

# From Ideospace to Market Place my journey with RNP

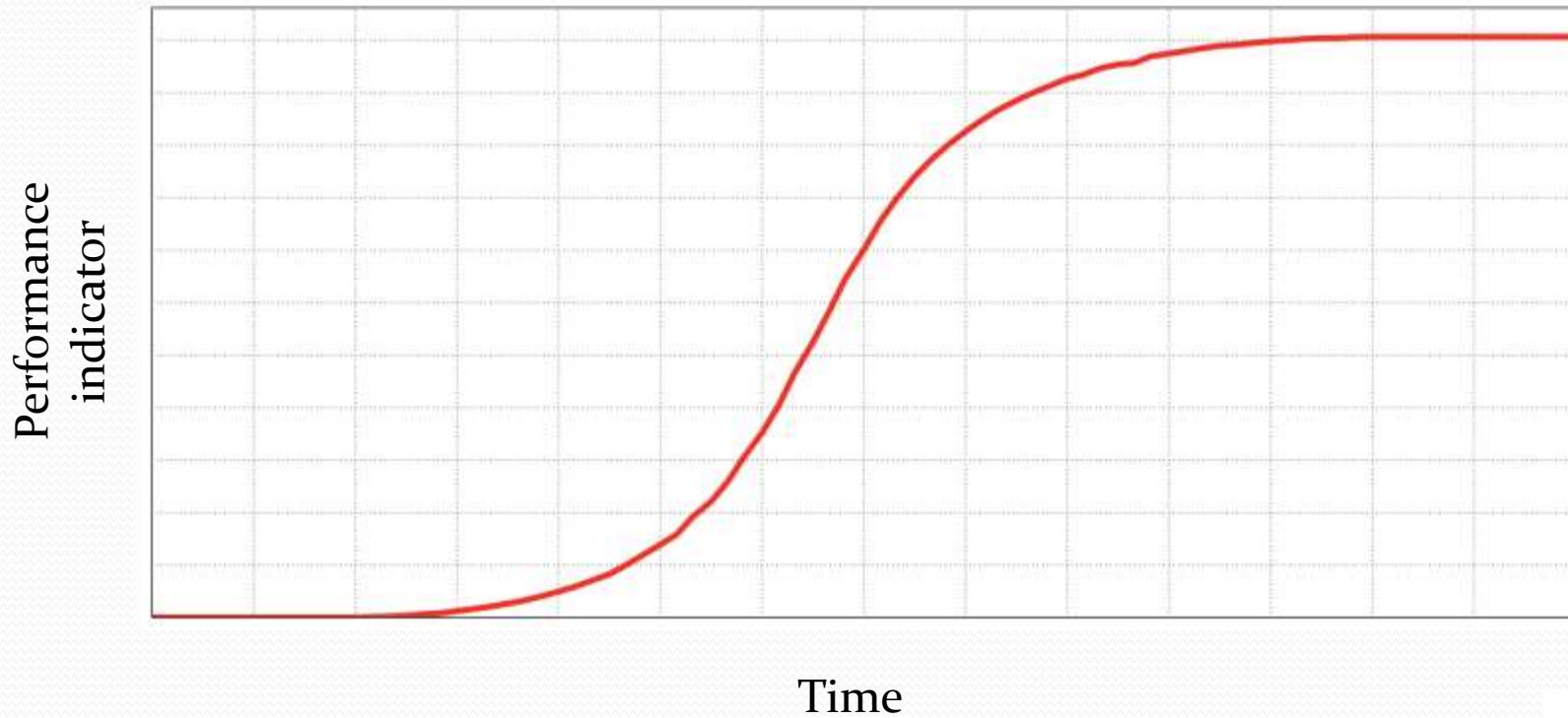
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# Overview

