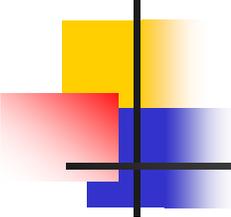


FADBHREATHNU 2020

FORESIGHT 2020

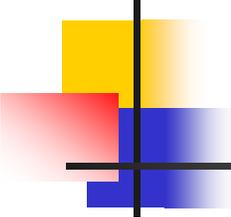
Eamonn Sheehy

IDA Ireland



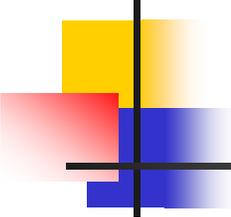
Presentation

1. Foresight Process
2. Picking Winning Sectors
3. Funding R&D In Ireland
4. Developing Clusters In Ireland
5. Converging Technologies
6. New Business Opportunities



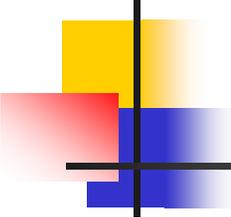
If you could plan the future !

- Foresight attempts to outline a set of possible futures and to assist in developing a strategy to reach a preferred future.



FORESIGHT

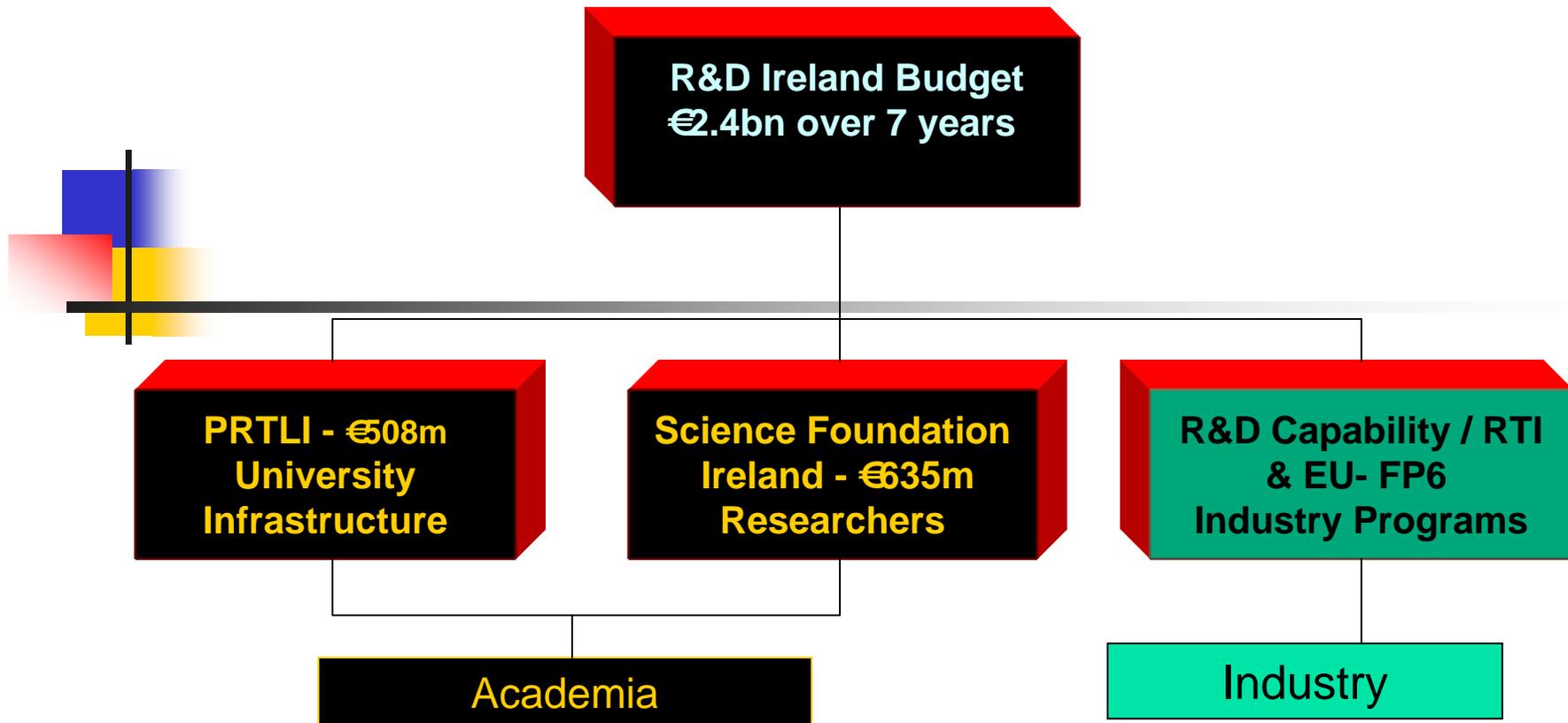
- **'Foresight involves systematic attempts to look into the longer term future of science, technology, the economy, the environment and society with a view to identifying emerging generic technologies and the underpinning areas of strategic research likely to yield the greatest economic, social and environmental benefits'.**

