Access to antibiotics: An example of market failure

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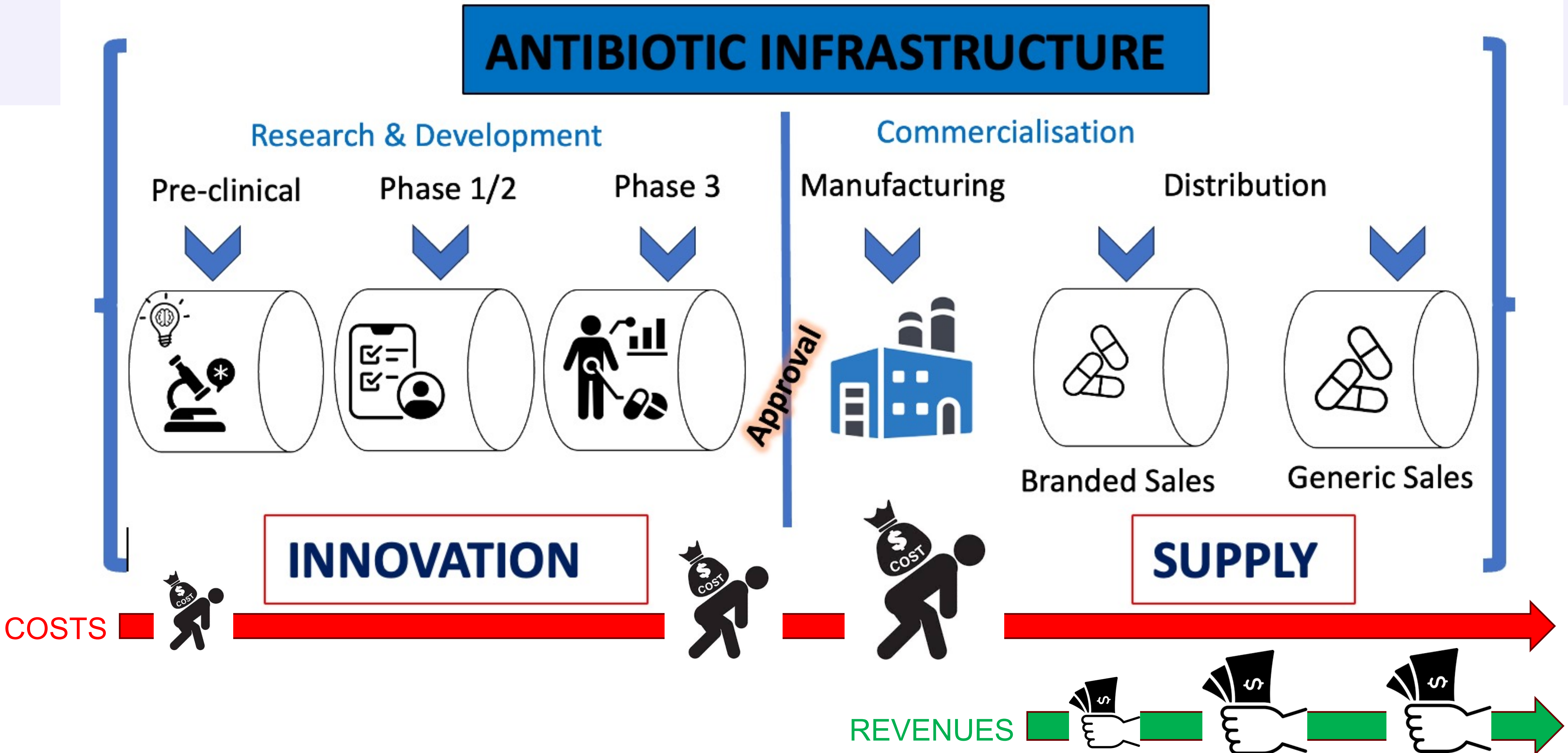
Context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Pre-clinical
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Manufacturing
Distribution
Approval
Branded Sales
Generic Sales
INNOVATION
SUPPLY
COSTS
COST
REVENUES

Financial market failure?

