

# Australia's evolution as a Knowledge Intensive Economy

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Presentation by Hon Dr Mal Bryce

Very few if any, experts on global development expect life in the next 10-20 years to be "Business as Usual"

**Our world is changing** (dramatically.)

**We are changing.**

**Our communities are changing.**

**Our economy is changing.**

As a nation we have been in denial about the scope and magnitude of problems confronting the planet.

Most of Australia's wealth is generated in fairly traditional fashion in traditional sectors.

- Our **real estate** market is sizzling.
- Demand for our **mineral resources** has reached unprecedented levels.
- We are experiencing one of the longest running **bull markets** in the history of the stock exchange.

“Our actual survival and our contribution to solving the challenges facing the planet depend upon us being a key player in the Global Knowledge Economy.”

# **The challenges and changing shape of our World ?**

An increasing number of earth systems scientists and climatic specialists argue that the planet is sick and is running a temperature that is rising fast.

# The earth's human population has exploded in the last two centuries.

- 1802 world population 1 Billion
- 1950 world population 2.5 Billion
- 1999 world population 6 Billion
- 2050 world population 9 Billion (UN estimate)

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The collapse of numerous  
barriers leading to a more  
integrated and interdependent  
world.

Mass migration on an unprecedented scale

Environmental pressures  
associated with climate  
change, and the loss of bio-  
diversity.

Enormous new consumer societies are growing....this new middle class may be as greedy as us.

# Sustainability

- We are leaving future generations an increasingly depleted planet.
- A third of the world's natural resources have been consumed in the last 3 decades.  
(mainly by the 1 Billion HAVES)
- Current levels of consumption of finite resources are not sustainable

# Technology is now powerful enough to wreck the planet.

Managing the outcomes of technological advances is now one of mankind's greatest challenges

- Bio-technology.
- Cyber-technology.
- Nano-technology.
- Advanced-materials Technology.
- Regenerative medicine
- Robotic factories.

# Globalisation of Terrorism, Organized Crime and Nuclear Proliferation.

# We are evolving rapidly into an age of "Extremes"

eg: extremes of wealth, poverty, health, technology, weapons and religion.

Geo-political pressures regarding the supply and prices of resources are mounting esp: energy and water.

“Annually we are depleting the world’s aquifers by 160 Billion tons of fresh water”

Decline in the power of the  
nation state with corresponding  
increase in the power of  
Corporations and Communities.

# Some of the mistakes mankind has made....

- We believed nature's resources were unlimited.
- We thought nature could absorb unlimited pollution.
- We didn't expect to destroy nature's species.
- We thought our bodies were immune to the products we made.
- We thought technology could replace what nature does.
- We thought we could manage society in simplistic ways.

*Ref: James Martin. "Meaning of the 21<sup>st</sup> Century"*

# The serious challenges confronting the planet demand;

- Sophisticated planning
- Intelligent engineering.
- Disciplined management.

# The changing nature of our economy.

*During the last two decades Australia has joined the ranks of the world's emerging "Knowledge Intensive Economies."*

The use of knowledge is not new  
BUT

the increased intensity of  
knowledge in the economic  
process is now fierce.