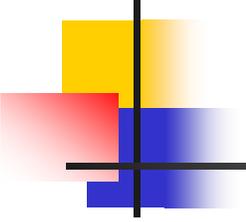


Foresight – Ireland - 1998

- 8 Technology Foresight Panels considered the future technology needs of key sectors
- Selected Bio & ICT
- Science Foundation (SFI) set up 1999
- Budget €635m for Research & Science
- Focused on World Class Research
- 400 Researchers funded to date

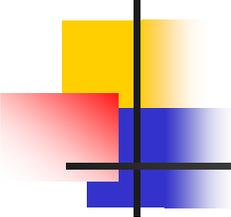
Funding R&D in Ireland





Manufacturing and the Internet Revolution

- External Enabling Technology
- Most radical change in 200 years
- E-commerce/ e-business
- Real time transparency
- Compression of value streams
- Empowers the customer
- Potential for disruption



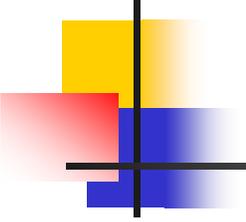
What will the transformation look like?

2000

- Mass production
- Long pipeline
- Sell from stock
- Sequential processes
- Cost on inventory
- Wait in line

2020

- Mass customisation
- Shrinking supply chain
- Make to order
- Simultaneous processes
- Capital working
- First available slot



Is it Possible ? DELL

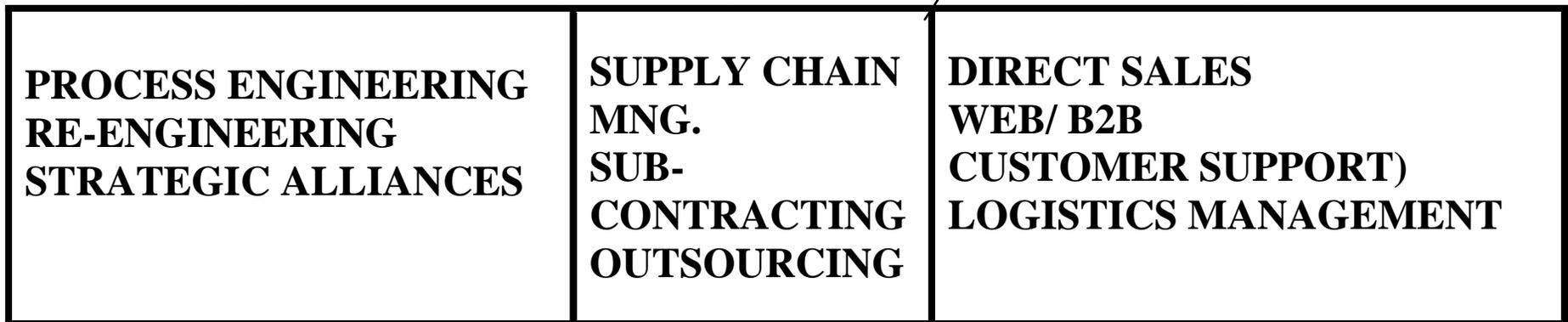
- Trades on the web
- Assembles customised products
- Order to dispatch time of 8 hours
- No finished goods
- Minimal parts inventory (reduced obsolescence)
- Strategic partnerships with suppliers
- Negative working capital

