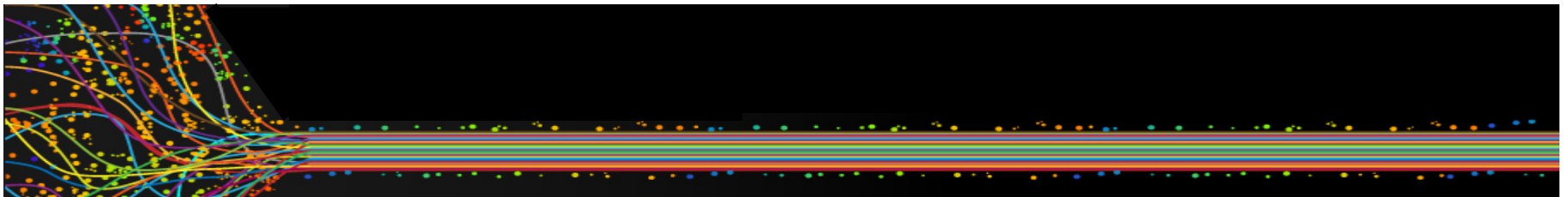
### Change Process



## 2

# Employment and exports 2018

- 28,750 PSP certified software developers
- USD 2,000 million in software development outsourcing
- Accelerated growth of established business
- New software development companies
- High quality educational programs



# 2

## The Mexican TSP Initiative

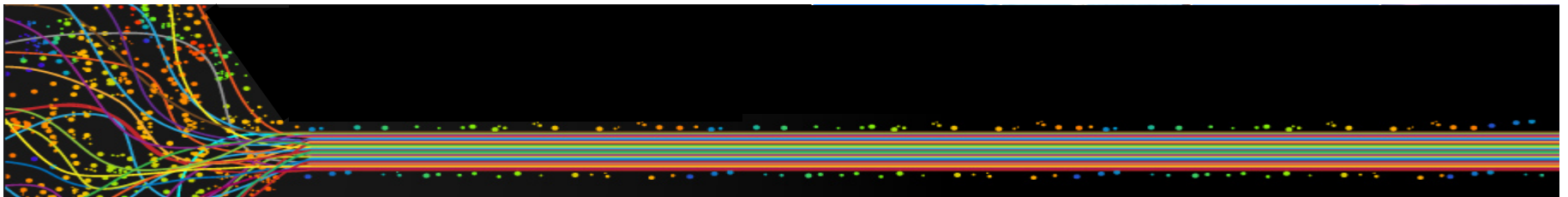
- Development and piloting of the Organizational Evaluation and Certification
- Development and implementation of the national TSP diffusion model.
- Certify 25,000 TSP developers with access to international markets.

### National

- Development of the TSP organizational standard to be use internationally as a reference for quality and performance improvement.
- Development of a virtuous ecosystem to promote collaboration and synergies among suppliers and clients of outsourcing.

### State

- Replicate the national diffusion model at the state level.
- Formulate and execute the promotion plans.
- Strengthen of regional clusters.



# National Component



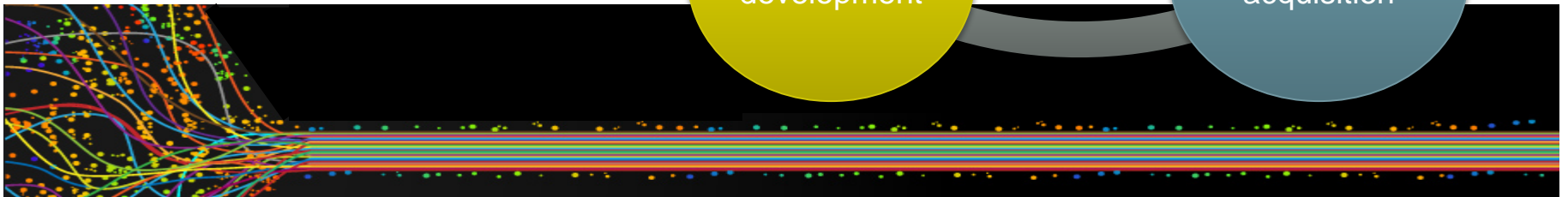
Developed by:



Software Engineering Institute  
Carnegie Mellon



TECNOLÓGICO  
DE MONTERREY.



