



www.azargen.com

*Sustainable biotech innovation from an
entrepreneur's perspective*

Mauritz Venter

Co-founder & CEO

BIOSAFETY SYMPOSIUM

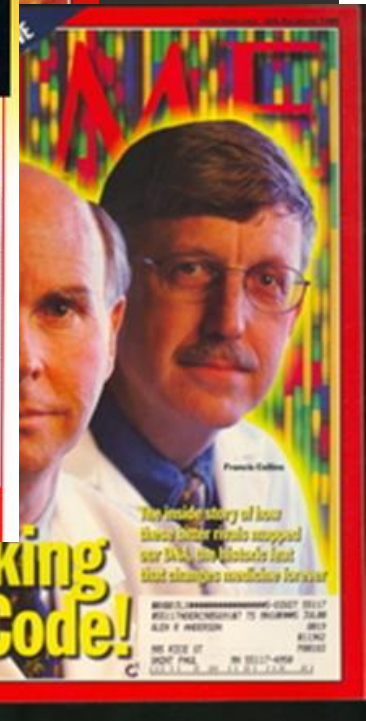
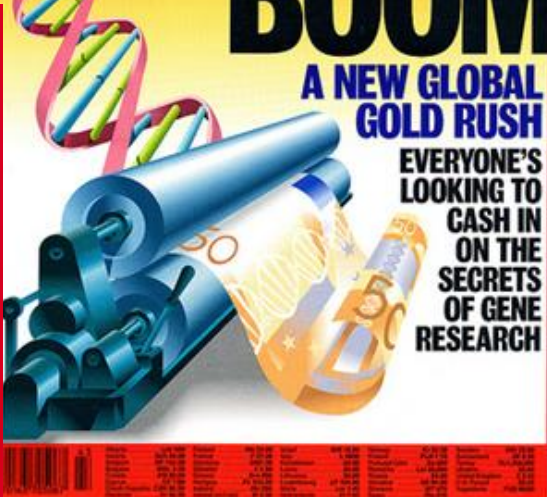
1 February 2018

The **Biotech** Dream

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era in



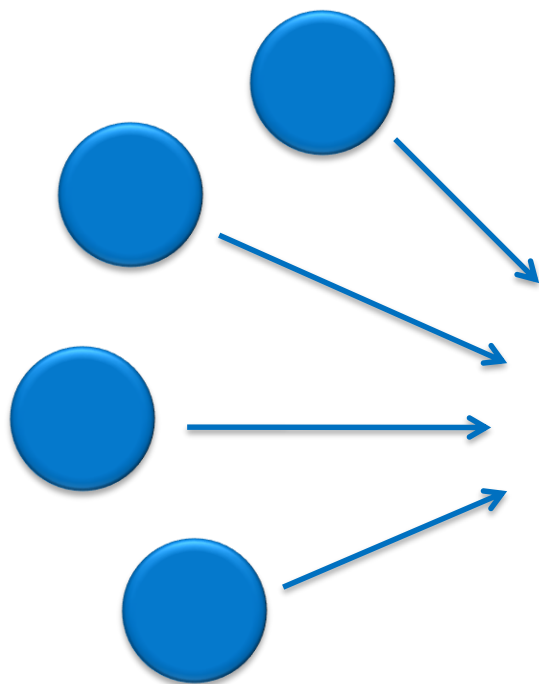
N
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Getting Started

Aspiring

4 Entrepreneurs with different strengths

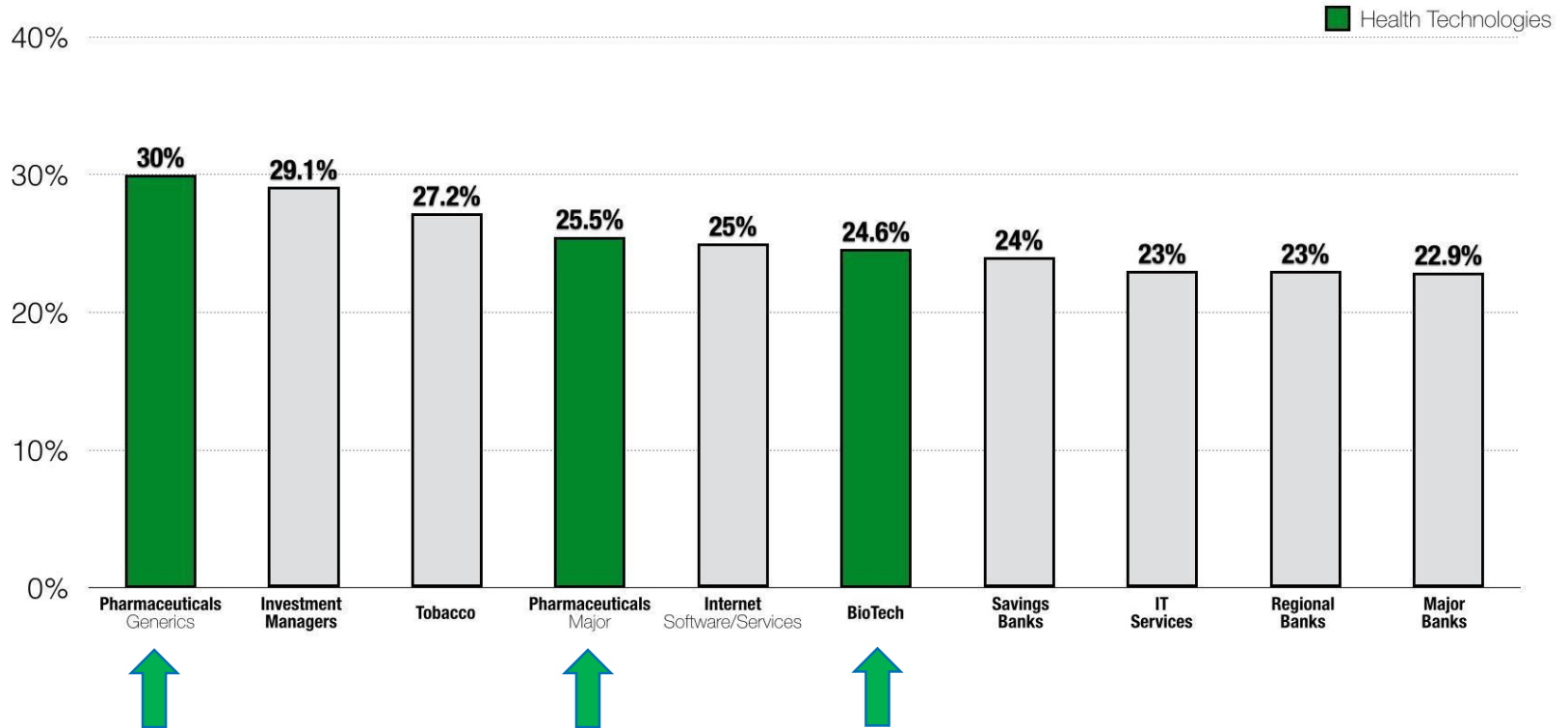


AzarGen
Biotechnologies

Feb 2003

The Most Profitable Industries In 2016

Net Profit Margin



Source: @forbes Nov 2015

@heatinformatics

Plant genetic engineering



+

Synthetic biology



AzarGen's Strategy...

