

# TECHNOLOGY ENTREPRENEURSHIP -

## THE KEY



# TO JAMAICA'S SOCIO- ECONOMIC RECOVERY

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# PRESENTATION OUTLINE

- 
- ◆ Introduction to Technology Entrepreneurship
  - ◆ The Technology Entrepreneurship Process
  - ◆ The Importance of Intellectual Property Licensing to the Technology Entrepreneur
  - ◆ Jamaica's Socio Economic Condition in Comparison to Other Countries
  - ◆ Sources of Technology Entrepreneurship
  - ◆ Jamaica's Socio-Economic Condition as a Result of Technology Entrepreneurship
  - ◆ Fostering Technology Entrepreneurship
  - ◆ Conclusion
  - ◆ Questions?
  - ◆ Tech Entrepreneurship Resources

# What Is Technology?

- ◆ The use of knowledge (know-how and experience), tools, and systems to make peoples' lives easier and better.
- ◆ The technical means people use to improve their surroundings. It is also a knowledge of the use of tools and machines to do tasks efficiently.

**Source:**

<http://www.bergen.org/technology/defin.html>

# Technology Example: Clorox Bath Wand



## ◆ Benefits:

- No more bending to clean bathtub or bathtub tiles
- Disposable scrubby pads replace sponges & cleaning agents

Source: <http://www.cloroxbathwand.com/>

# George Washington Carver – Black Inventor, 1864-1943



- ◆ Agricultural Chemist
- ◆ Discovered 300 uses of peanuts and hundreds more for soybeans
- ◆ Recipes and improvements for talcum powder, meat tenderizer, adhesives, shaving cream, paper and plastic, improved economic lives of Southern US farmers.

Source:

<http://inventors.about.com/library/weekly/aa041897.htm>



## What Is Technology Entrepreneurship?

- ◆ The creation of new businesses, whose business processes (organization of work & information to produce goods and services) are based on a new technology
- ◆ The creation of new businesses whose major product is a new technology
- ◆ The continued sustainability of that business, via process, product and service innovation

# Bill Gates – Technology Entrepreneur, Chairman and Chief Software Architect, Microsoft Corporation



- ◆ While at Harvard, developed a version of the programming language BASIC, for the first microcomputer - the MITS Altair.
- ◆ Left Harvard in 1975 to form Microsoft
- ◆ Microsoft's revenue in June 2004, was USD\$ 36.84 billion of which USD \$ 6 billion was from Licensing.


Source: <http://www.microsoft.com/billgates/bio.asp>




# The Technology Entrepreneurship Process

- ◆ Idea Generation
- ◆ Conversion of Idea to Technology Marketing & Business Plans
- ◆ Technology Marketing Plan
- ◆ Technology Business Plan
- ◆ Conversion of both Plans to Actual Business
- ◆ Access to Capital (Debt/Equity)

# Idea Generation

- 
- ◆ Identification of potential customers' pain
  - ◆ A burning desire to alleviate customers' pain
  - ◆ Constant ideation re how to alleviate customers' pain
    - Analysis of current solutions (if they exist) and how they can be improved upon
    - Thinking of completely new solutions (that are more efficient, cost-effective, etc.)
    - Thinking “outside the box”
  - ◆ Know-how of how to alleviate pain (through personal experience & research)


# The Technology Marketing Plan

- 
- ◆ External Environment Analysis (CLEEPTS)
  - ◆ Internal Environmental Analysis (Customer Analysis & SWOT)
  - ◆ Market Segmentation, Target Marketing
  - ◆ Marketing Mix (5 P's)
    - Product Positioning Statement
    - Place (Distribution)
    - Promotion
    - Pricing
    - People
  - ◆ Migration From Product to Brand
  - ◆ Partnerships

# External Environmental Analyses

- ◆ Cultural
- ◆ Legal
- ◆ Environmental
- ◆ Economic
- ◆ Political
- ◆ Technological
- ◆ Social