The Changing Value Chain – OLD & NEW

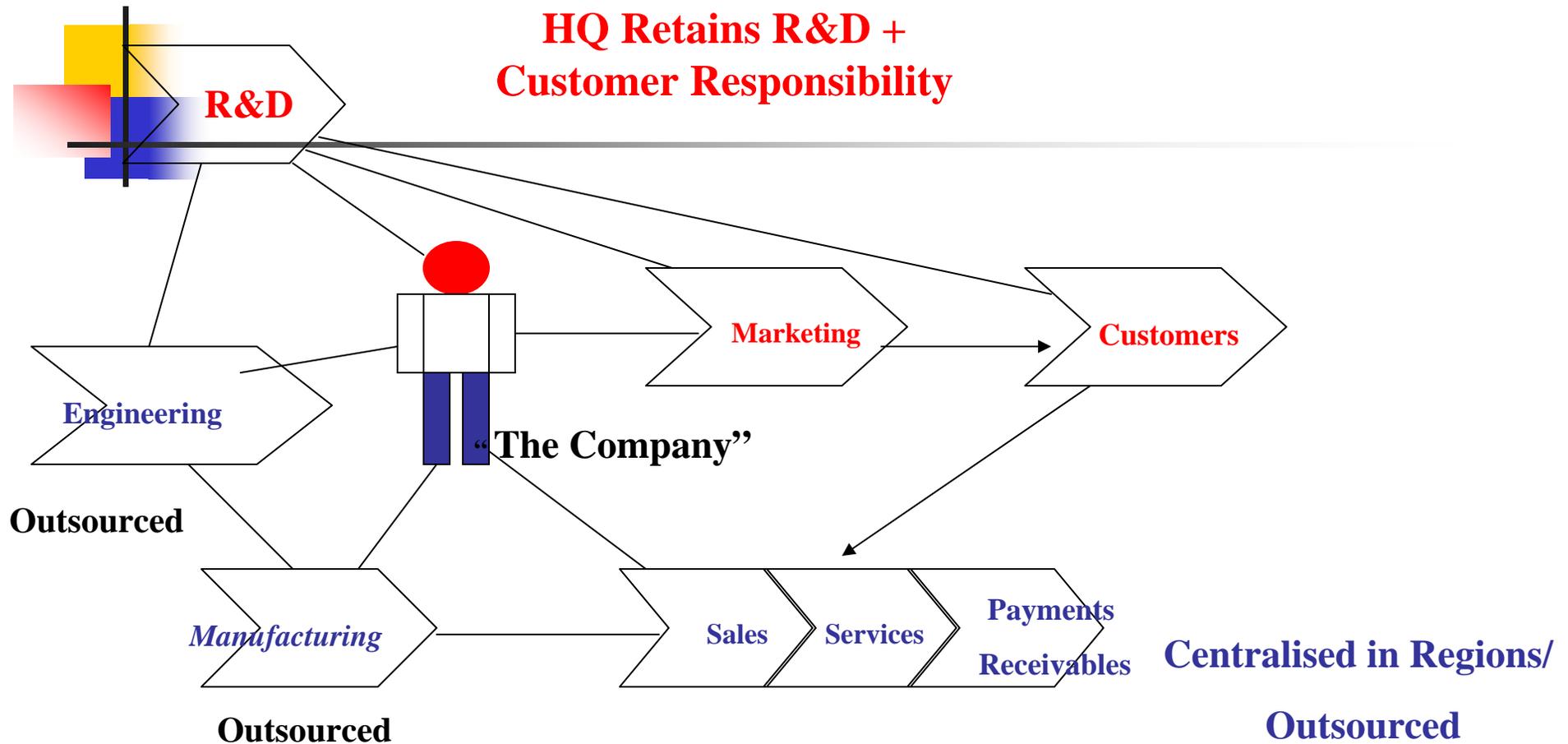
OLD



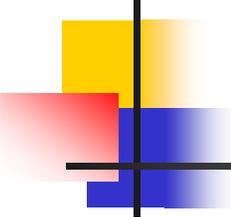
NEW



A 21st-Century Corporate Value Chain

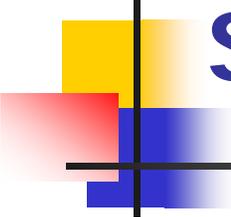


The scattered networked functions are outsourced but the whole organisation works as a virtual single company



What will a successful manufacturing industry look like in 2020 ?