Use **plants as bioreactors** to produce
biological drugs

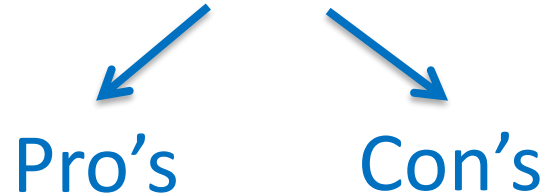
BIOLOGICALS



PHARMA COMPASS

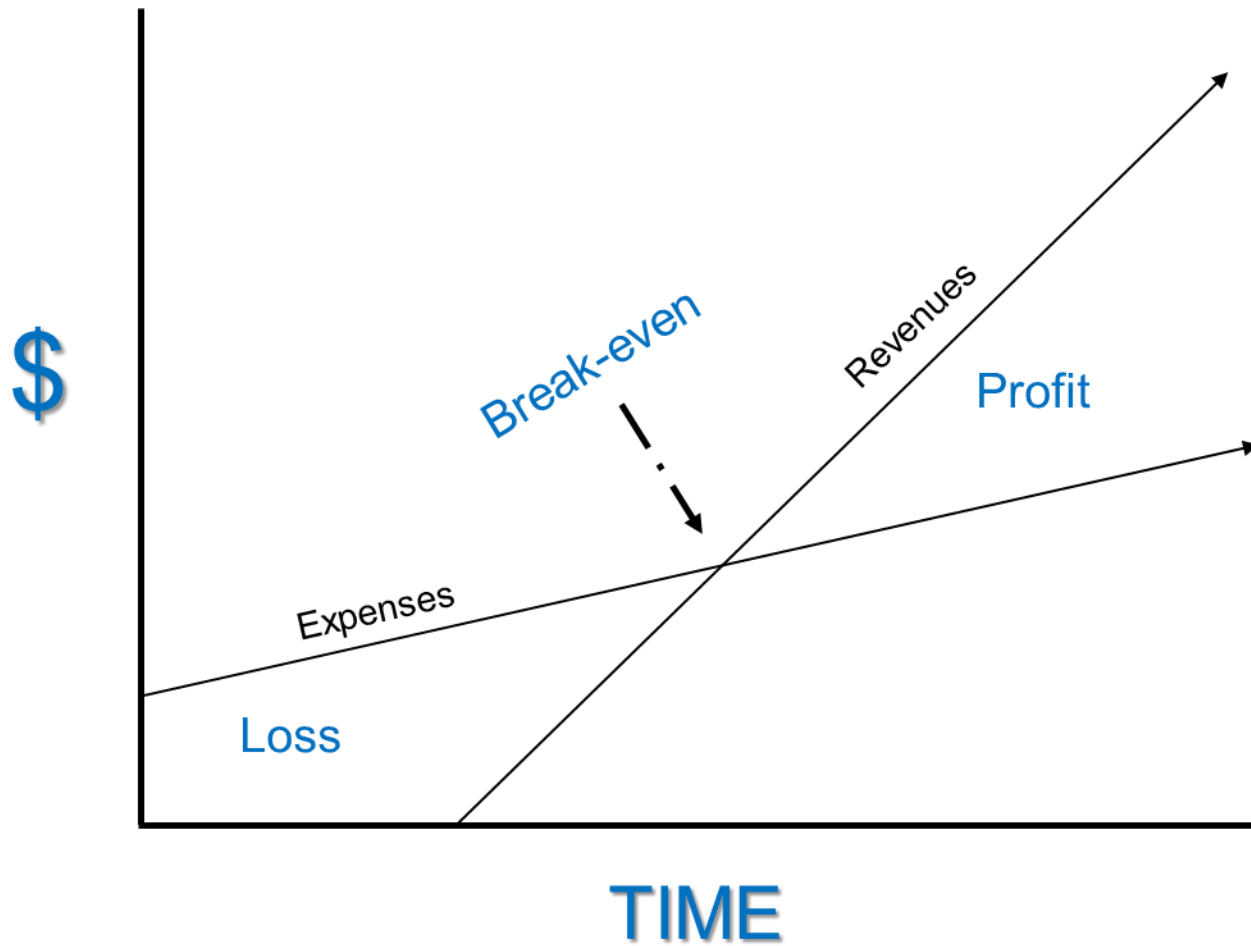
www.pharmacompass.com

Entrepreneurship

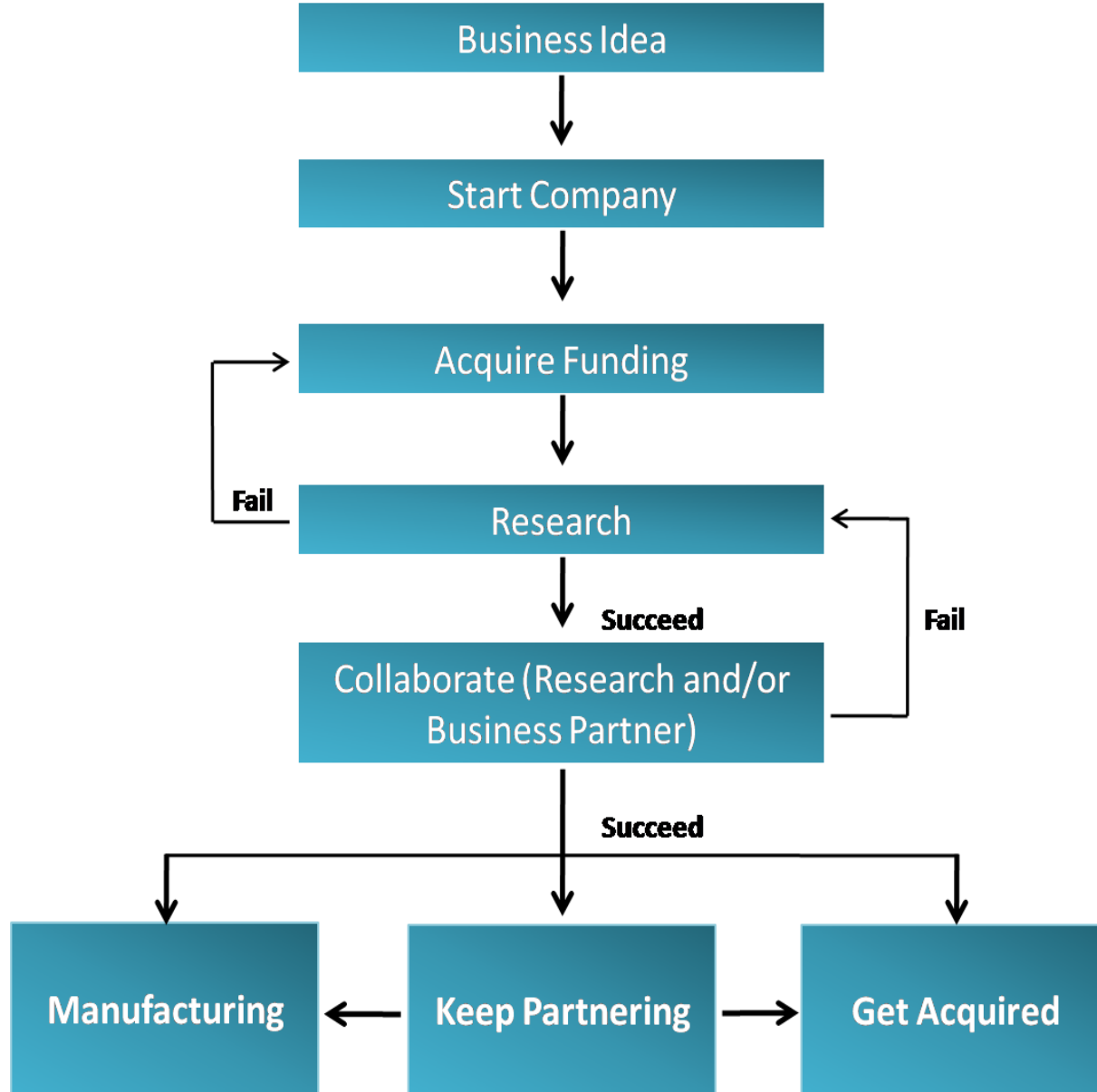


“Remembering that you are going to die is the best way I know to avoid the trap of thinking you have something to lose. You are already naked. **There is no reason not to follow your heart.**”