## **THE KNOWLEDGE ECONOMY**

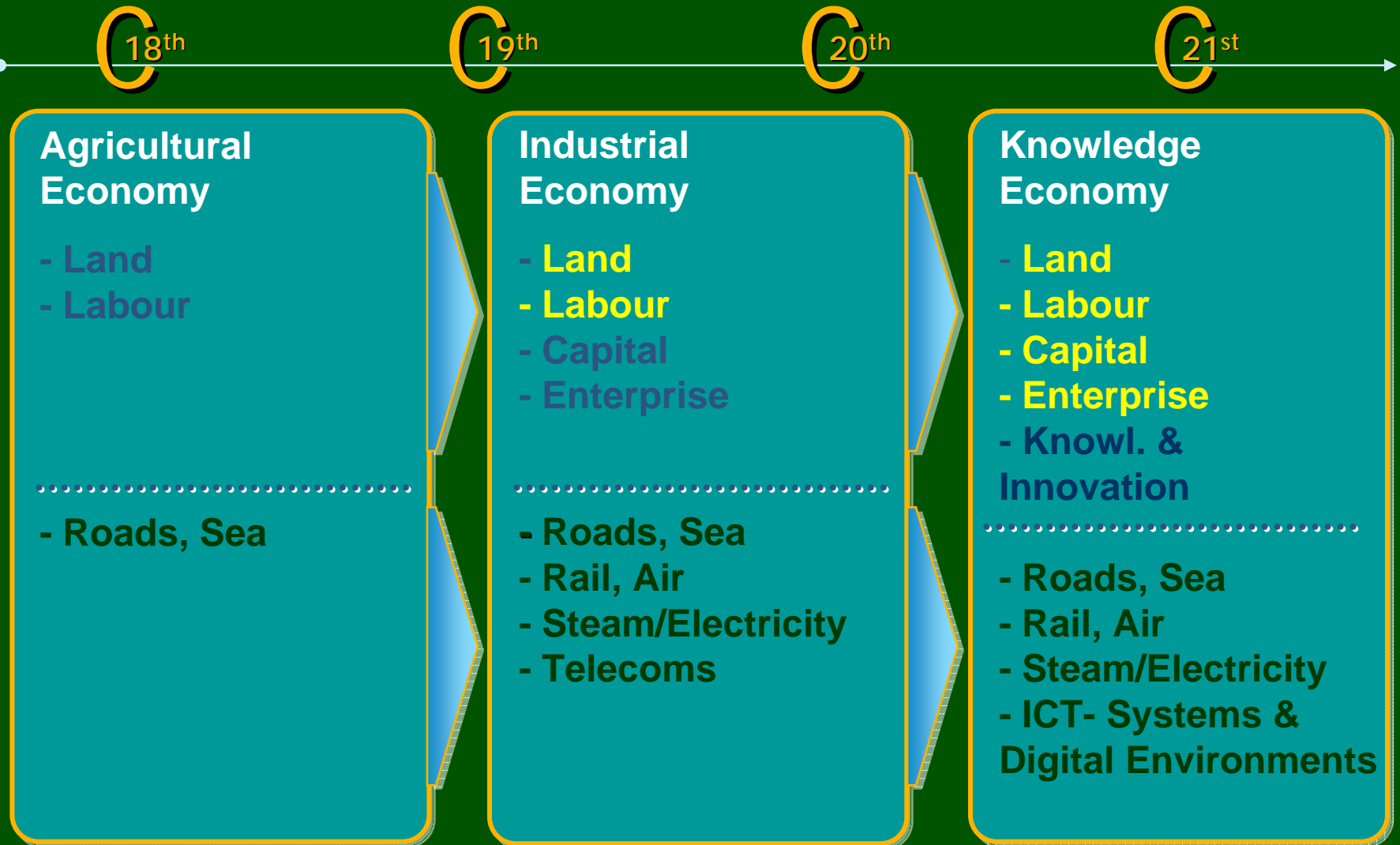
Is an economy based on the production, distribution and use of knowledge as the main driver of growth, wealth creation and employment across all industries.

Source: WA Knowledge Economy Task Force 2004

# We have a vested interest in being an integral part of the Global Knowledge Economy ?

- More and more products will be mass produced in developing countries.
- More and more skills of manufacturing will be computerized and robotized.
- More and more white collar jobs will be replaced by interconnected software.
- Resource based industries are providing fewer and fewer jobs.

# Evolution of the Economy



**Hallmarks of the  
Knowledge Economy:**  
*in summary*

# Highly sophisticated ICT Infrastructure.

A broad range and a high level  
of Research Activity.

An explosion in the number and variety of institutions, which generate and distribute knowledge.

A highly trained,  
well educated, innovative and  
flexible workforce

Greatly increased  
importance attached to  
Intellectual Property.

Competition for Key people  
becomes fierce.

Production and export  
of traditional commodities  
becomes smarter.

Capital flows to parts of the  
world that provide an  
environment for creative thinking

Many hierarchical organizations  
are being replaced by networked  
learning organizations

Risk, uncertainty and constant change are the rule.

Knowledge, continuous learning  
and human creativity are now  
critical elements of success.

# A Fundamental shift in the role of the workforce

- **Industrial Economy:** .....people were regarded as extensions of machines.
- **Knowledge Economy:** .....machines exist to support a knowledge workforce.

# The driving forces behind the Global Knowledge Economy

- **Widespread International Deregulation.**
- **The Information Technology and Telecommunications Revolution.**

**International Deregulation** has occurred on a massive scale since the 1970's eg:

- The freeing up of trade.
- Freeing up of capital markets.
- Deregulation of internal markets for goods and services.