- Total service provider
- In many instances, has entirety of value stream co-located in ?
- Is the European leader in many areas
- Is customer driven and customer focused
- And in terms of wealth generation is even more important than manufacturing today

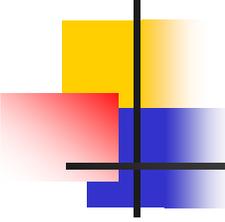


Sources of a company's success

Depends - not just on individual company performance, but on the macroeconomic business environment - political, legal, economic etc

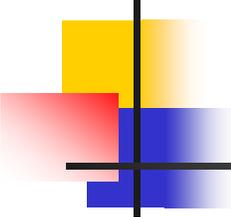
Competitive advantage does not come solely from inside the company - A company gets its competitiveness partly from its location

The company's close relationships and participation in a cluster are important contributors to success



Clusters

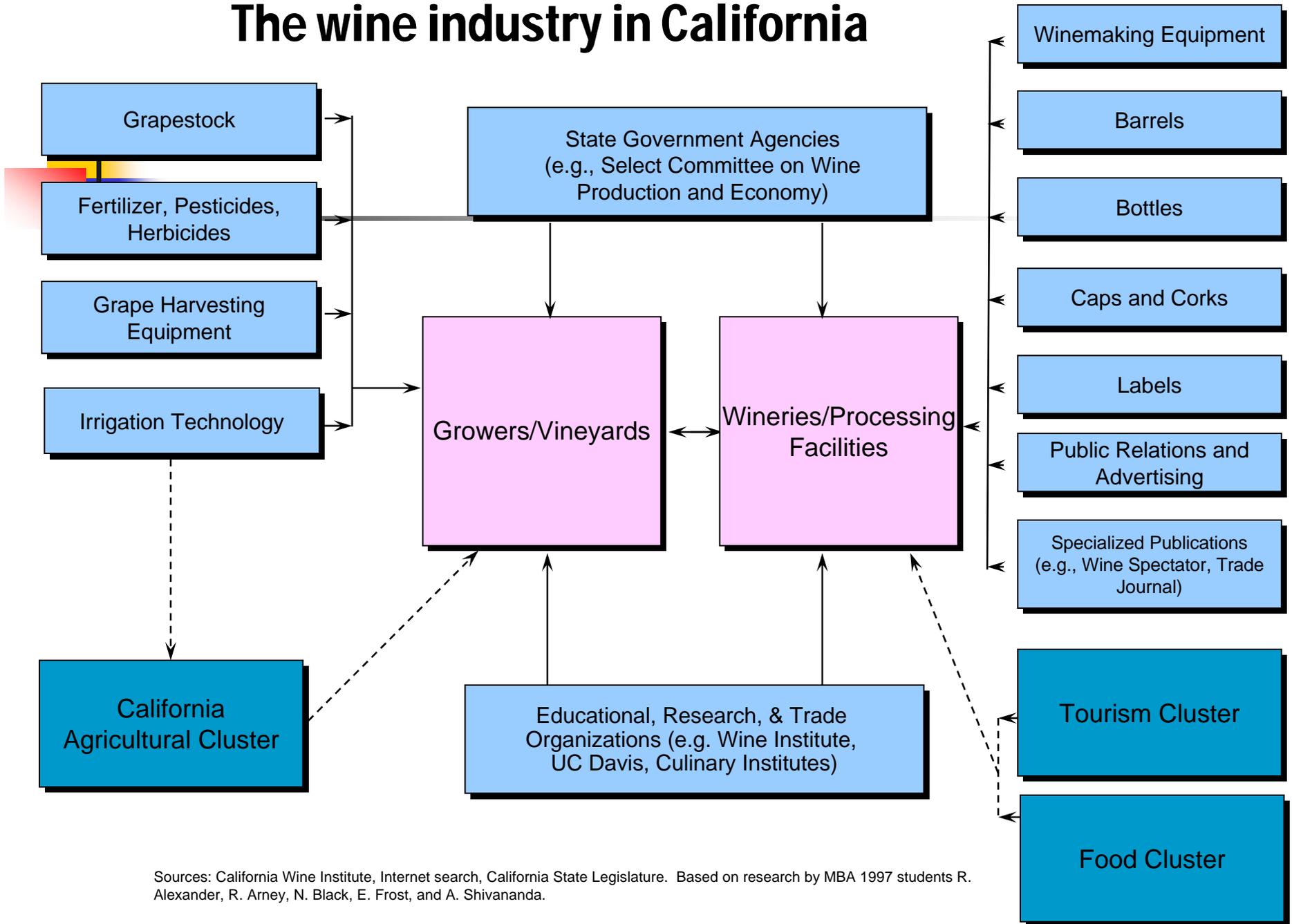
1. Clusters are geographic concentrations of interconnected companies and institutions in a particular field.
2. Clusters encompass a range of linked industries, suppliers of components, machinery, services and providers of specialist infrastructure
3. Clusters extend to channels and customers i.e. manufacturers of complementary products, companies in related skills technologies and common inputs, specialized training, education, research and technology support