# The Technology Business Plan

- 
- ◆ Mission Statement
  - ◆ Form of business (sole proprietor, partnership, company, etc.)
  - ◆ Management Profile
  - ◆ Description (general & specific) of Product/Service
  - ◆ Technology Marketing Plan
  - ◆ Operational Plan
  - ◆ Financial Plan
  - ◆ Technology Plan
  - ◆ Legal
  - ◆ Risk Analysis

# The Financial Plan

- ◆ Profit & Loss Statement for the next 3 years
- ◆ Balance Sheet for the next 3 years
- ◆ Sources & Uses of Funds
- ◆ Cash Flow Statement over the next 3 years



## Access To Capital(Debt/Equity)

- ◆ Self (from previous years of work or family money)
- ◆ Debt (loans from credit unions/banks, not family)
- ◆ Equity (Angel Investors – friends, family, people who know you or are familiar with your reputation). **Beware of greedy family members!**
- ◆ Equity (Venture Capitalists – usually don't consider products that return less than US \$6 million in annual revenues)
- ◆ Intellectual Property Licensing
- ◆ Seek to be acquired by wealthy company

# Intellectual Property Licensing

- ◆ Find a wealthy company (greater than US \$6 million in annual revenue and financially stable) in a highly competitive market and license new product/technology to them
- ◆ Must obtain a patent for new product
- ◆ Must be way ahead of company's own R&D Dept. (Company's R&D Dept. must not be able to invent product by themselves within one (1) year).

# Intellectual Property Licensing cont'd




## Licensing fee structure:

- ◆ Licensing fee of 10-25% of annual revenue generated by your patented technology
- ◆ Licensing fee can be paid quarterly, bi-annually or annually
- ◆ Up-front payment of a guarantee of usually 25% of licensing fee
- ◆ If knowledgeable about Technology Commercialization, can charge company for Technology Commercialization Services (e.g Marketing Services) rendered

## Major Companies, Universities and Countries' Licensing Revenue (USD\$)

- ◆ Microsoft - US \$6 billion (2004)
- ◆ IBM - US \$ 1.3 billion (1999)
- ◆ Qualcomm – US \$705 million (2000)
- ◆ Stanford University & University of California, USA, each had over \$60 million (2000)
- ◆ National Research Council, Canada – up to \$30 million since 1995
- ◆ USA – US \$120 billion (2004)


## Country Economic Indicators: GDP Per Capita in USD\$.



Country	1999	2002	2003	Population(2003)
Jamaica	\$ 2,961.54	\$ 3,230.77	\$ 3,115.38	2,600,000
St. Lucia	\$ 4,352.64	\$ 4,251.41	\$ 4,313.82	160,600
Trinidad & Tobago	\$ 5,230.77	\$ 6,846.15	\$ 8,076.92	1,300,000
Barbados	\$ 9,394.96	\$ 9,279.88	\$ 9,608.28	270,600
Chile	\$ 4,866.67	\$ 4,320.51	\$ 4,582.28	15,800,000
Brazil	\$ 3,151.79	\$ 2,640.69	\$ 2,787.66	176,600,000
China	\$ 762.62	\$ 1,000.00	\$ 1,076.92	1,300,000,000
USA	\$ 32,974.91	\$ 36,061.03	\$ 37,482.81	290,800,000
UK	\$ 25,553.66	\$ 27,027.03	\$ 30,354.13	59,300,000

Source: World Development Indicators Database, World Bank Group, April 2005


## Economic Indicator: High Tech Exports as a Percentage of Manufactured Goods.



Country	1999	2002	2003
Jamaica	0%	0.1%	no fig.*
St. Lucia	5%	8%	0.8%
Trinidad & Tobago	2%	2%	no fig.*
Barbados	25%	16%	14.5%
Chile	3.2%	3.8%	3.4%
Brazil	13%	17%	12.0%
China	17%	23%	27.1%
USA	34%	32%	30.8%
UK	30%	31%	25.8%

\*No figure from Source: World Development Indicators Database, World Bank Group, April 2005