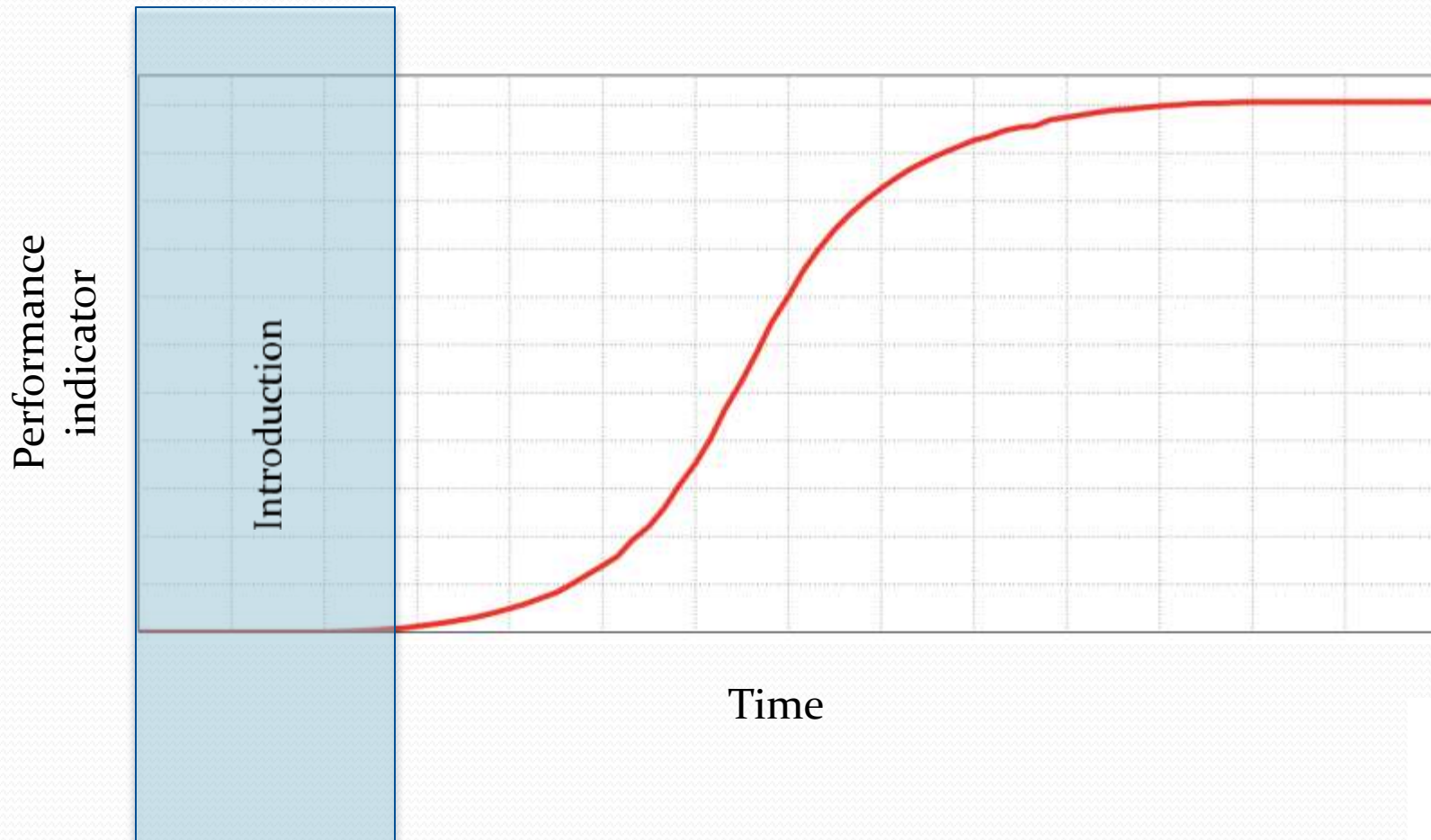
- General Product lifecycle
- Introduction to RNP
- The R&D process
- R&D Steps we followed
- Where is RNP now?
- Acknowledgments