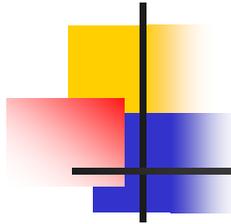
Cluster Success Factors

1. **Large flagship projects in related industries**
2. **Strong science base - academic institutions**
3. **Corporate sponsored R&D**
4. **Political vision and drive – supportive policies**
5. **Quality of life – attracts key people**
6. **Availability of finance - access to VC**
7. **Effective business networks**
8. **Start up's and spin off's – entrepreneurial culture**
9. **Skilled local workforce**
10. **Marketing and market access**

The wine industry in California

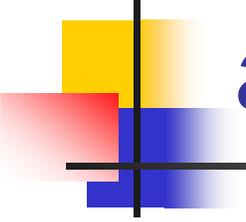


Sources: California Wine Institute, Internet search, California State Legislature. Based on research by MBA 1997 students R. Alexander, R. Arney, N. Black, E. Frost, and A. Shivananda.



Opportunities

What trends are developing that will create opportunities for the future ?

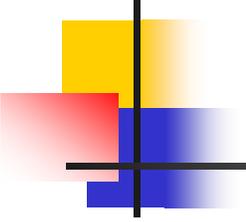


1-Centers of Economic Activity are Shifting Globally & Regionally

- Massive re-alignment of economic activity
- Europe(30%) and China/India (13%) will converge within 20 years
- Some industries and functions will re-align more dramatically – IT & Mnf.
- US to maintain dominance in Technology

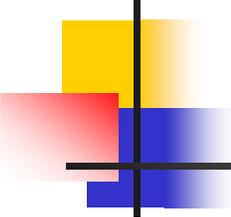
Opportunities !

2-Public Health Activities Ballooning



- Ageing of population in Developed World
- Pension and Health care demands
- Productivity Gains Necessary
- Private Sector approaches will become pervasive

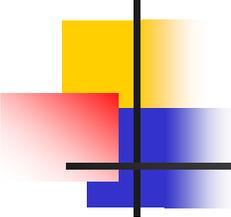
- Opportunities !



3- A Billion New Consumers

- Household expenditure > \$5,000
- People Spend on Discretionary Goods
- Consumer Spending Power will grow from \$4trillion to \$9trillion by 2015
- Consumers will have more info on access to products, prices etc

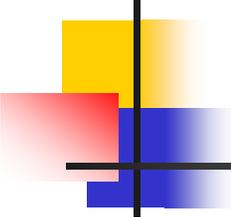
- Opportunities !



