

**Optics Industry Cluster
Pan African Competitiveness Forum
Africa in the Global Economy
14-16 April, 2008**

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Chairman**

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Chairman and Founder
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I've done Clustering before in Africa
in the very early years of Clustering



From Aug 1997

Implications for South Africa's Cluster Program

- Outcome of the existing and future studies: cross-cluster issues (eg, skills)-how will these be handled
- Clusters concepts, it is very broad, current clusters are oriented at more internal concerns are small, few companies, are very closed, oriented to company
- Concepts presented show clustering at a regional level and industry clusters defined broadly; clusters here are organized at a national level, but narrow in focus.
- How can we get a few small things going?

South Africa

Collaborative Strategy Development



The Dream Team

*ECG, BluePrint, The World Bank, Monitor, Bain,
Bain, Competitive Strategy, MindSet, Cluster Navigators*

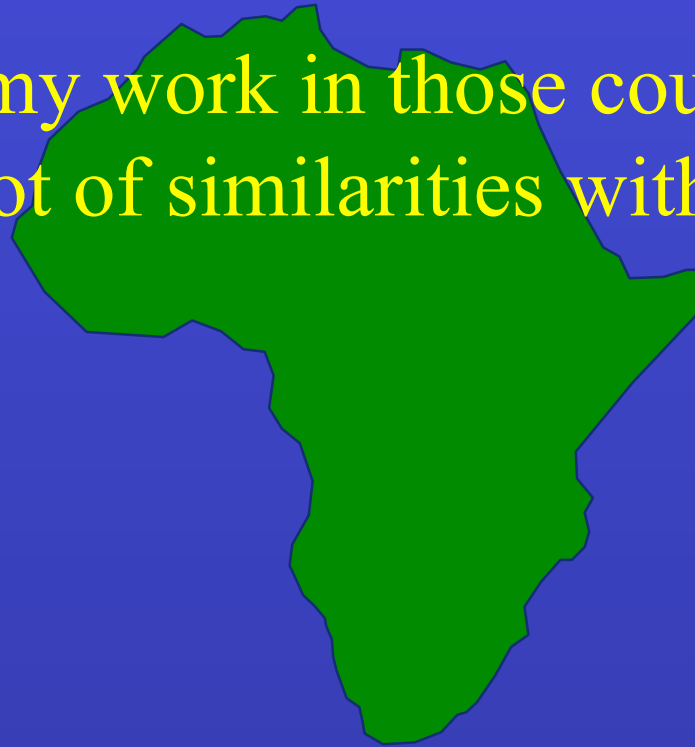
March 1998

March 1998

Again in 2003 at
Education and Training (ETOP)
Dakar, Senegal

Last Six Years I've Worked Korea and Now Mexico

I feel the my work in those countries could
have a lot of similarities with Africa.



Can Africa Have Successful Clusters

- I feel the answer is absolutely YES
- I have helped build Clusters of various types in 31 countries
- From the inside of an industry looking out at Cluster economic development I recognize just how smart it is to participate as a member in a healthy Cluster set of processes.

Successful Clusters

- As my friends in Cluster creation know I am not very tolerant about excuses that “My region can’t succeed because ...”
- Clusters are the best way to use whatever sources a region has to create near billion dollar success stories.
- It has been done with \$10,000 per year and with \$1 Billion dollars over five years. They both work if the Cluster *members* commit themselves to the Cluster processes.

However

- Either can fail if the Cluster *members* **do not** commit themselves to the Cluster processes.
- I have predicted and watched \$400 Million Dollars go to waste in one country

I Will Use The Arizona Optics Cluster To Make A Few Points From a Businessman's Point of View For This Conference

- Even though I have now started 30 optics Clusters in 31 countries and formed the Boards of 24 of them I was myself was not initially motivated by the Cluster concept when in 1992, I was asked to help start the first one in Arizona
- It is counter intuitive to the average businessman