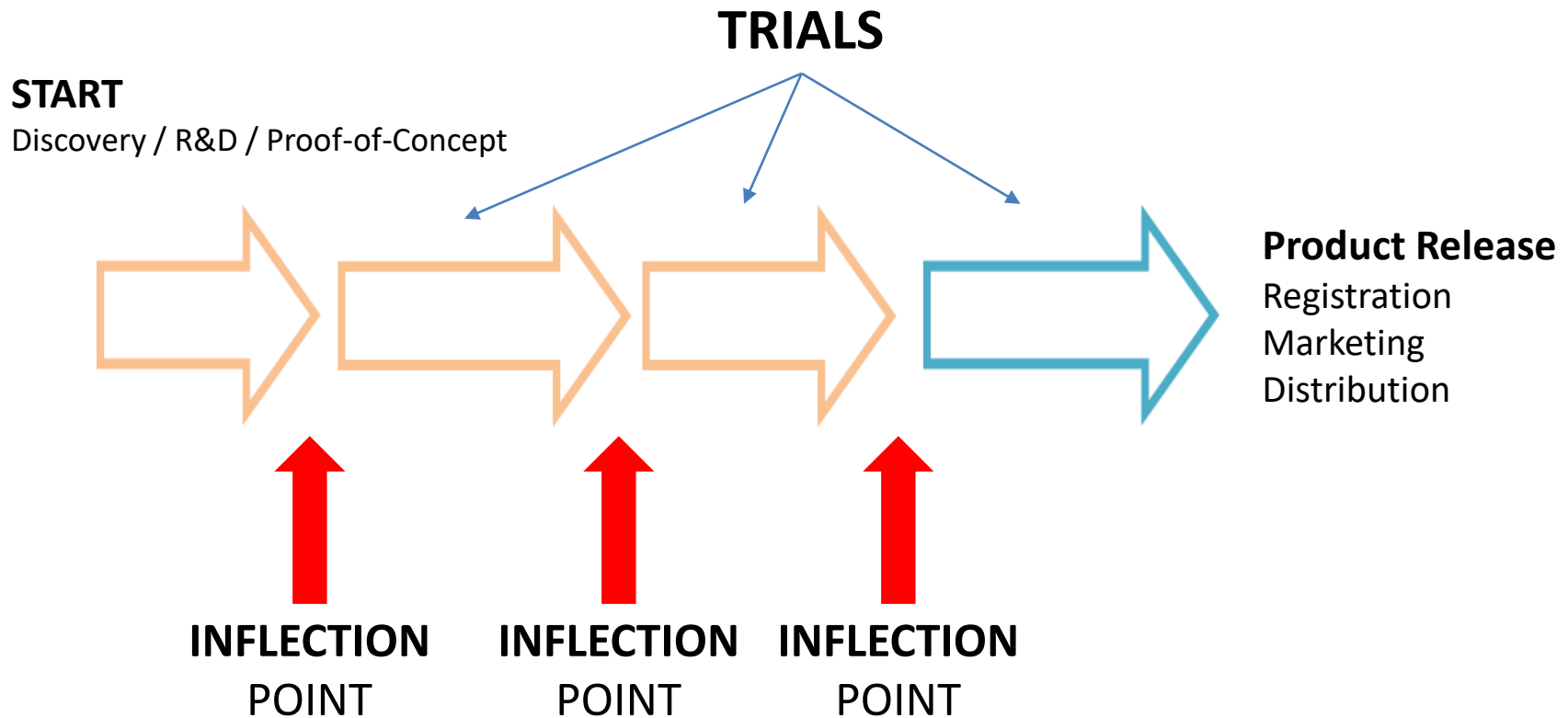
Steve Jobs



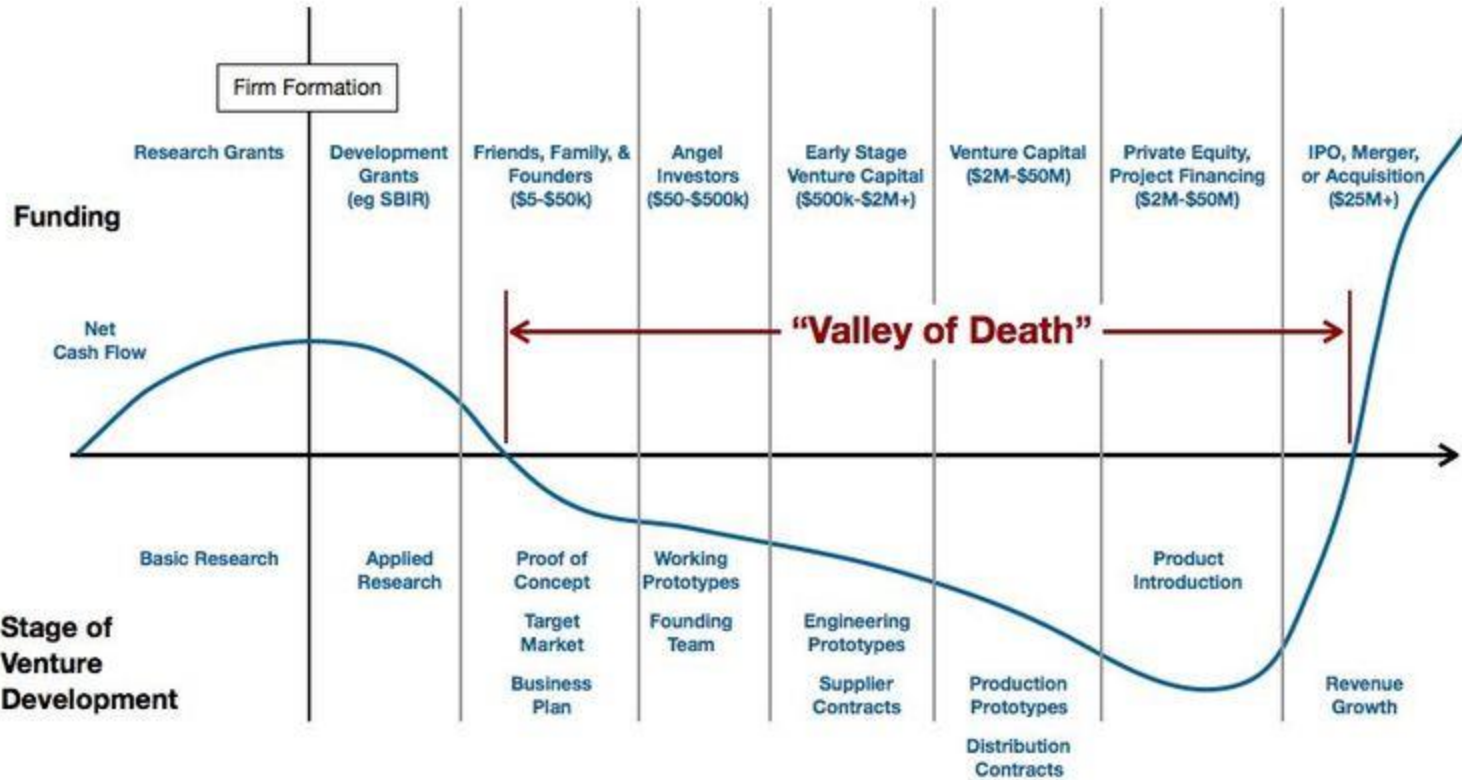
Biotech **Start-up** Model

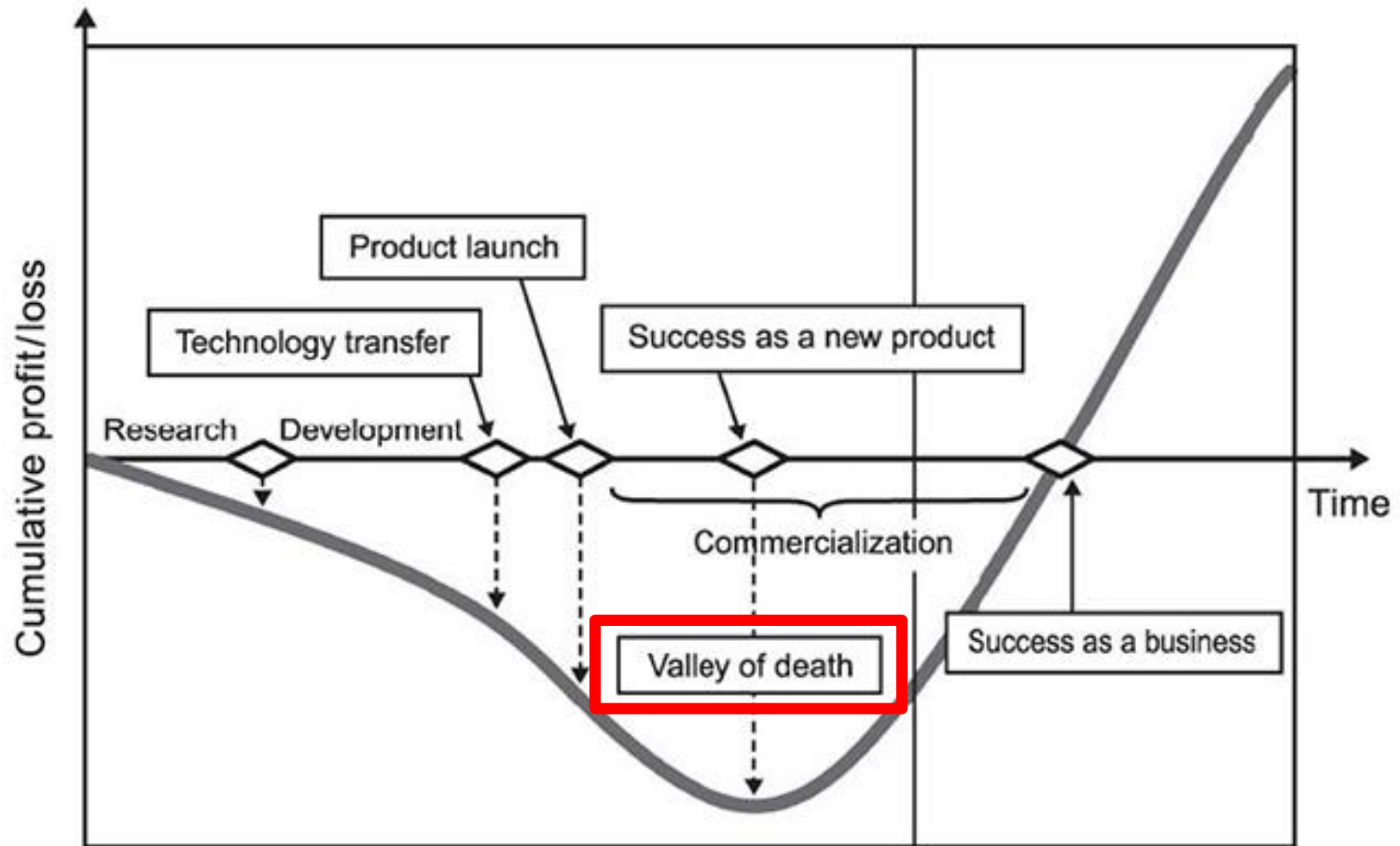


Biotech is **RISKY**