4- Technology Connectivity

- Tech will transform the way people live
- We are at early stage of this revolution
- Individuals ,business and public sector learning how to use IT
- i.e. designing processes & accessing knowledge
- New Tech = biotechnology, laser, nano
- 2 b mobiles & 1bn Google searches p.d.

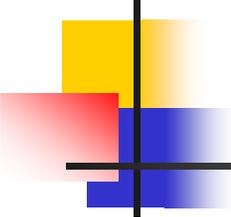
Opportunities !



5 – Key = Availability of key skills

- Shift to knowledge –intensive industries
- Driven by skills availability - not cost
- Integration of global labour markets seeing a flow of skilled people from un-developed to developed countries
- Key companies and Governments are developing skills strategies

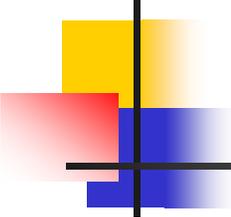
Opportunities !



6- Big Business Behaviour

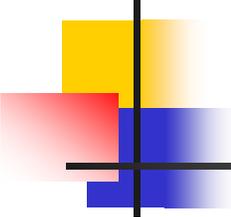
- Increasing pace and extent of global business
 - emergence of Giant Global companies -
- Scandals and environmental mishaps
- WTO , profit repatriation & IP rights not understood
- Increased scrutiny of big business
- Need to promote industry case

Opportunities !



7-Demands on Natural Resources

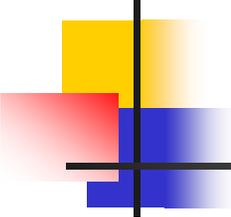
- Demand growing at unprecedented level
 - Oil demand to grow 50% in 20 years
 - China metal demand grew 300% in 10 yrs
 - Water shortage a key constraint
 - Atmosphere is under severe pressure
- Opportunities !



8- New Global Industry structures

- Non – traditional business models are flourishing, often co-existing in market
- Often an industry only has a few giants at top
- Middle is narrow
- Many fast moving players at bottom
- Corporate borders are becoming blurred as interlinked suppliers, producers and customers emerge

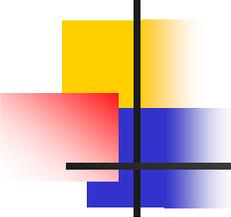
Opportunities !



9-Management – Science or Art ?

- Bigger more complex companies are demanding new management tools
- Improved technology and statistical control tools
- Highly sophisticated software has replaced gut instinct decision making

Opportunities !