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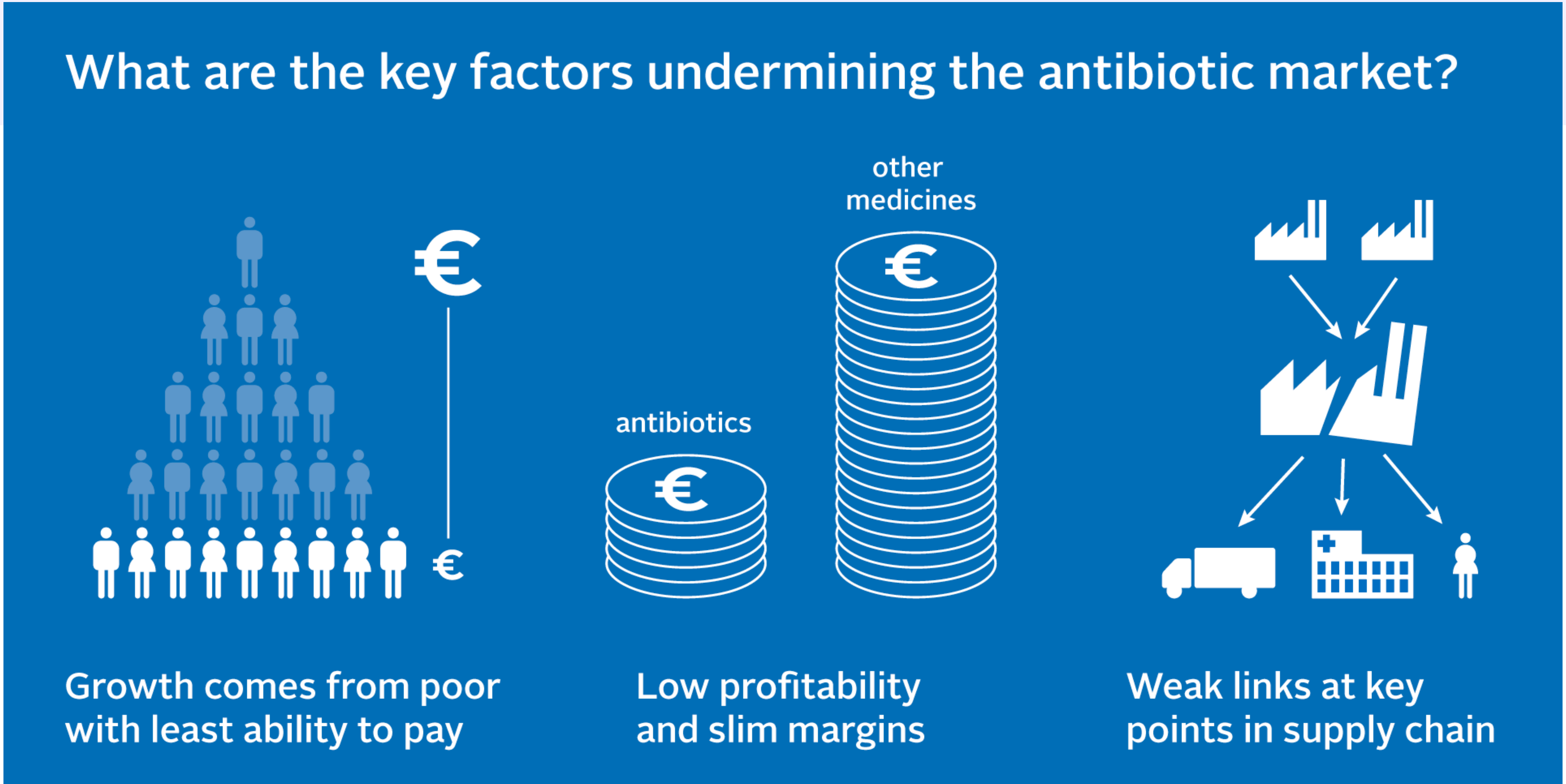

https://accesstomedicinefoundation.org/resource/shortages-stockouts-and-scarcity-the-issues-facing-the-security-of-antibiotic-supply-and-the-role-for-pharmaceutical-companies