## Tech Indicators: PC Penetration & Internet Users Per Capita.



Country	1999		2002		2003
	PC Penetration	Int. Users Per Capita	PC Penetration	Int. Users Per Capita	Int. Users Per Capita
Jamaica	4%	2%	5%	23%	no fig.*
St. Lucia	14%	2%	15%	no fig.*	no fig.*
Trinidad & Tobago	5%	6%	8%	11%	no fig.*
<b>Barbados</b>	<b>8%</b>	<b>2%</b>	<b>10%</b>	<b>11%</b>	<b>37%</b>
Chile	8%	4%	12%	24%	27%
Brazil	4%	2%	7%	8%	no fig.*
China	1%	1%	3%	5%	6%
<b>USA</b>	<b>51%</b>	<b>37%</b>	<b>66%</b>	<b>55%</b>	<b>no fig.*</b>
<b>UK</b>	<b>30%</b>	<b>21%</b>	<b>41%</b>	<b>42%</b>	<b>no fig.*</b>

\*No figure from Source: World Development Indicators Database, World Bank Group, April 2005

## Social Indicators: Net Secondary Enrollment & Literacy Rate.



Country	1999		2002	
	Sec. Enrl.	Literacy	Sec. Enrl.	Literacy
Jamaica	75%	86%	no fig.*	88%
St. Lucia	70%	no fig.*	76%	no fig.*
Trinidad & Tobago	70%	98%	70%	98%
Barbados	90%	99.7%	90%	no fig.*
Chile	72%	96%	79%	96%
Brazil	67%	86%	no fig.*	no fig.*
China	no fig.*	84%	no fig.*	no fig.*
USA	87%	no fig.*	no fig.*	no fig.*
UK	95%	no fig.*	no fig.*	no fig.*

No figure from Source: World Development Indicators Database, World Bank Group, April 2005

## Findings:

- ◆ Countries with largest GDP per capita (in excess of USD \$9,000) had:
  - High Technology Exports as a percentage of Manufactured Goods of over 25%
  - Literacy Rate over 87%
  - Net Secondary Enrollment over 87%
  - Services as a Percentage of GDP of over 70%
  - In most cases, Internet Users per Capita of over 37%
  - E-business Readiness score of over 6.8
  - PC Penetration over 10%
  - Government Policy that fosters Technology Entrepreneurship



## Economist Intelligence Unit (EIU) E-business Readiness Scores

- ◆ Measure the relative preparedness of the world's main markets for the e-business era.
- ◆ Countries at the top of the league stand to reap the benefits from the new networked economy, while those at the bottom will struggle to compete in the digital age.

Source: European Commission Joint Research Centre.  
[http://farmweb.jrc.cec.eu.int/ci/CI\\_Econ0006.htm](http://farmweb.jrc.cec.eu.int/ci/CI_Econ0006.htm)

## A Country's E-business Readiness Score is Based on:

- ◆ Existing technology infrastructure
- ◆ Information technology policies (trade, encryption, digital signatures, privacy, etc.)
- ◆ Distribution, pricing, and usage of the technology in schools, business, government, and throughout society
- ◆ Basic 'enablers' in society (basic literacy, quality of educational system, political stability, etc.)
- ◆ Social and cultural factors that influence technology's diffusion and use
- ◆ Market conditions (monopolies, regulation, etc.).

Source: <http://www.bridges.org/ereadiness/conclusion.html>



## Sources of Technology Entrepreneurship

- ◆ Licenses from new, technology-based processes and products
- ◆ E-commerce & E-business
- ◆ IT
- ◆ Telecoms
- ◆ Technology Manufacturing (new manufacturing facilities based on nanotechnology that can fit into a garage)