# 2

## State Component

### Implementation State Plan

State agreement

Cluster selection

State consultant contracting

Promoting organization

Implementing the promotion plan

4 months

### Training, certification and pilot

Selection of a pilot project

Training

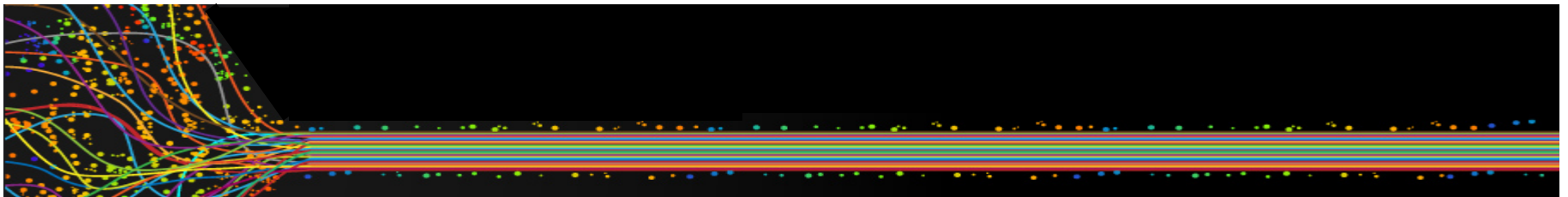
Implementing the pilot with an external coach