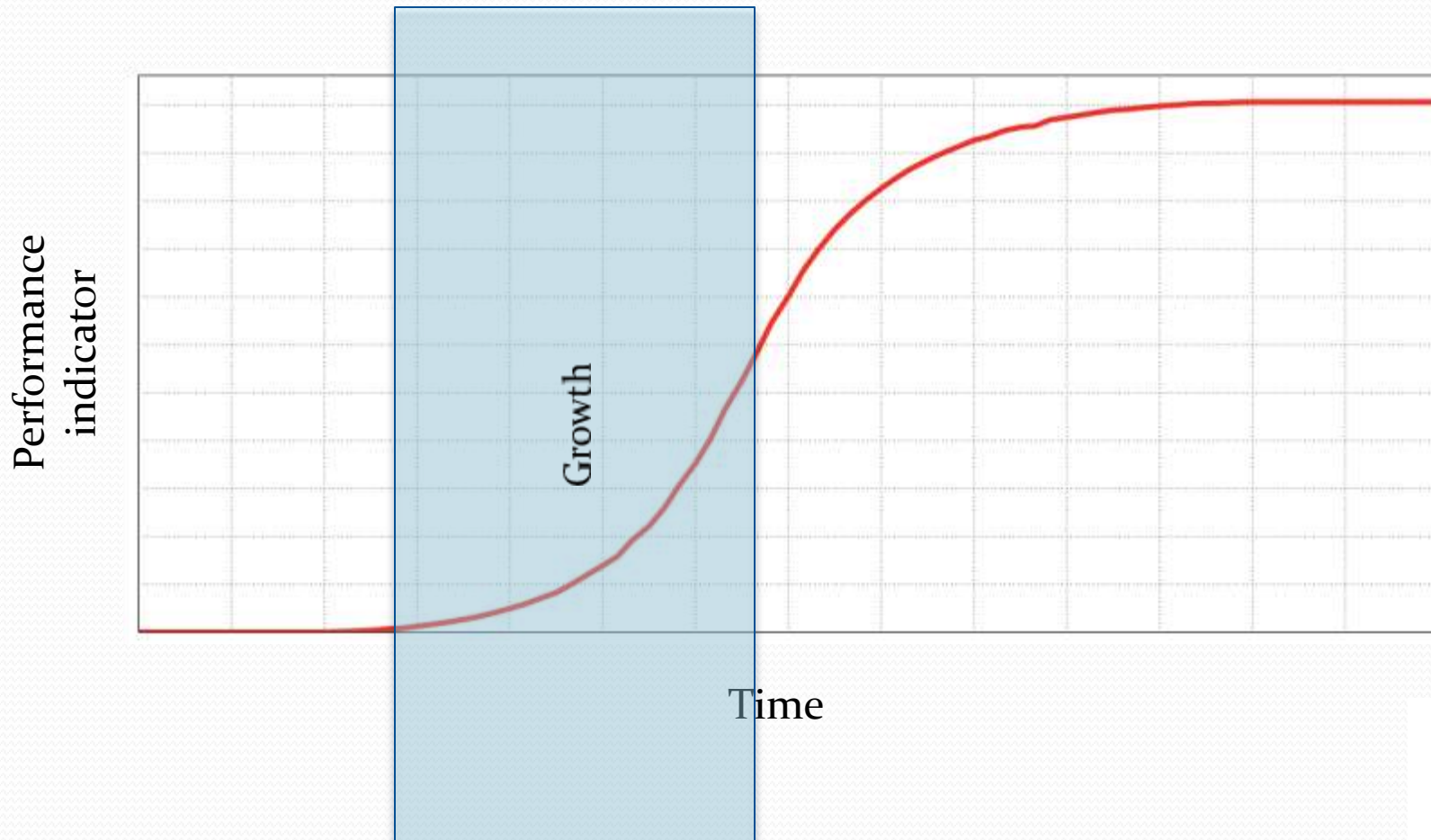
# General Product lifecycle



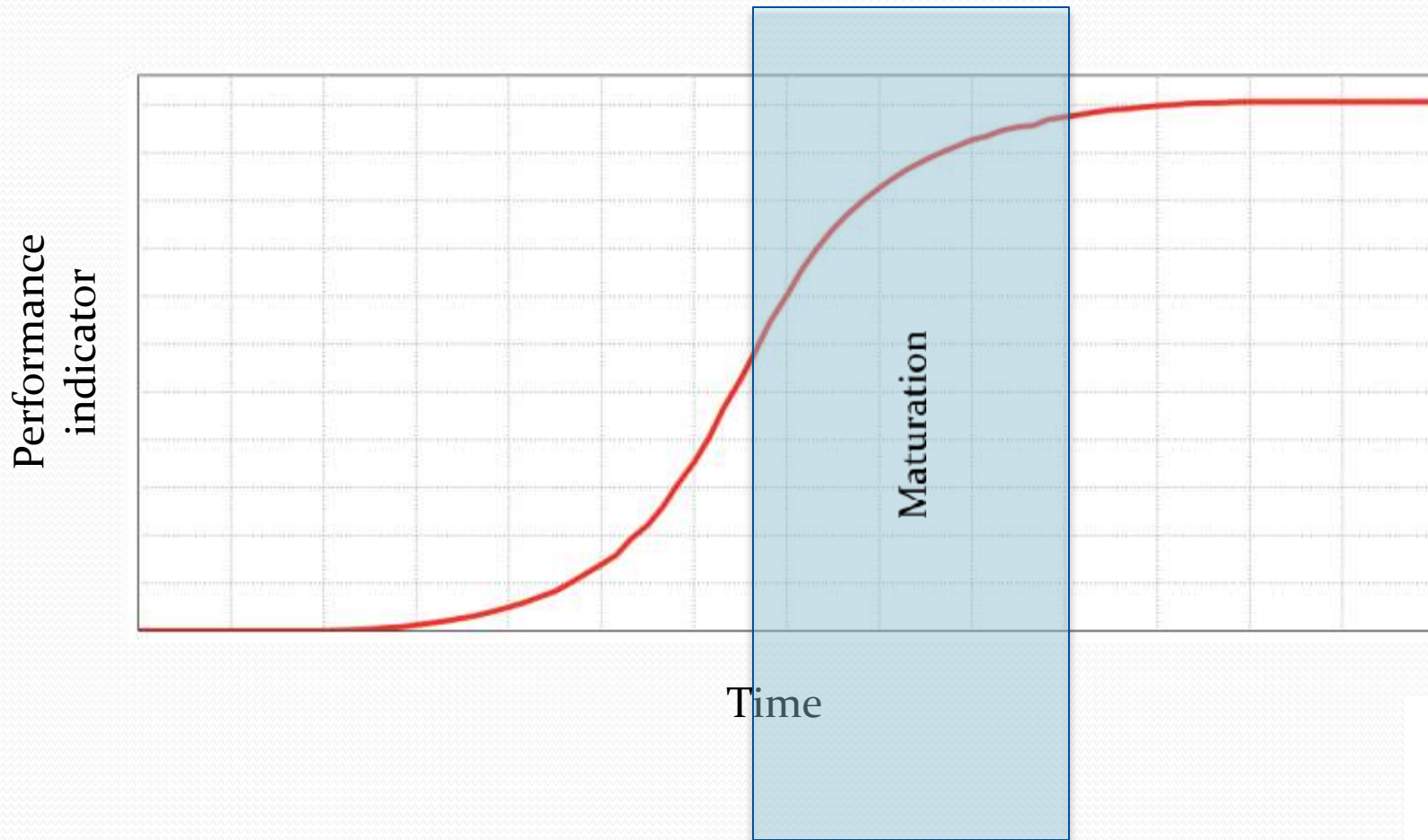
# General Product lifecycle



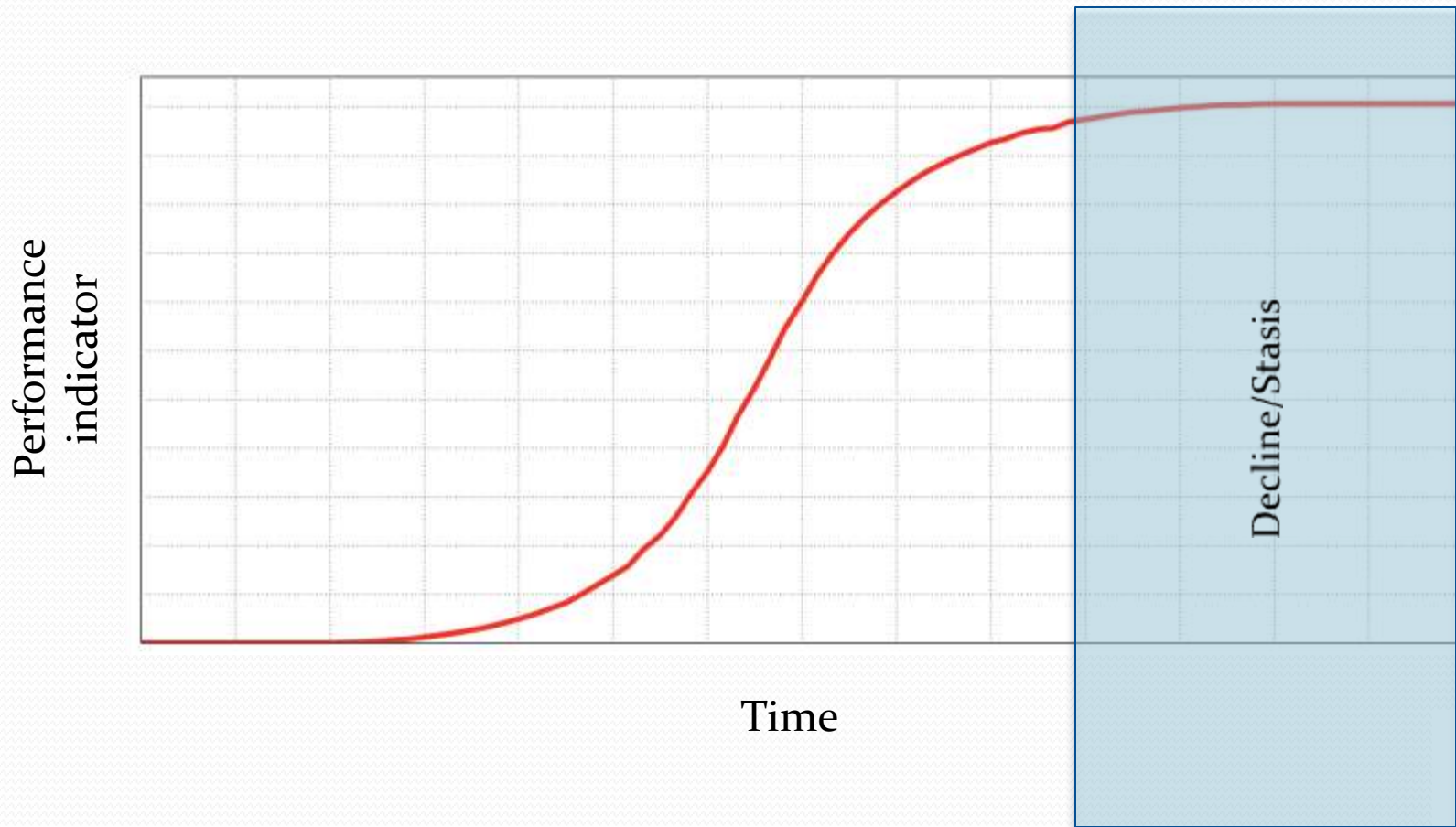
# General Product lifecycle



# General Product lifecycle



# General Product lifecycle



# Introduction to RNP

- Rubber Nano Products (Pty) Ltd
- Incorporated during my second year of PhD in 2006
- Business vehicle for commercialization of technology to manufacture rubber
  - Reducing zinc oxide
  - Cost effective and environmentally friendly solution