Tucson Optics Cluster-to-Cluster based Economic Development in Action Globally

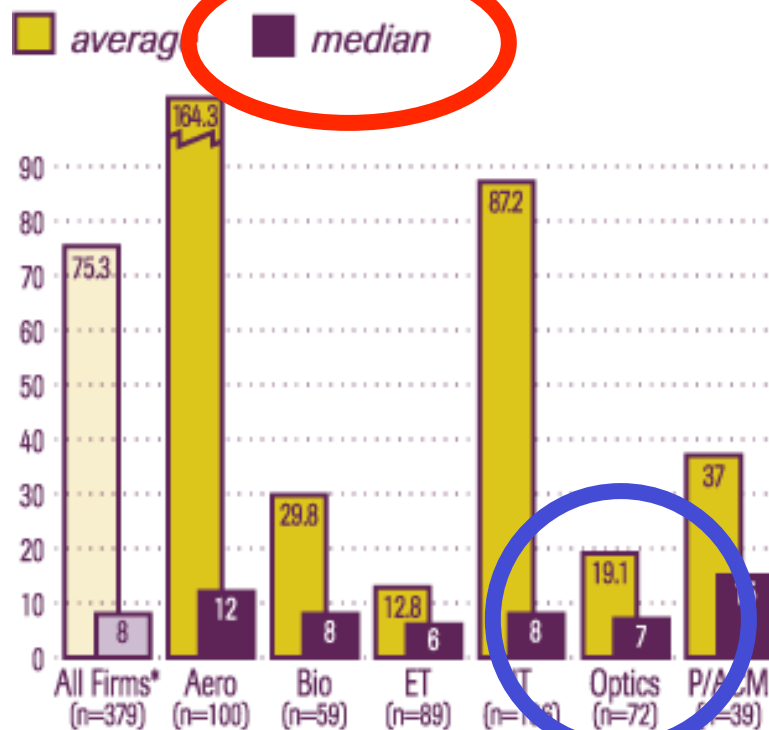


14 April, 2008

Clusters, an Alliance for Progress in the 21st Century

Small companies numerically dominate all clusters

Average and median firm FTE employment (August 2001)

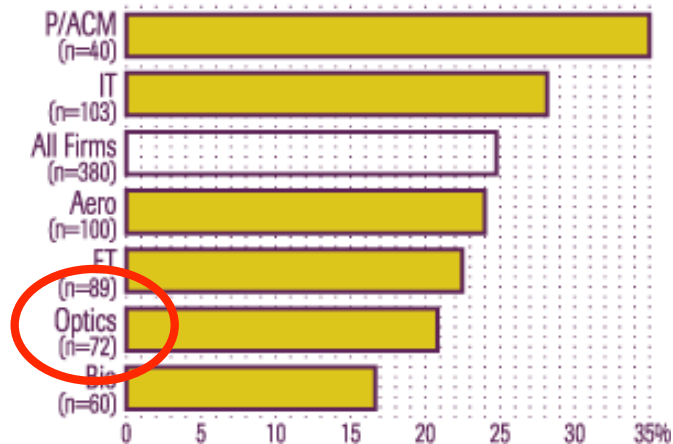


- Median high-tech firm has 8 full-time employees

Other firm characteristics

% of firms that are branch facilities or subsidiaries*

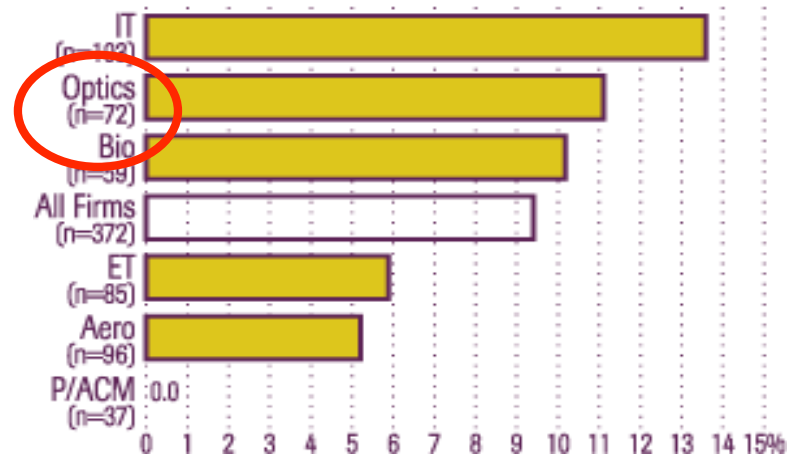
* remainder of firms are single sites or headquarters



75% are locally owned and operated

% of publicly held firms*

* remainder of firms are privately held



90% are privately held

**From a U of Arizona Study to be
Released in May 2008*

*Total number of employees
in the Arizona Optics and
Nanotechnology Clusters*

- 1996: 2,555 employees*
- 2006: 25,635 employees*

**From a U of Arizona Study to be
Released in Sept 2007*

*Total annual revenue in the Arizona
Optics and Nanotechnology Clusters*

- 1996: \$ 236,200,257*
- 2006: \$ 2,306,107,615*

N = 50

MS, PhD Retention Rate From
The Optical Sciences College
Into The Local Region
In The Last Five Years Is 30%!