Advanced training

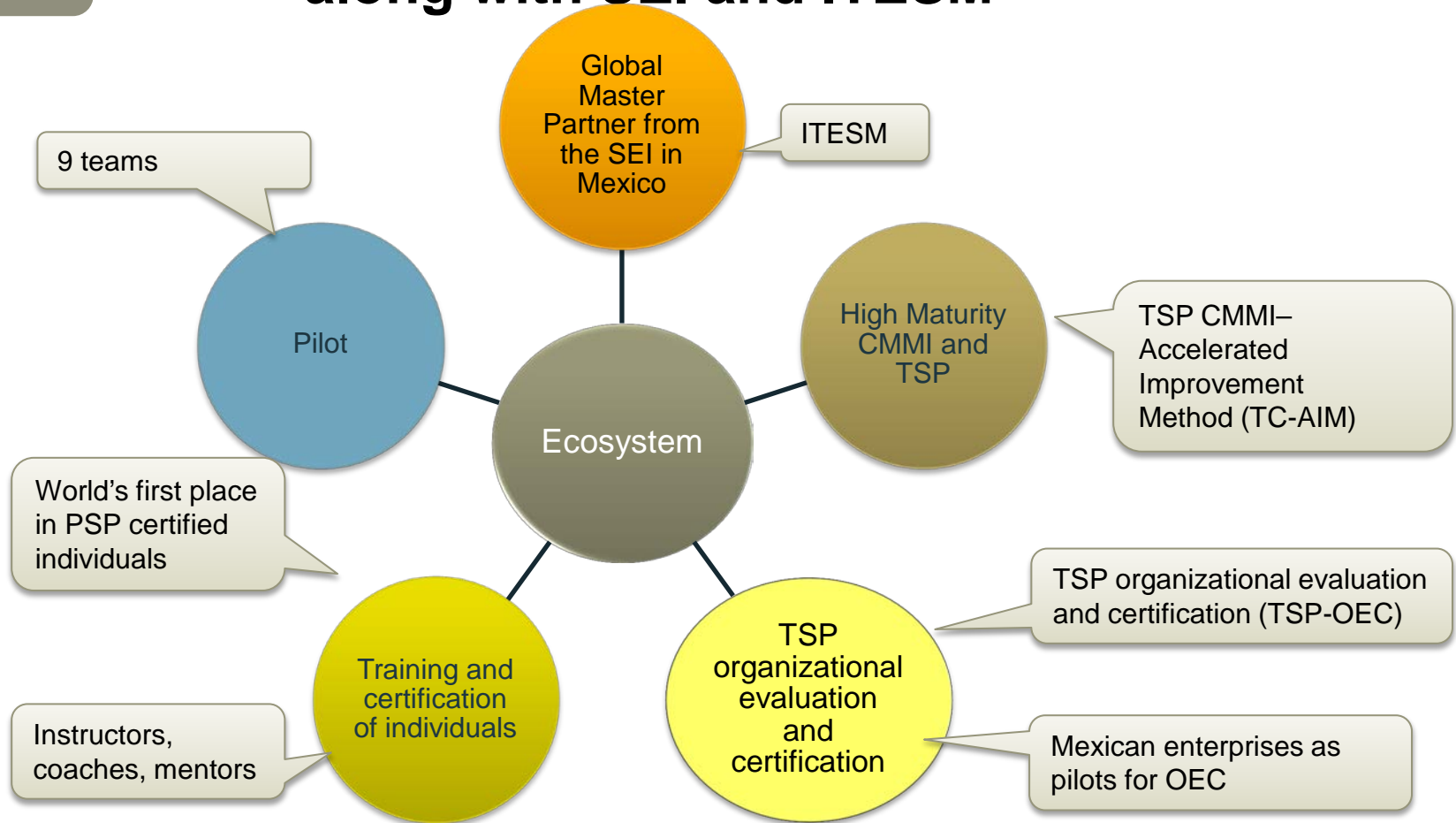
Developers certifications

Instructors and coaches certifications

6-7 months



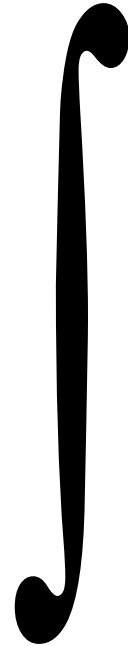
# PROSOFT TSP Initiative along with SEI and ITESM



3

## The innovation concept of TSP

**Watts**



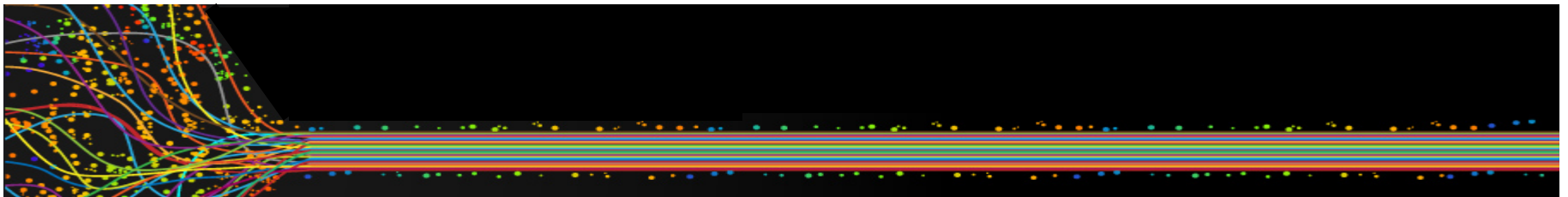
Deming

+

Ishikawa

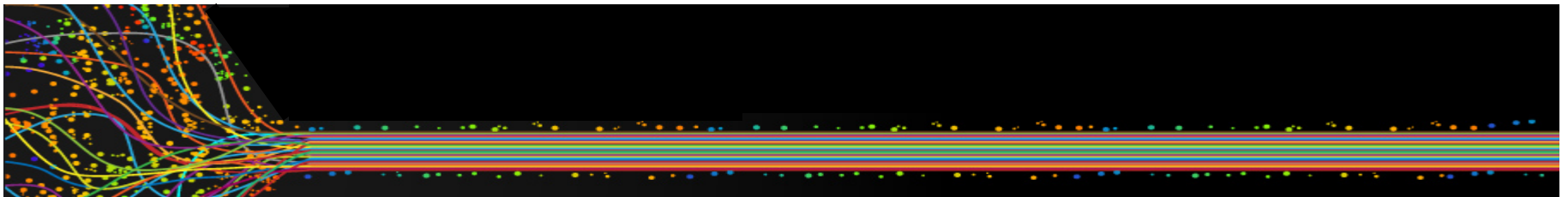
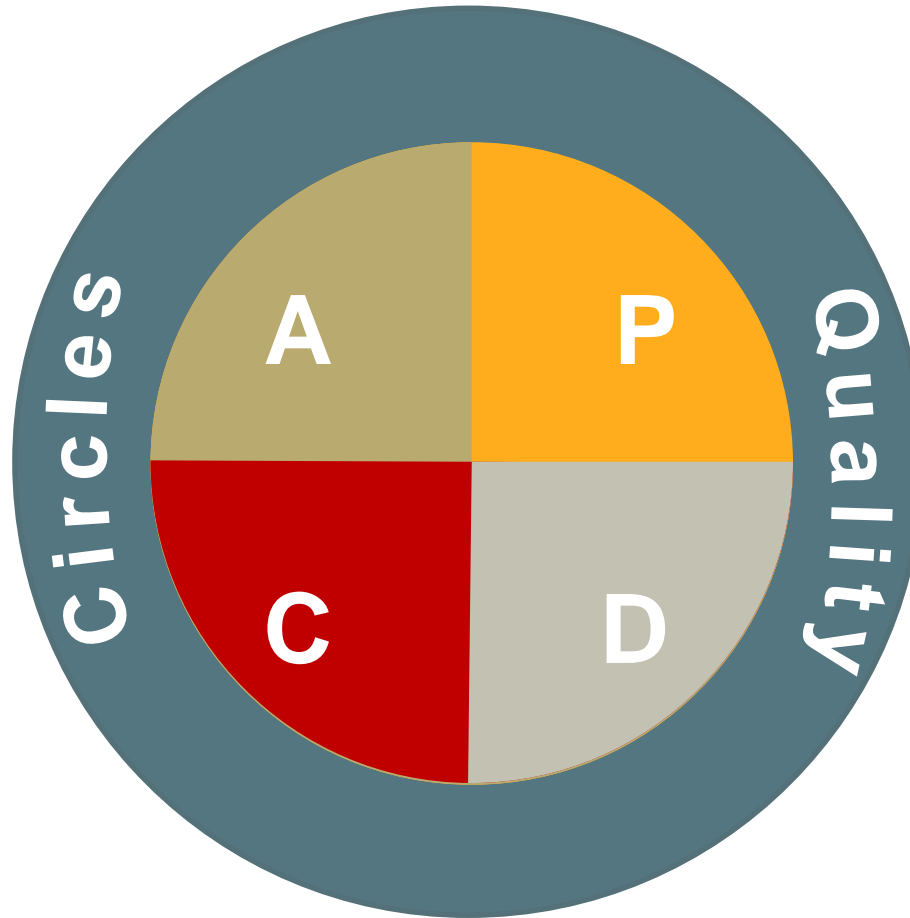
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Drucker