Lifecycle of a venture





Osawa and Miyazaki, 2006

WILD IMAGINATION

SUCCESS

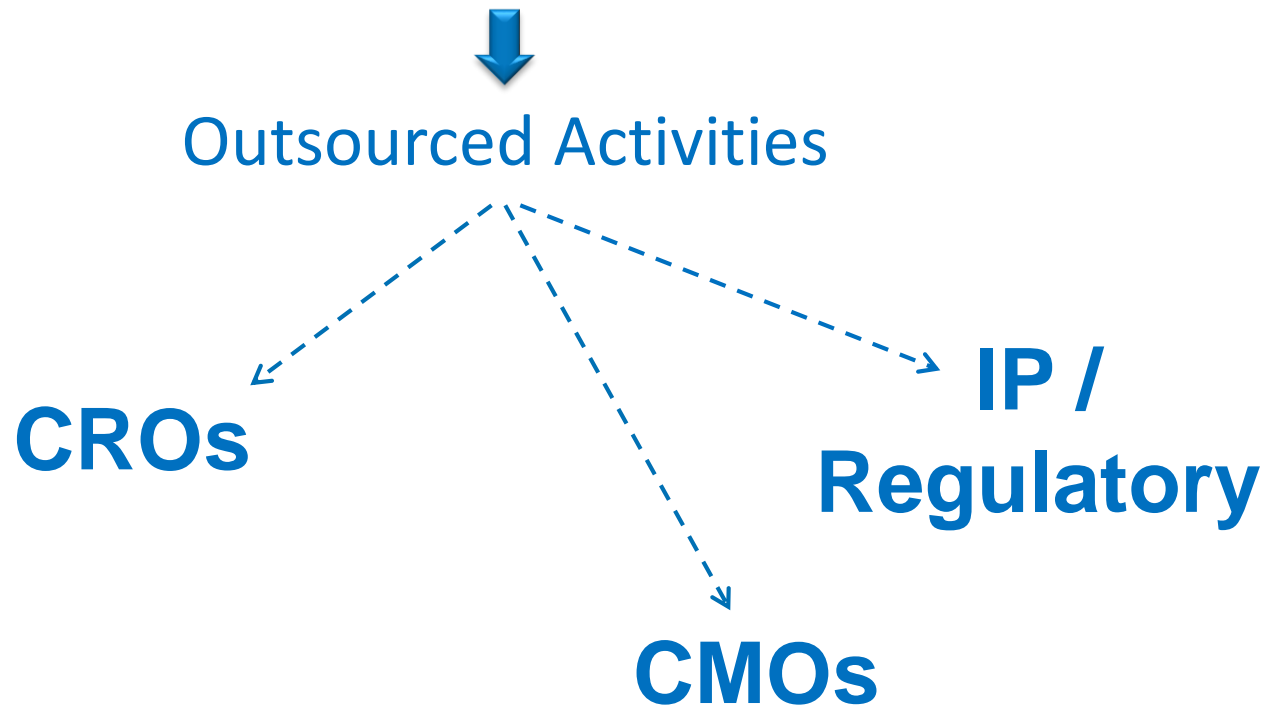
THE VALLEY OF DEATH



“Screw it, let’s do it”