# PRIME EXAMPLE !

**The worldwide program  
( since the 1980's) to  
deregulate and restructure  
the Telecommunications  
Industry.**

# The ICT Revolution

- Has speeded up the innovation process by reducing the business product cycle.
- Has fostered greater networking in the economy.
- Has made possible the faster diffusion of knowledge and ideas.
- Has made science more efficient and linked it more closely with business.

# The ICT Revolution :

- Means that codified knowledge can be delivered anywhere, very quickly, very cheaply.
- Has given us the capacity to transform knowledge.
- Has facilitated our ability to apply that knowledge to machines.

# Basically:

- How we learn
- Where, how and when we work
- How we communicate
- How we take our recreation
- How we market, buy and sell things
- How we organise our lives

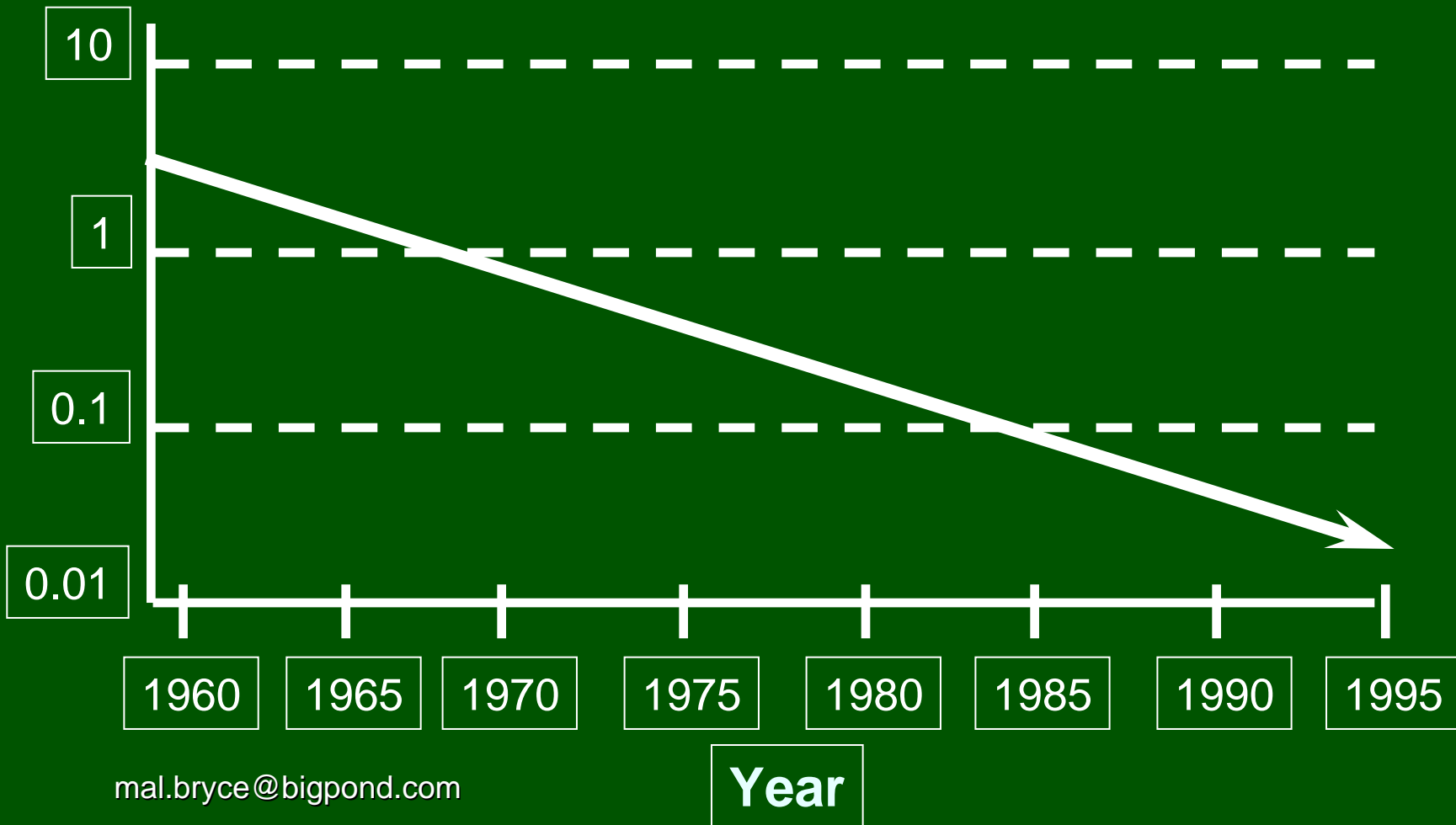
Have all been fundamentally affected by the ICT  
Revolution