# Why did we incorporate RNP?

- Rubber is big business
  - World market for ZnO replacement worth ~R9000m/a
  - Very few competitors (none like us)
- Sufficient technical skill to implement this technology
- We needed a vehicle to get this technology proven to the industry
  - Separate commercial entity
  - University and company owned technology



# RNP technology

- The main resource of RNP is technology
  - Form of patents
  - Technology allows product range
- Global industry of rubber manufacture
  - International filing of patents
  - Costly to date (3 patents, 20 major markets, R3m in 4 years)



# RNP Technology

- RNP rubber vulcanization is unique
- Allows manufacture of rubber articles with
  - Cheaper in time and energy
  - Greater productivity (more cure press cycles per day)
  - Superior properties
  - Better environmental suitability



# The R&D process in stages

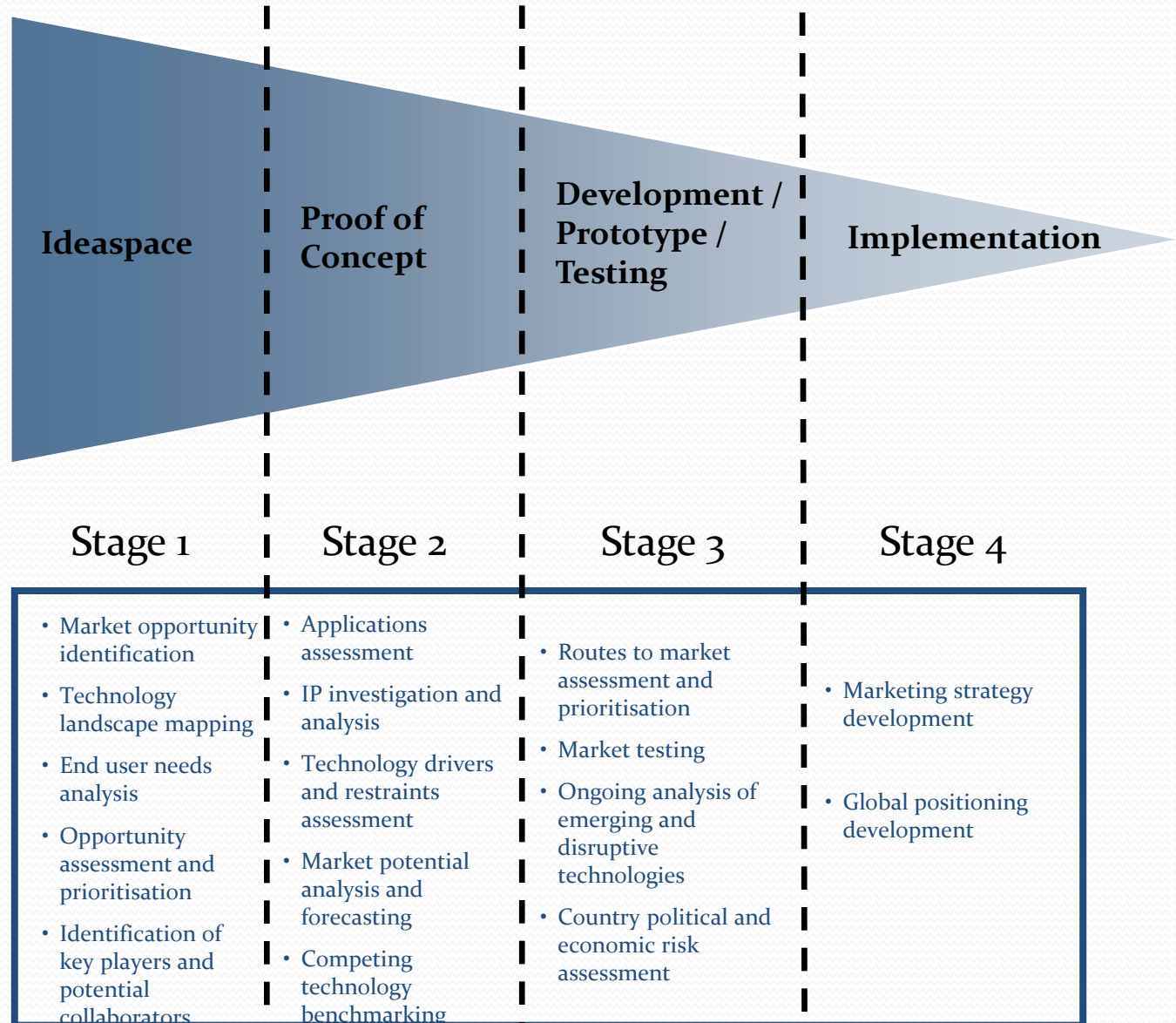
- Ideospace
- Proof of concept
- Development/prototyping/testing
- Implementation



# R&D Process

## DRIVERS:

- Technology
- Econometric
- Market
- Environmental



# Stage 1. Ideaspaces

- Market opportunity investigation
  - How much rubber is there?
  - How much ZnO is used?
    - Cost of ZnO, usage, who sells and makes it etc.
  - Is this viable?
- Technology landscape mapping
  - In R&D lab so well exposed to current developments (nano ZnO)