Spin Offs

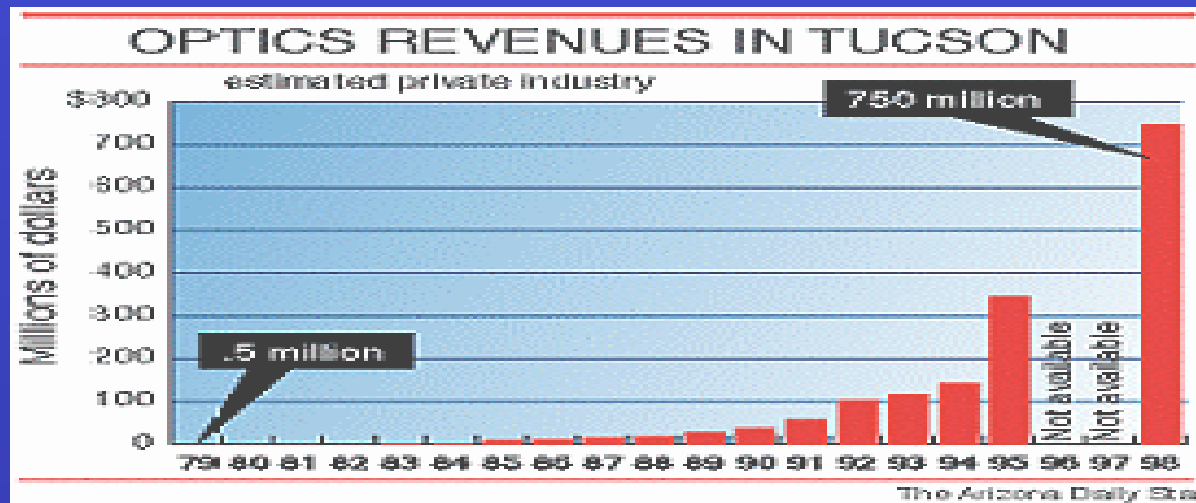
A one day (March 7, 2007) quick count of the
number of spin offs from the
Optical Sciences College in Tucson
was 50 Companies

My Company Has the Distinction of Being
The First Spin Off

I Can Count 22 Spin Offs From Me!

Optics Valley Revenue Growth

\$2.3 B



2006

The Arizona Daily Star

March 21, 1999 Editorial

14 April, 2008

Clusters, an Alliance for Progress in the 21st Century
Mark Muro is a Star editorial writer. He may be reached by e-mail at mmuro@azstarnet.coi

Company Annual Average Revenue

- 1996 \$11,015,404
- 2006 \$45,217,796

$$N_{2006} = 50$$

The Cluster statistics achieved in the previous slides was done with just about \$10,000 per year!