## Jamaica's 5-Year Socio-Economic Outlook as a Result of Tech Entrepreneurship



	1999	2002	2003	2006	2007	2009	2010
Literacy rate	86%	88%	88%	89%	90%	91%	91%
Net Secondary Enrollment	75%	no fig. *	no fig. *	77%	77%	79%	80%
Total Crime reported (JCF)	41,456	29,412	31,299	40,998	42,227	41,755	40,503
Population	2,612,500	2,625,000	2,641,000	2,802,650	2,858,703	2,974,195	3,033,679
GDP (USD\$)	7,737,019,231	8,480,769,231	8,227,730,769	9,165,944,581	9,910,219,281	12,702,649,517	14,511,506,808
GDP Growth		10%	-3%	6%	8%	14%	14%
GDP Per Capita (USD\$)	2,961.54	3,230.77	3,115.38	3,270.46	3,466.68	4,270.95	4,783.47
E-business readiness	no calc. **	no calc. **	no calc. **	4.87	4.92	5.1	5.3
PC Penetration	4%	5%	no fig. *	12%	14%	18%	20%
Internet Users per Capita	2%	23%	no fig. *	35%	40%	50%	52%
High Tech. Exports as %age Manuf. Goods	0%	0.10%	no fig. *	0.8%	1%	1.4%	1.5%

\* No figures from source. \*\* No calculations done.

Forecast derived from sources: 1) Jamaica Constabulary Force (JCF), Statistics Dept. 2) World Development Indicators Database, World Bank Group, April 2005 3) EIU Viewswire



## Jamaica's 5-year Socio-Economic Outlook as a Result of Tech Entrepreneurship (Summary)

- ◆ Crime rate decreased by 7%
- ◆ Licensing and Tech Entrepreneurship revenue (and Related Services) boosting GDP by 40%-77% over the next 5 years
- ◆ Literacy rate increasing to over 90%
- ◆ Net Secondary Enrollment increasing to 80%
- ◆ Internet penetration in excess of 45%
- ◆ Computer penetration of 20%



## Fostering Technology Entrepreneurship

- ◆ Tech Entrepreneurship and Patent Education (formally & informally)
- ◆ Educated people (up to tertiary level) in technology and its benefits (them being technology and business savvy)
- ◆ Replacement of fear of technology education by enthusiasm for technology education
- ◆ Proliferation of people:
  - who value themselves and thought processes
  - who continually update technology skills
  - capable of transforming ideas to Business Plans

## Fostering Tech Entrepreneurship Cont'd

- ◆ Proliferation of people capable of transforming Business Plans to Businesses
- ◆ Government Policy
  - Venture Funds, Lower Commercial Lending Rates(less than 12%)
  - Science & Technology Incubators & Parks, Free Zones, etc.
- ◆ Awareness of Tech Entrepreneurship Best Practices
- ◆ Tech Entrepreneurship Mentors
- ◆ Access to Debt/Equity Capital
  - Angel Investors, Venture Capitalists, IP Licensing

# Conclusion

- ◆ Technology is any tool or process that improves peoples' lives
- ◆ Technology Patent Licensing is the one of the most lucrative and effective sources of funds for the Technology Entrepreneur
- ◆ Technology Entrepreneurship grows under the right conditions.
- ◆ If these conditions are put in place and augmented, then Tech Entrepreneurship can be the most powerful agent for socio-economic change; change that will ensure Jamaica's socio-economic recovery.



# Questions?



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# Tech Entrepreneurship Resources

## Online Technology & Business Magazines

- ◆ Fast Company Magazine:  
<http://www.fastcompany.com/homepage/index.html>
- ◆ E-week: <http://www.eweek.com/>
- ◆ Wired Magazine: <http://www.wired.com/>
- ◆ MIT Technology Review:  
<http://www.technologyreview.com/>
- ◆ Harvard Business Review Online:  
[http://harvardbusinessonline.hbsp.harvard.edu/b02/en/hbr/hbr\\_home.jhtml](http://harvardbusinessonline.hbsp.harvard.edu/b02/en/hbr/hbr_home.jhtml)
- ◆ CIO Magazine: <http://www.cio.com/>

# Tech Entrepreneurship Resources Cont'd

## Intellectual Property Websites

- ◆ Jamaica Intellectual Property Office:  
<http://www.jipo.gov.jm/>
- ◆ Patent Café:  
[http://www.patentcafe.com/inventors\\_cafe/starting\\_point.asp](http://www.patentcafe.com/inventors_cafe/starting_point.asp)
- ◆ US Patent & Trademark Office (USPTO) - Can be used to search for US patents, trademarks:  
<http://www.uspto.gov/>