# Stage 1. Ideaspaces

- End user needs
  - Environmental product
  - Cost effective solution
- Opportunity assessment and prioritization
  - Early plan we prioritized tyre industry (Conti trials)
  - Was erroneous should have gone non-tyre first
    - Nondisclosure is tricky for a start-up
  - Corrected this over time (but time loss)



# Stage 1. Ideaspaces

- Identification of key players and potential collaborators
  - Very important to do correctly
  - We initially chose the wrong partner
    - Our product would have killed over 65% of their business
    - Delayed by them moving goalposts

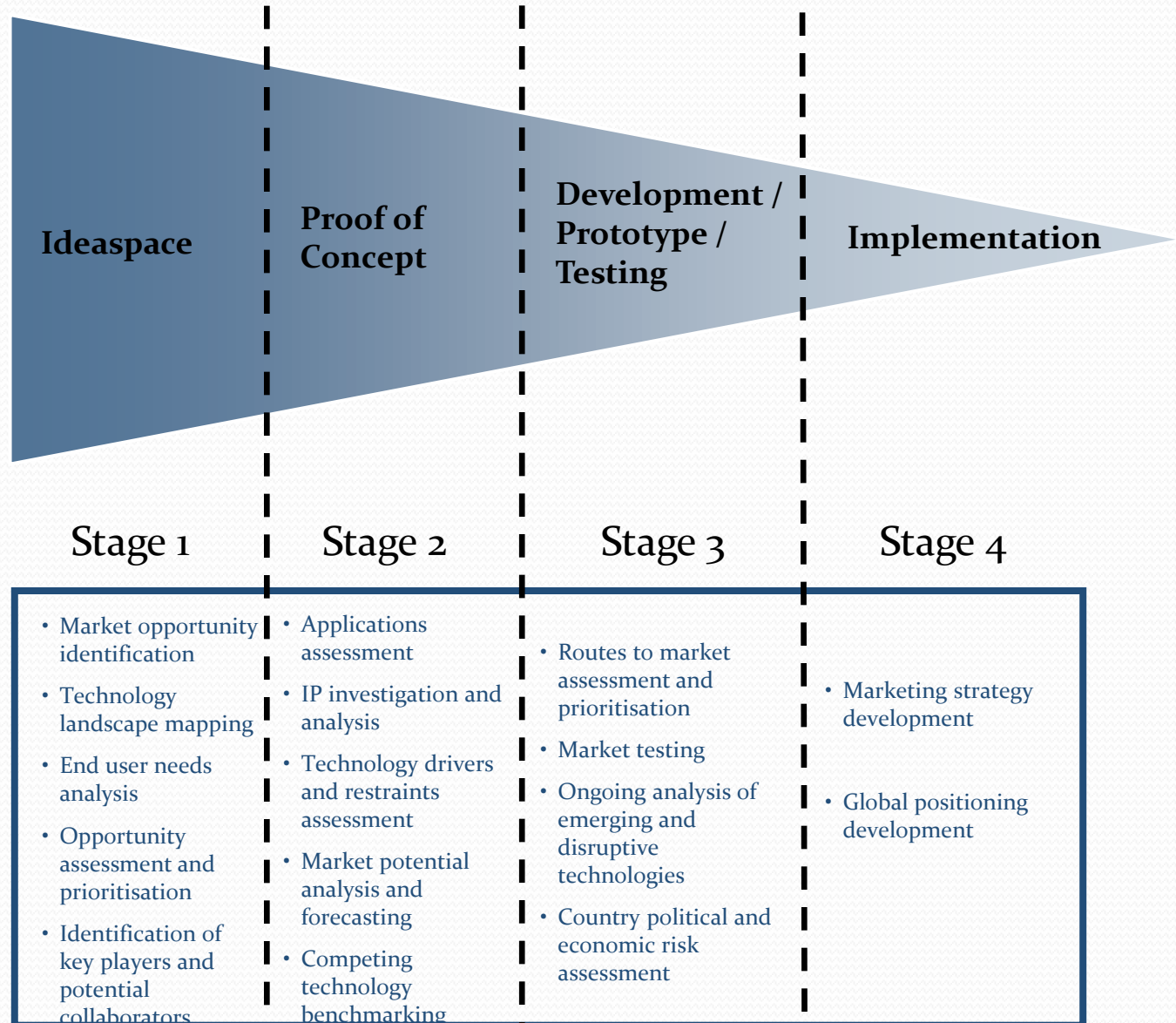




# R&D Process

## DRIVERS:

- Technology
- Econometric
- Market
- Environmental



# Stage 2. Proof of concept

- Applications assessment
  - Completed fairly quickly as good working knowledge of different compounds
  - Very broad in RNP technology case
- IP investigation and assessment
  - Very critical to lodge patents and protect the technology
  - NMMU R&D background very useful here



# Stage 2. Proof of concept

- Technology Drivers and restraints assessment
  - Environmental drive
  - Financial restraints (recession ended new developments)
- Market potential analysis and forecasting
  - Since tyre is slow to enter find your actual accessible market
  - Sufficient locally to allow for a business that could succeed
  - Forecasting is still guessing
  - Trial success does not mean a sale!