Richard Branson

Founders + Advisory Board (Regulatory/Business) + Investors



Getting Money

Friends

Venture Capitalists

Government

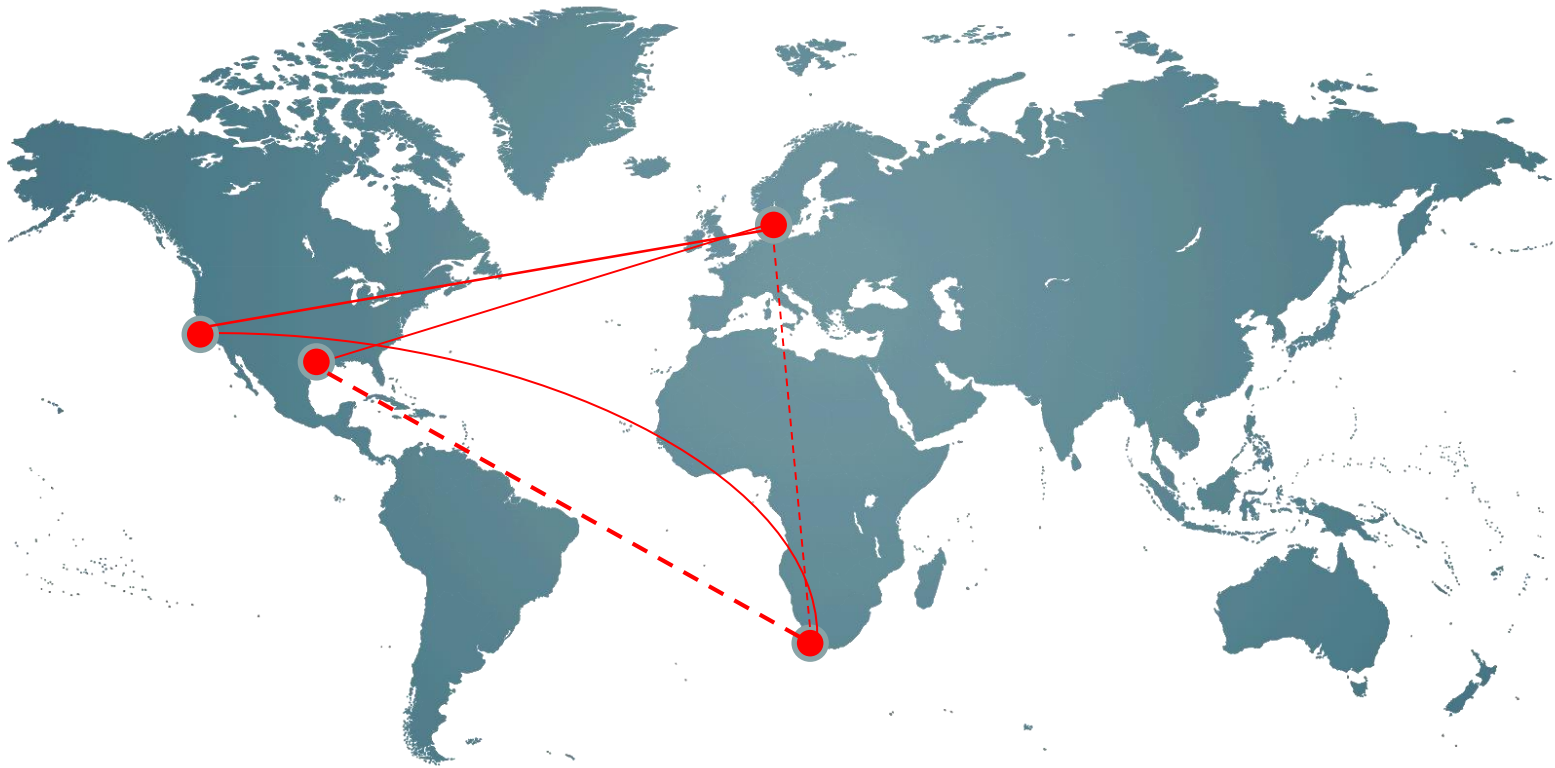


Round-1

Round-2

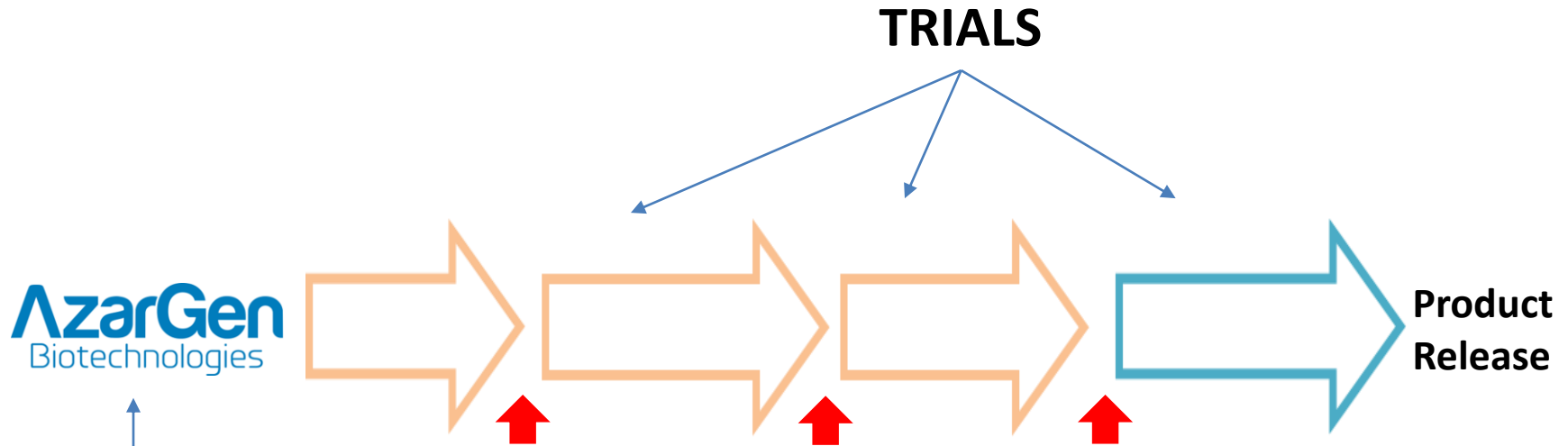
Round-3

Networking leads to potential collaboration





Regulatory Compliance



The **Biotech** Dream

Passion (Science)

+

Business (Making \$)