3

## TSP: The Software Quality Revolution







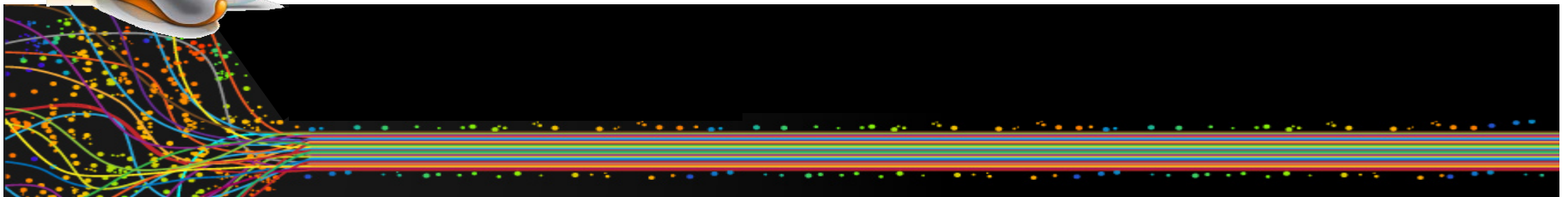
**TV Industry**



**Internet Society**

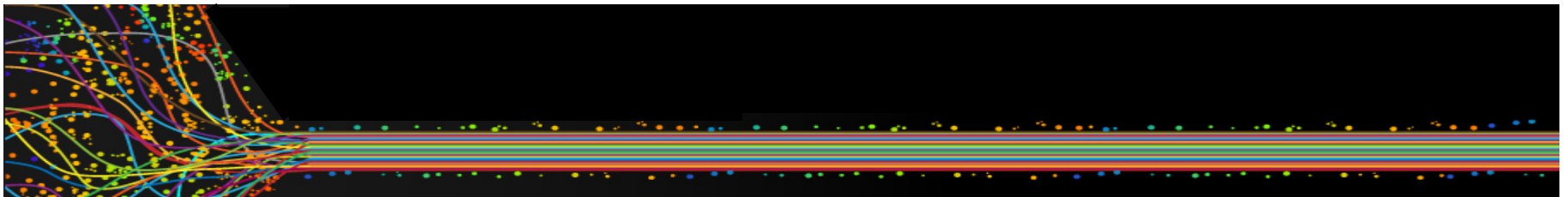


**Software  
Quality  
Innovation**



## The Challenges

1. rational vs fuzzy decision (Daniel Kahneman)
2. adversarial vs collaborative
3. professional vs organizational
4. learning vs training
5. knowledge vs competencies



- We need to accelerate
- We need to change
- We need to change the change
- We need to go from

**NO to YES**