# Stage 2. Proof of concept

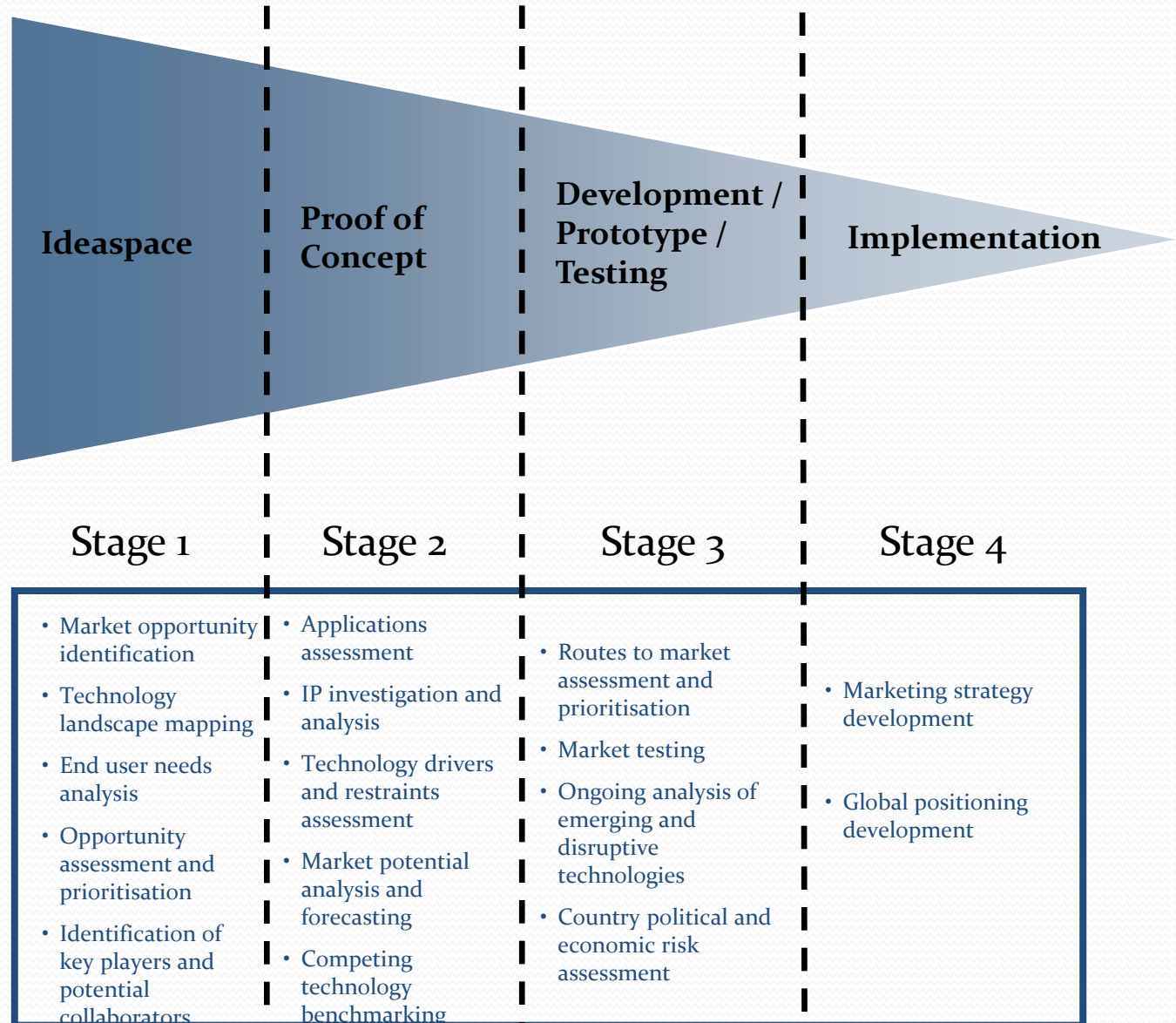
- Competing technology benchmarking
  - Other methods of lowering ZnO
  - Be more cost effective
  - Ensure more ZnO is removed
  - RNP unique product
    - but only for so long



# R&D Process

## DRIVERS:

- Technology
- Econometric
- Market
- Environmental



# Stage 3.

## Development/Prototyping/Testing

- Route to market prioritization
  - RNP was not as effective here initially as could have been
  - Learned to focus on small number of early adopters
- Market testing
  - Done in conjunction with trials
  - Price most important
  - Environmental only issue in EU
  - Market ready for ZR6
  - Market skill and ability
    - Not all companies have ability to implement technology correctly
    - New chemicals, new mechanisms, new usage