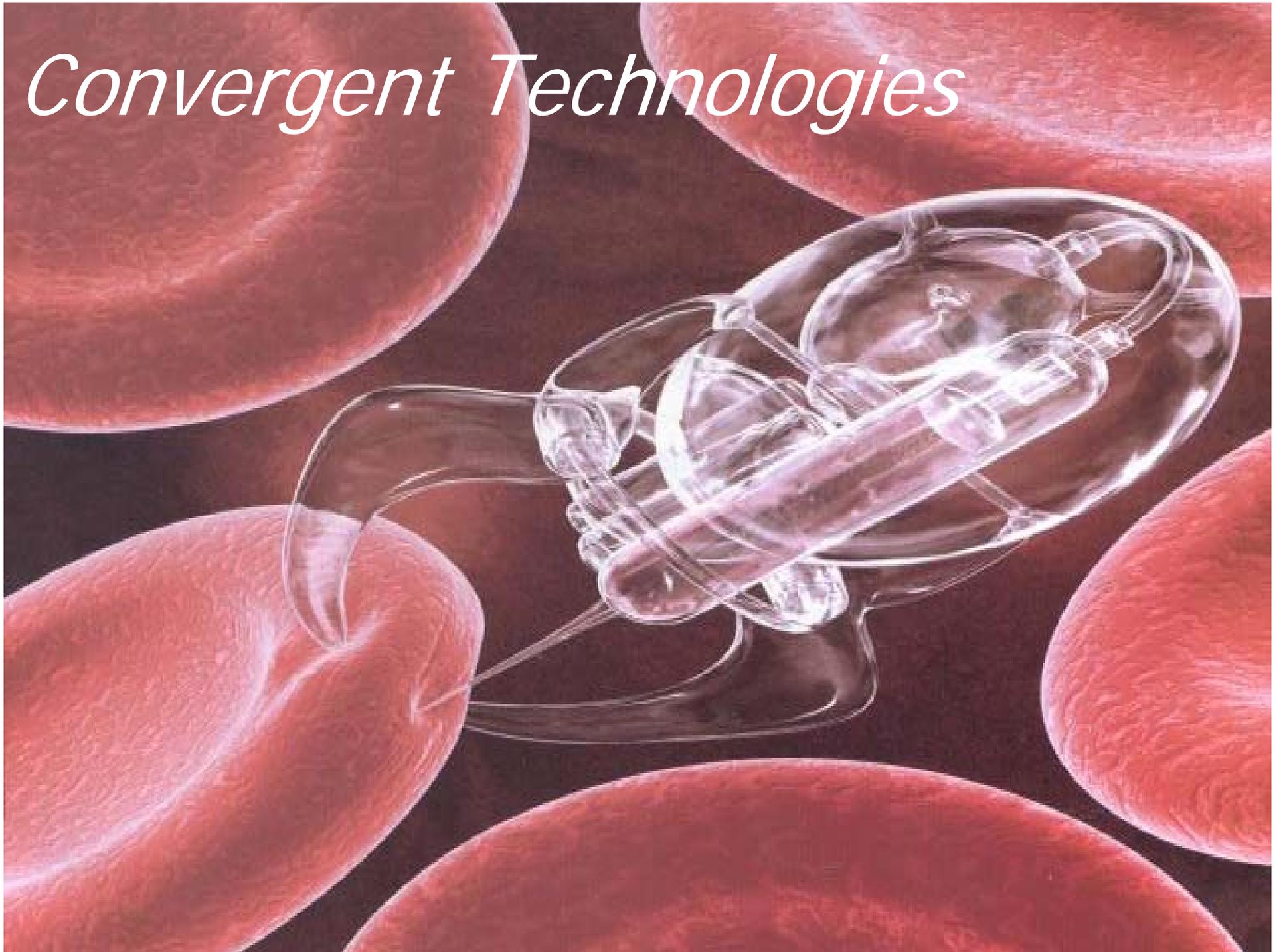


10- Knowledge Availability

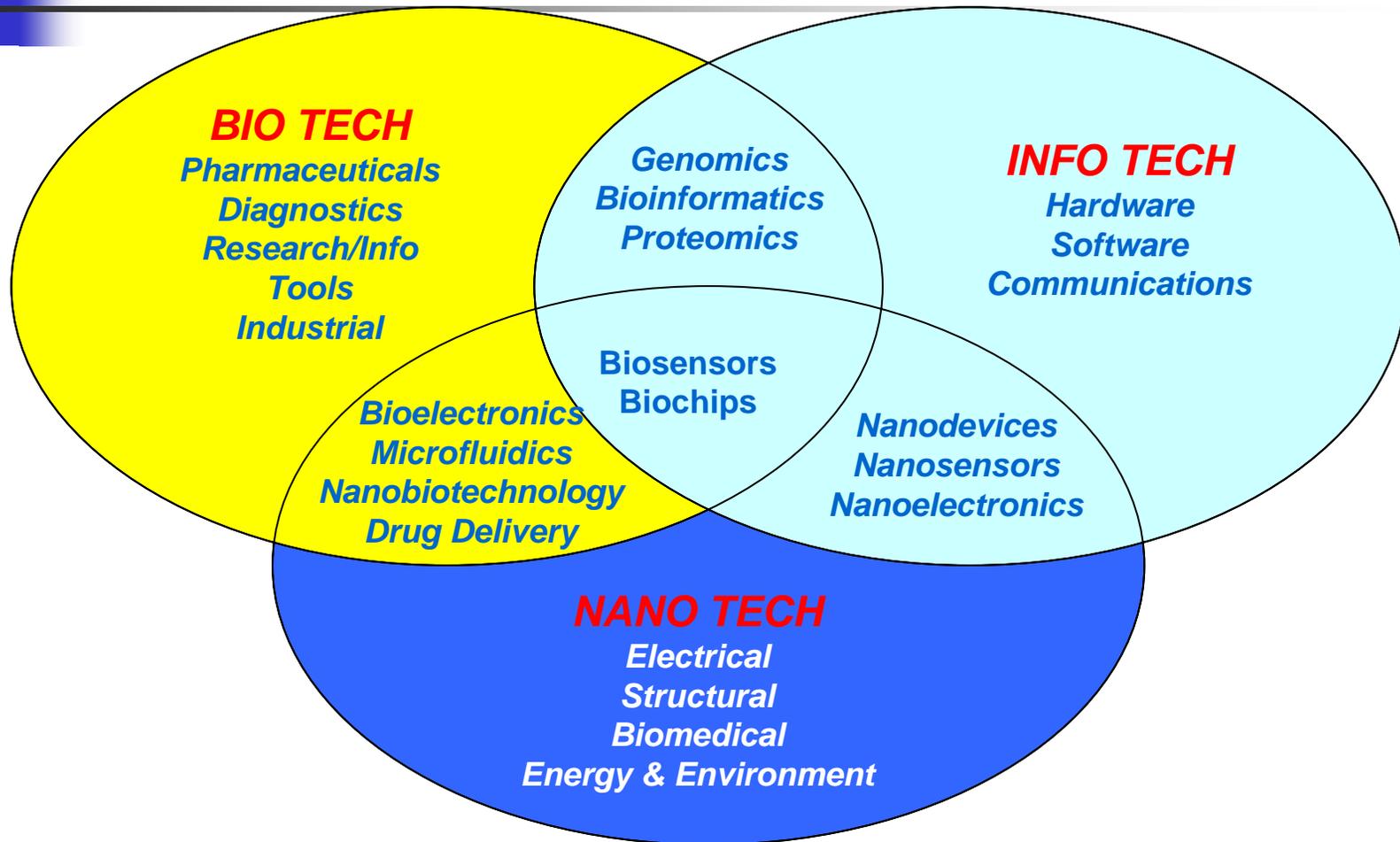
- Knowledge has become increasingly specialised i.e. Google
- Access to knowledge is universal
- New models of knowledge production, access and ownership is emerging
- Rise of open-source access to knowledge
- Worldwide IP growing at 20% p.a.

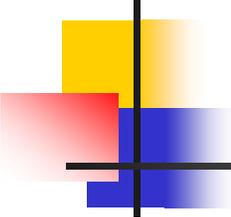
- Opportunities !

Convergent Technologies



Converging Technologies





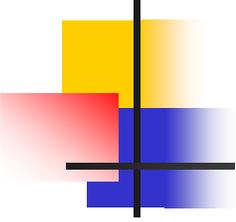
Key Trends / Opportunities

1. **Ageing** Population
 2. **Healthcare costs** ballooning
 3. Increasing no of **Consumers**
 4. **Web** enablement
 5. Demand for greater **Information**
- **Cost of Entry Falling ?**
 - **Growing Demand for Services ?**
 - **Consumer Spending Power Increasing?**
 - **Opportunity for Disruption ?**

New Opportunities

Bio + Nano + Info Tech

1. Multiplex Devices – Diagnostics
2. Mobility technology
3. Smart & dumb Sensors – Health/Food
4. Drug Delivery Devices & Control Release (Incl Min Evasive Technology)
5. Remote Sensors / electronics (For Diabetes etc)
6. Electronic healthcare records

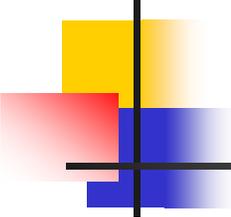


**“You look at
things and ask -
why?”**

**but I dream of things
that never were and ask
why not?”**

George Bernard Shaw





The Future

- Be a subversive not a boy scout
- Differentiate via customisation & service
- Exploit Converging Technologies
- Select opportunities for disruption
- Link to Local Cluster/s
- Utilise Supply Chains / Logistics Mng.

“Think Globally Act Locally”

END