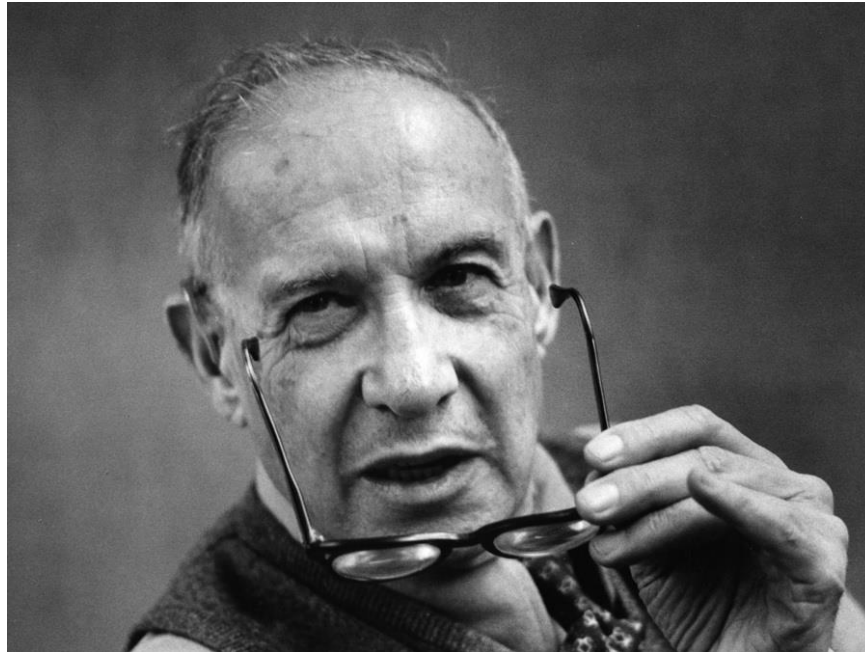
+

Tolerate Uncertainty



Biotech Entrepreneur

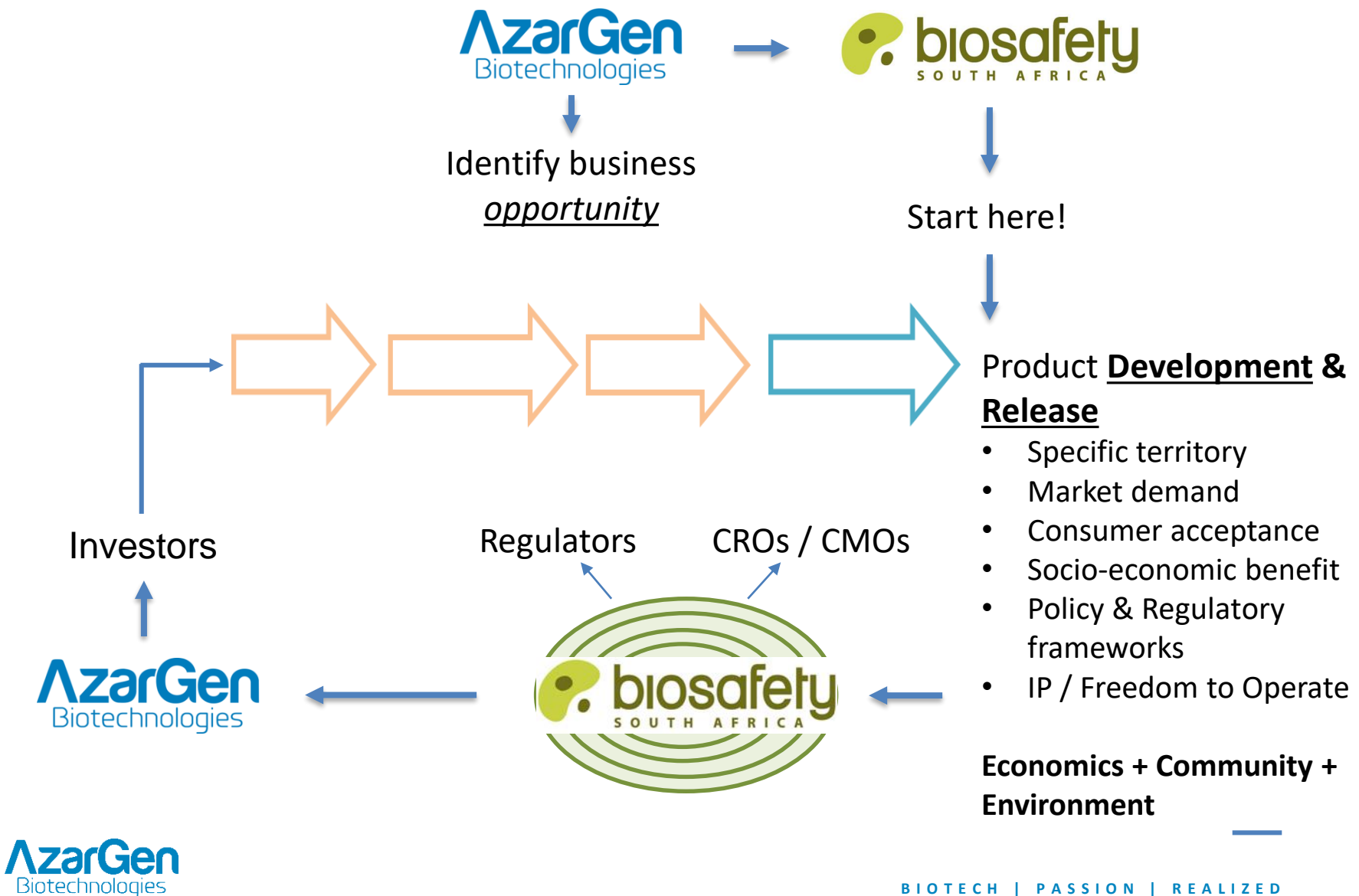
Entrepreneurial Efficiency

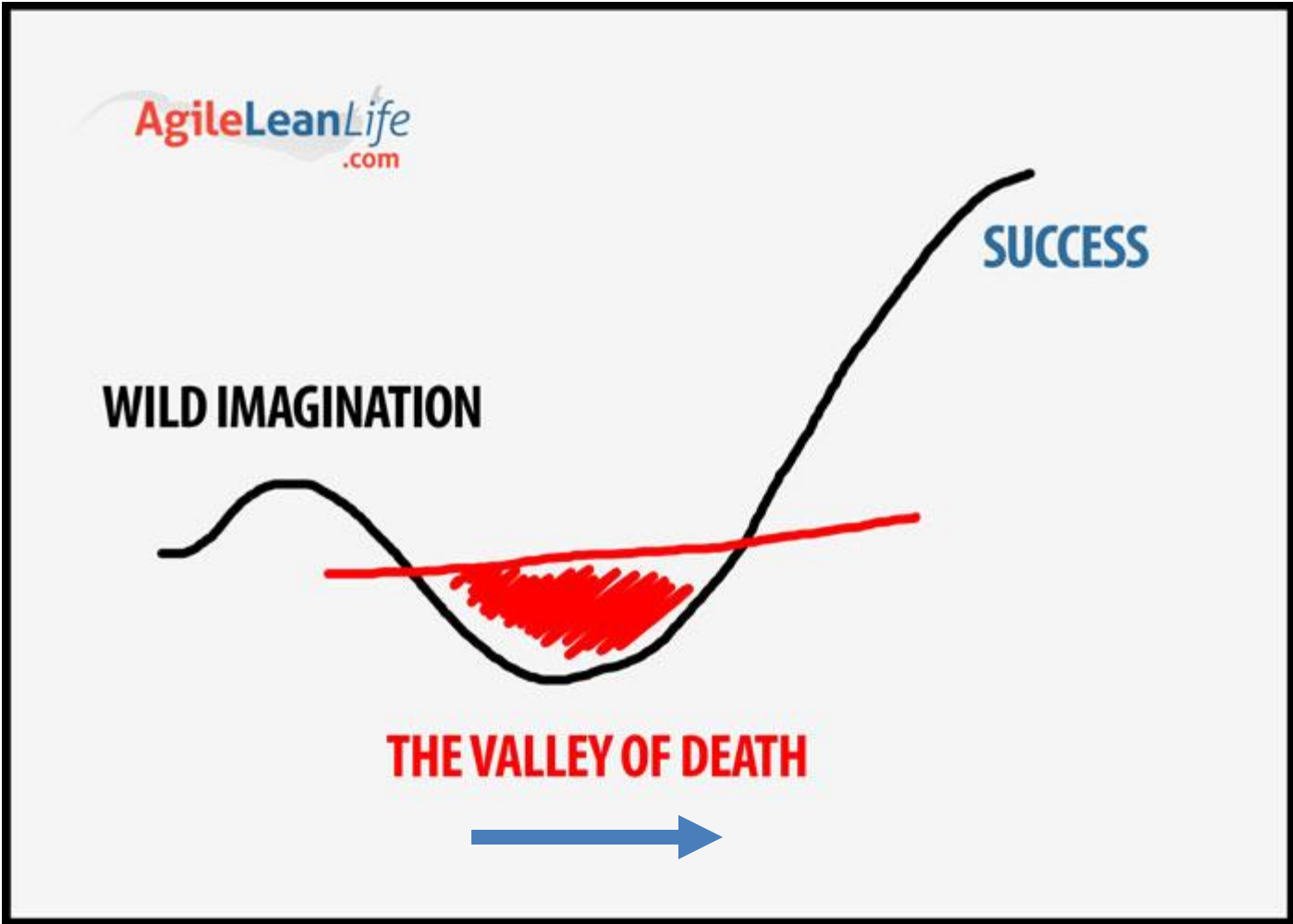


“Indeed, **innovation** is the work of knowing rather than *doing*.”

Peter F. Drucker

Entrepreneurial Efficiency





BIOTECH. PASSION. REALIZED.

AzarGen
Biotechnologies



	Biological	Approval date*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Humanized antibodies	Avastin (bevacizumab)	12 Jan 2005											21 Jan 2022			
		26 Feb 2004											4 Jul 2019			
	Herceptin (trastuzumab)	28 Aug 2000					28 Jul 2014**									
Antibodies, not humanized	Erbix (cetuximab)	29 Jun 2004					29 Jun 2014									
		12 Feb 2004					13 Feb 2016									
	Enbrel (etanercept)	3 Feb 2000					1 Feb 2015		Amgen's patent has been extended until 22 Nov 2028							
Antibodies, not humanized	Humira (adalimumab)	8 Sep 2003							16 Apr 2018							
		31 Dec 2002							31 Dec 2016							
	Remicade (infliximab)	13 Aug 1999					Feb 2015									
Antibodies, not humanized	MabThera/Rituxan (rituximab)	2 Jun 1998					12 Nov 2013									
		26 Nov 1997					22 Sep 2016									
	Avonex/Rebif (interferon beta-1a)	19 Mar 2009					2015									
Antibodies, not humanized	Aranesp (darbepoetin alfa)	6 Aug 2001					6 Jul 2016									
		17 Sep 2001							15 May 2024							
	Epogen (epoetin alfa)	1 Jun 1989	Expired		20 Aug 2013											
Not antibodies	Neulasta (pegfilgrastim)	22 Aug 2002					21 Aug 2017									
		31 Jan 2002					20 Oct 2015									
	Neupogen (filgrastim)	20 Feb 1991	Expired		3 Dec 2013											
Not antibodies	Lantus (insulin glargine)	8 May 2009					2014									
		24 Apr 2000					2014									
Not antibodies	Lovenox (enoxaparin/sodium)		2012													
			Expired													