# Stage 3. D/P/T

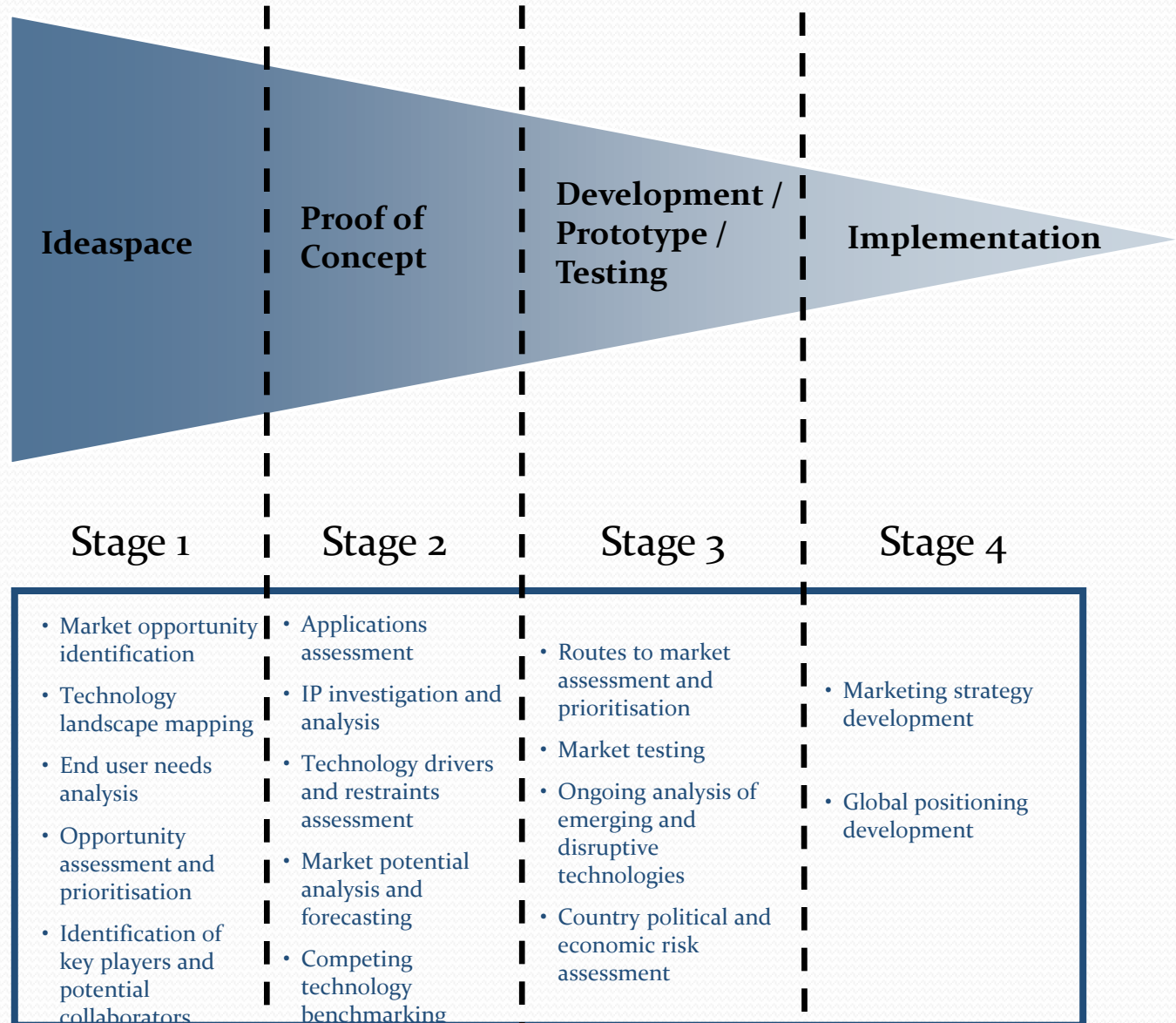
- Ongoing technological assessment
  - still the cheapest answer
  - have the most ZnO removal
  - favorable MSDS
- Country political and economic risk assessment
  - RNP has more hurdles to EU so we chose that first
  - In retrospect should have gone Asia first
  - REACH, MSDS, FDA
  - Asia = cost



# R&D Process

## DRIVERS:

- Technology
- Econometric
- Market
- Environmental





# Stage 4. Implementation

- Toll manufacture
  - Interesting to risk managed
  - Delicate economic climate (is toll manufacturer going to survive?)
- Marketing strategy
  - Cost effective in production
  - Target a single player in a field
    - Flooring, shoes, belting, gaskets, seals etc.
    - Prove then spread horizontally



# Stage 4. Implementation

- Global positioning development
  - RNP needs factories to service different territories
  - Tyre industry demands more than 1 production source
  - Logistically very important to decentralize
  - RNP Europe, Asia and America



# Where is RNP now?



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# Acknowledgements

- The board of RNP
- The NMMU for understanding and patience
- My family for long sufferance