*“The ICT Revolution changes fundamentally the conditions for producing and distributing KNOWLEDGE as well as linking it to the system of production”*

**Extraordinary levels of investment, world-wide, are being made in telecommunications infrastructure and services.**

# UNIT COST OF TRANS ATLANTIC TELEPHONE TRAFFIC 1960 - 95

Cost per hour  
(US\$)



# Diffusion of communications technologies – worldwide.

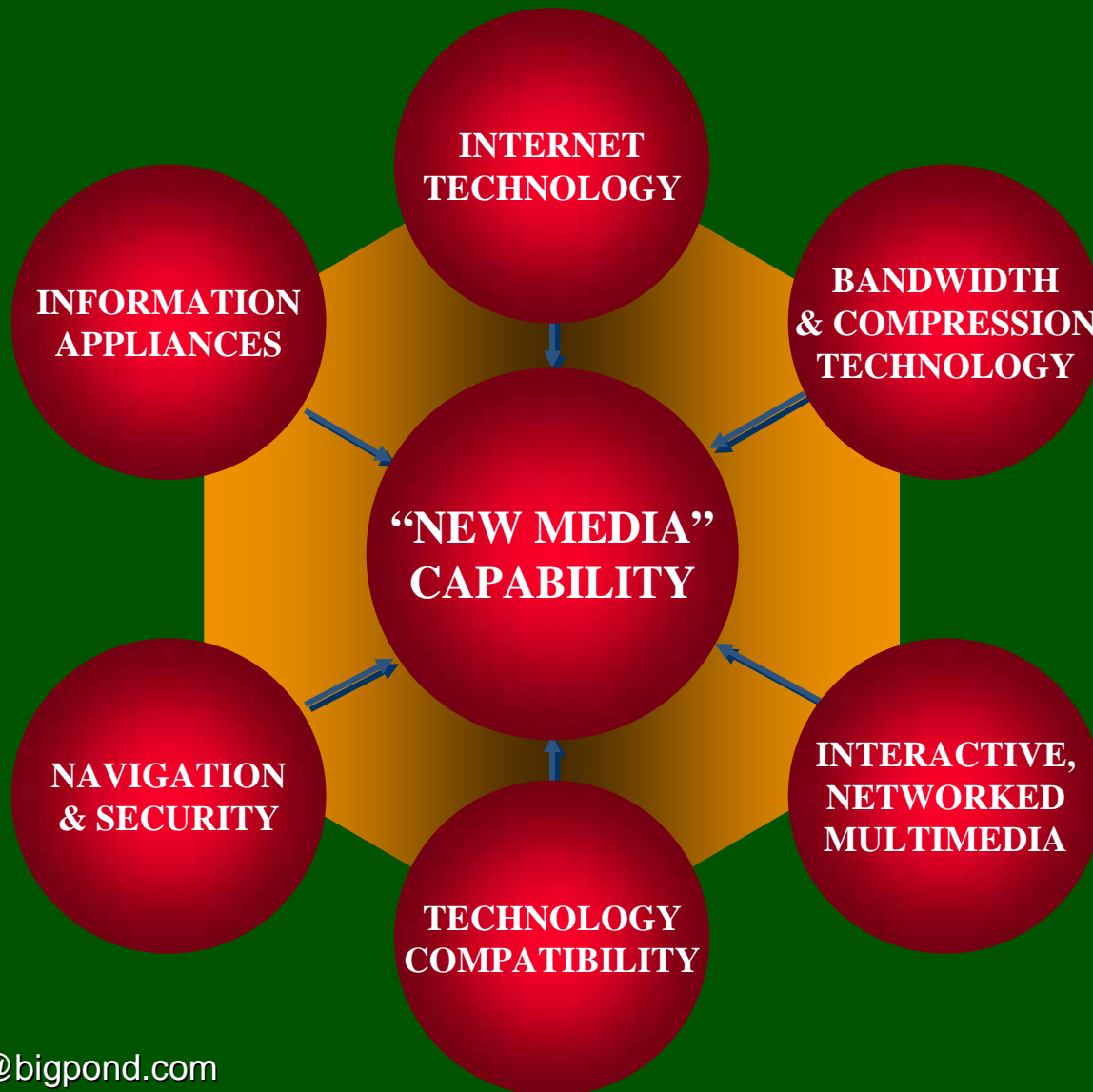
Time taken to reach 50 million people

Radio	38 years
Television	13 years
Personal Computers	16 years
The Internet	4 years

# Growth in Deployment of Telecommunications Devices...worldwide

	1995	2005
Personal Computers	235 million	700 million
Internet Users	40 million	1 billion
Cellular Phones	91 million	1.3 billion
Instant Messaging	nil	> 600 million accounts

# Technology that is driving the change.



# 2000 - 2015

## A Period of Extraordinary Convergence

- Telephony
- The Internet
- Television
- Computing
- Radio
- Photography
- Publishing

# Some of the “Home Truths” about Australia’s Telecoms Infrastructure.

- Australia does not have world class broadband Infrastructure and services
- BB is not available in Australia at globally competitive prices.
- Serious attention needs to be paid to the development of content and applications

# Some of the "Home Truths"

- Based on " Market Forces" alone there is little prospect of reliable and affordable BB for many parts of Australia.

# Broadband Deployment:

Subscribers per 100 inhabitants

## Australia ranks 20th behind

- Korea
- Canada
- Iceland
- Denmark
- Belgium
- Netherlands
- Switzerland
- Sweden
- Japan
- USA
- Finland
- Norway
- Austria
- France
- Germany
- Spain
- UK
- Portugal
- Italy

*Source: KPMG Australia's Broadband Future 2005*

What can  
or  
should be done?

In the Knowledge Intensive Economy the collective challenge is much the same for,

- businesses
- communities,
- households
- government agencies.....

# All we need is Five Revolutions

- A Telecommunications Revolution
- An Education Revolution
- An Online Content Revolution
- An Innovation Revolution.
- A Cultural Revolution.

A **Telecommunications Revolution**  
to provide Australia with a leading  
edge new generation broadband  
network.

An **Education Revolution** because  