EU USA

Originator
off-patent



BIOSIMILARS



DEFINITION

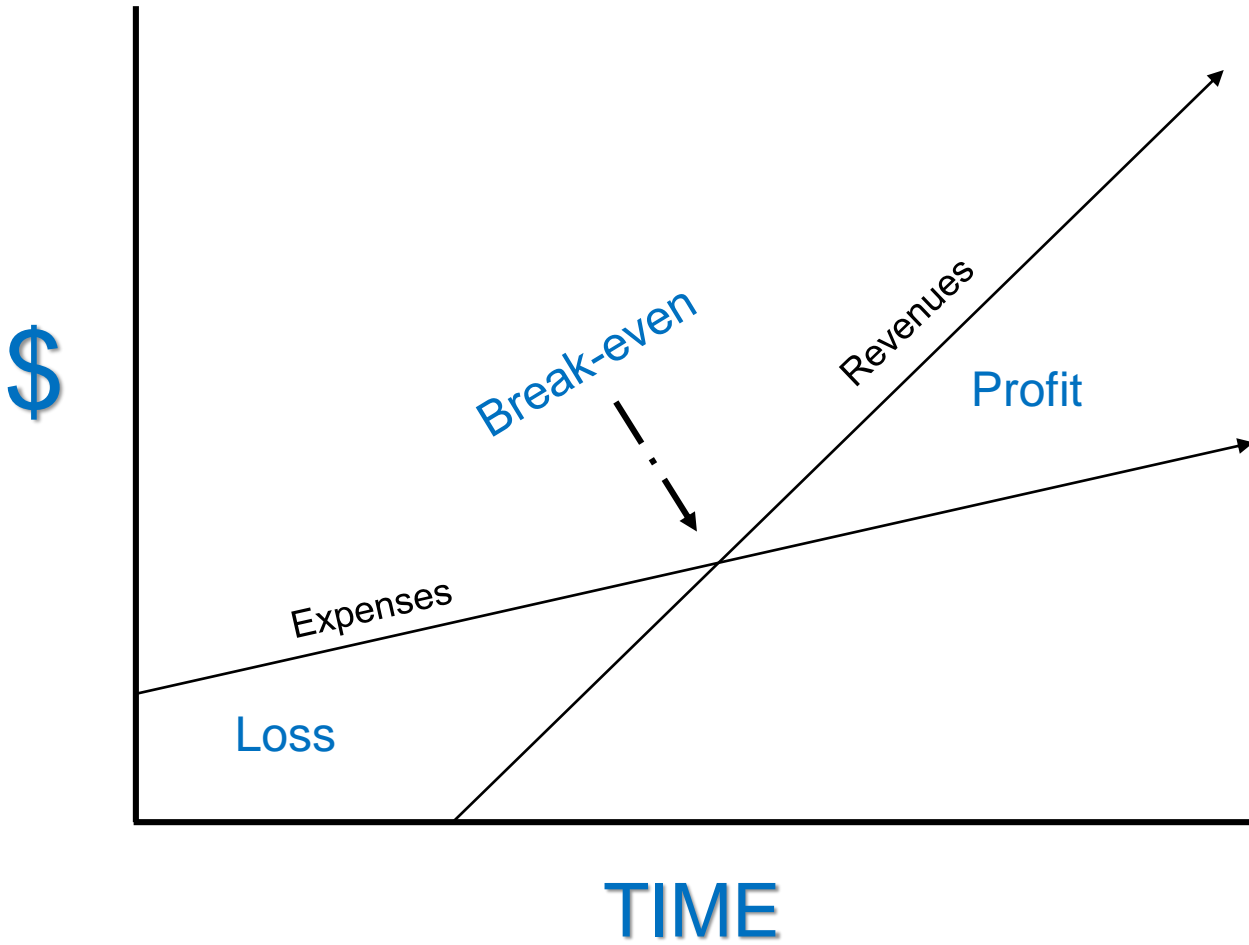
FDA

EMA

WHO

MCC

...**high similarity** in terms of quality, safety and efficacy to an already licensed reference/originator product ...



Market introduction

successfully responding to consumer needs and communicating benefits in a believable persuasive manner

Business feasibility

South African due diligence with investors

Understanding of business (idea and related technology) – education to investors and consumers

Probability for success / feasibility

Time / Cost / Risk

Entrepreneurial efficiency

Awareness + revised strategy (value added)

Innovation ecosystem

Acceleration

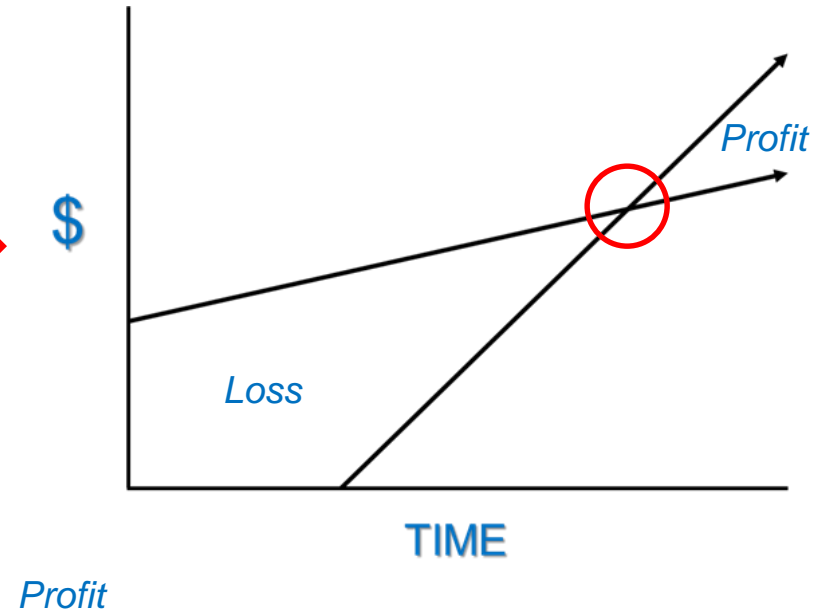
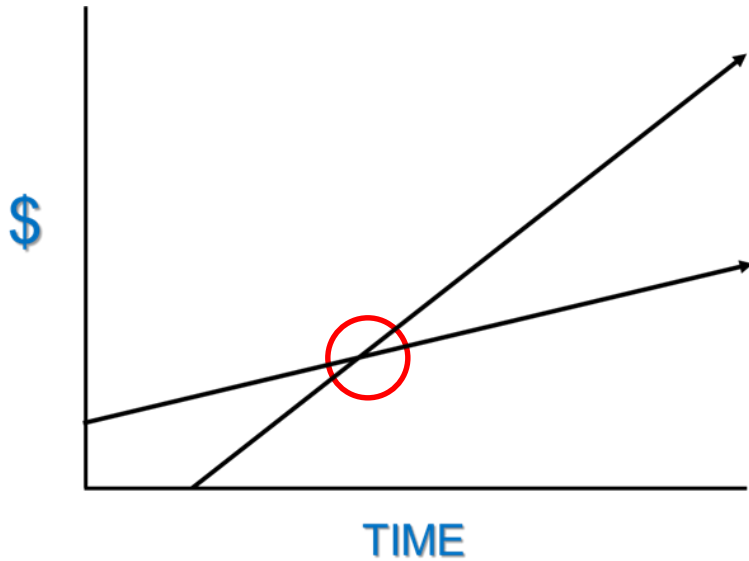
Optimize process

Stakeholder integration

Transparency

Regulatory compliance

Biotech is **RISKY**



Loss

Factor

Management

Ability to adapt

Timing

Location

Cash

Science

Strategy

Build a team that shares an ambitious common vision, intellectual honesty and an entrepreneurial culture in which the driving founders have a long-term commitment

Stick to your vision, but be prepared for your original business plan to change

Where is the market going to be in seven years' time? You should know the answer

Choose somewhere accessible that will raise your equity value

Attract venture capitalists from day one

Make sure your science is world class, but remember: science alone does not make a successful company