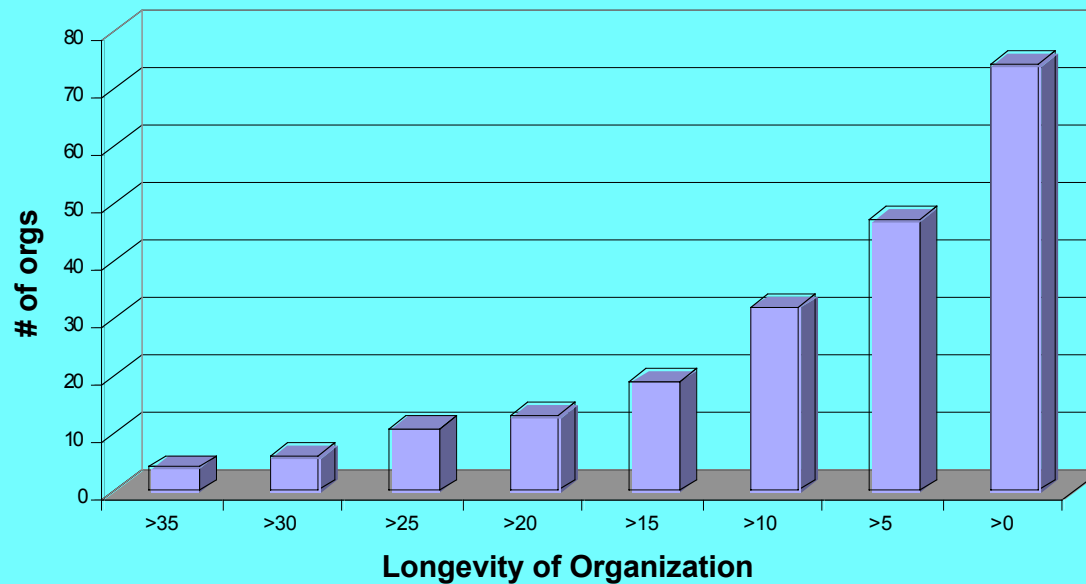
It need not take a lot of money but it always requires execution and taking personal responsibility.

Exporters

56% of the
Optics/Nanotechnology firms export

Most exports are to Asia, Europe, Canada
and Mexico

Distribution of Pima County Optics Organizations, by Longevity; Circa 1996



Source: UA Office of Economic Development, 1999

In the years 2005-2006 the Optics Cluster grew from 212 companies to 309 companies.

Creativity need not be technological creativity

- It can be a business knockoff of successful business elsewhere
- I belong to the Desert Angels, an Angel investment group in Tucson, Arizona. There were proposed and liked the idea of a Teleservices industry on the west coast of Africa that was a duplicate of a success in the Philippines.

The Cluster Concept



- Think of it as a symphony
- Each public or private entity (department or company) is the greatest at what they do.
- However, without sheet music or plans it doesn't work very well.
- Sounds naïve yet this is what we have been doing most of the last 50 years.

Clustering is a Process

- It is a painful process
- There is death in Clusters: Clusters themselves and companies
- There is dissension
- It is a learning process. It always takes many years! We grow.
- Clusters are driven by the private sector
 - Cluster companies are the entities that know how to make money
- It is very, very hard to run with volunteers only. Arizona does.
- There needs to be a government entity to pull it together
- Legislative leaders change and the new officials choose not to carry on their predecessors concepts

Basic Cluster Activities

The day by day stuff

- Day to day issues
 - Legislative Initiatives
 - New Cluster Initiatives - Which ones?
 - Foreign visitors
 - Cluster initiative funding
 - Networking
 - lunches
 - Joint Trade Trips/Reverse Trade Visits
 - Membership drives
 - Education/Workforce Development

Basic Cluster Activities

The day by day stuff

- Training of new Board members
- Create and maintain the Cluster's Web site
- Provides active links from the Cluster's website to member company websites and other resources
- Hold periodic Cluster specific lunches with distinguished speakers
- Serve on various University committees to promote Technology transfer
- Serve on College's Industry Advisory Board
- Interface with legislators at all levels. They are really good people. If we don't talk to them they have to guess.

The most fundamental rule is

“Clusters are driven by the
Small Medium Emerging Companies”

I Suggest That Africa Think Small,
Medium Sized Companies.

Go ahead and try to attract the
multiple nations but don't count on it.

Use what you have and make it
globally more competitive.

Three final thoughts

Clusters can be very important and financially rewarding to big multinational companies

And the funny thing is that it is the Small-Medium companies that do the leading!

“Mirror” clusters in universities help convert university technology into companies or make them more competitive and small companies will use “mirror” Clusters

Lastly

Because of this Forum I have been thinking about what are the real impact of Clusters at the global level?

How have they changed things from my vantage point?

We have start an economic revolution of the first magnitude! It is real, it is worth it, and we are winning.

It will be talked about 500 years from now!

Lastly

No longer is the wealth or the economy driven by Kings and Queens, or Prime ministers, or even Dictators or parliaments or congresses.

In cooperation with regional and Federal programs and universities I see Clusters taking far more control of what the will or will not do. There is much, much more business to business contracts and world changing effects than some governments want, including mine. Jobs move, people scream, but it goes on now at all levels of business and it has it's own momentum.

Thank you kindly for the courtesy of
your time.