the challenges of the Global  
Knowledge Economy for our  
national education and training  
institutions are massive.

Eg: new jobs, new structures, new systems, new services,  
new research, new forms of global competition.

An **Innovation Revolution** to broaden the base of our innovation programs and culture. Focussing our efforts on science, engineering and venture capital is inadequate. We need ubiquitous innovation.

An **Online Content Revolution** to  
give Australian's the choice of  
Australian content and a wide  
range of new jobs and business  
opportunities.

# We need a Cultural Revolution which:

- Is committed to ubiquitous creativity.
- Permits failure.
- Rewards people skills
- Attracts the best talent the world has to offer.
- Relishes diversity
- Nurtures our uniqueness.

## Quote

*"...The deep and enduring changes of our age are not technological but social and cultural..."*

*Richard Florida*

# Conclusions

We now have a powerful vested interest in understanding the major forces for change at a global level which have the potential to turn our very comfortable world upside down.

## **OPTING OUT OF THE...,**

- **global economy**
- **international labour market**
- **international financial markets.**
- **Global information networks.**

**.....ARE NOT VIABLE OPTIONS.**

# The Basics for Surviving in Revolutionary Times.

- Recognize there is no way back.
- Remember that most Revolutions devour some of their own children.
- Being complacent and conservative is usually fatal.
- Our ability to manage the change process is a vital skill.

# In the Revolution producing the GKE

- The human capacity to learn will be the greatest asset of all.
- Knowledge has become mankind's most precious resource.
- Nations unable to produce and reproduce "knowledge workers" will be resource poor.

# AUSTRALIA'S PROSPECTS IN THE G.K.E. ARE GOOD

- Strong knowledge base to the economy.
- Many competitive industries.
- The process of reform is advanced.
- Record for "rapid take up " of new technology is good.
- English is the language of the GKE.
- We have the basics of modern Infrastructure.

# REMINDER !!!!!

Revolutions do not change everything---- amidst massive change CONTINUITY is very real, very common and very important.