Commercialisation Failure: plazomicin

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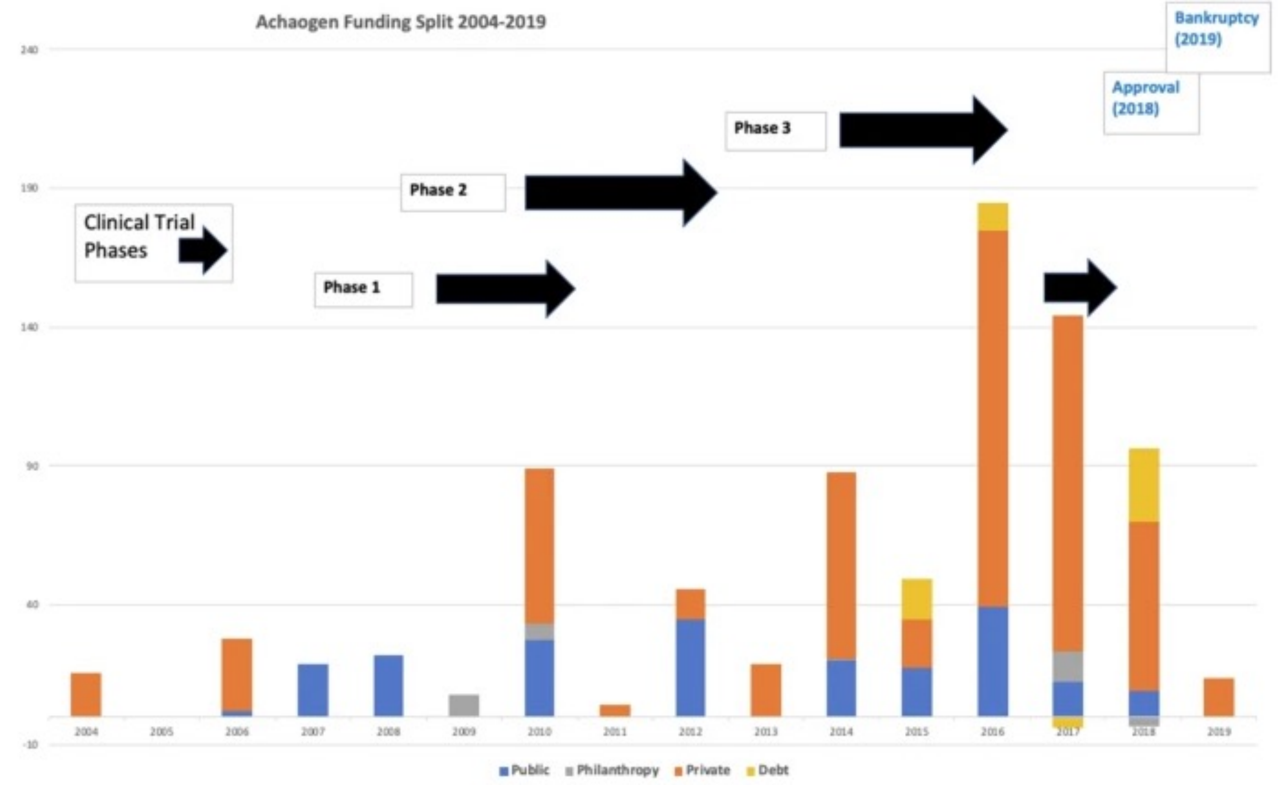
~$800m investment

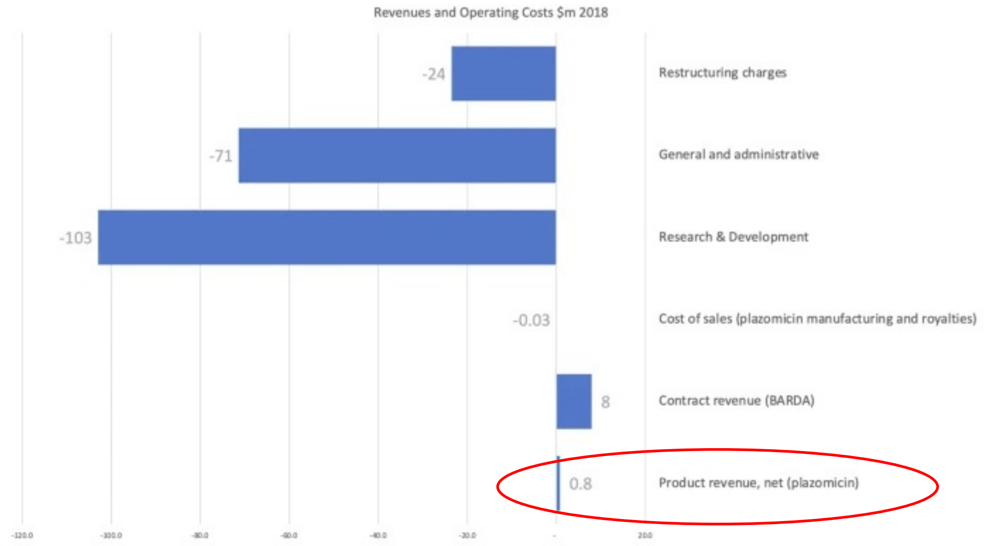
=> $0.8m revenues

Fig. 2: The Achaogen funding pathway (2004 to 2019).



Split of public (26%), private (71%), and philanthropic (3%) funding with the clinical trial phase timeline and amounts per year (on a cashflow basis)

Fig. 4: Achaogen's revenues and operating costs $m 2018.



Achaogen suffered a Cashflow Drought in 2018 (SEC, 2019a).

Novel insights from financial analysis of the failure to commercialise plazomicin: Implications for the antibiotic investment ecosystem. Wells, N., Nguyen, V. K., & Harbarth, S. (2024). *Humanities and Social Sciences Communications*, *11*(1), 1-13.

Supply Chain Failure: piperacillin-tazobactam

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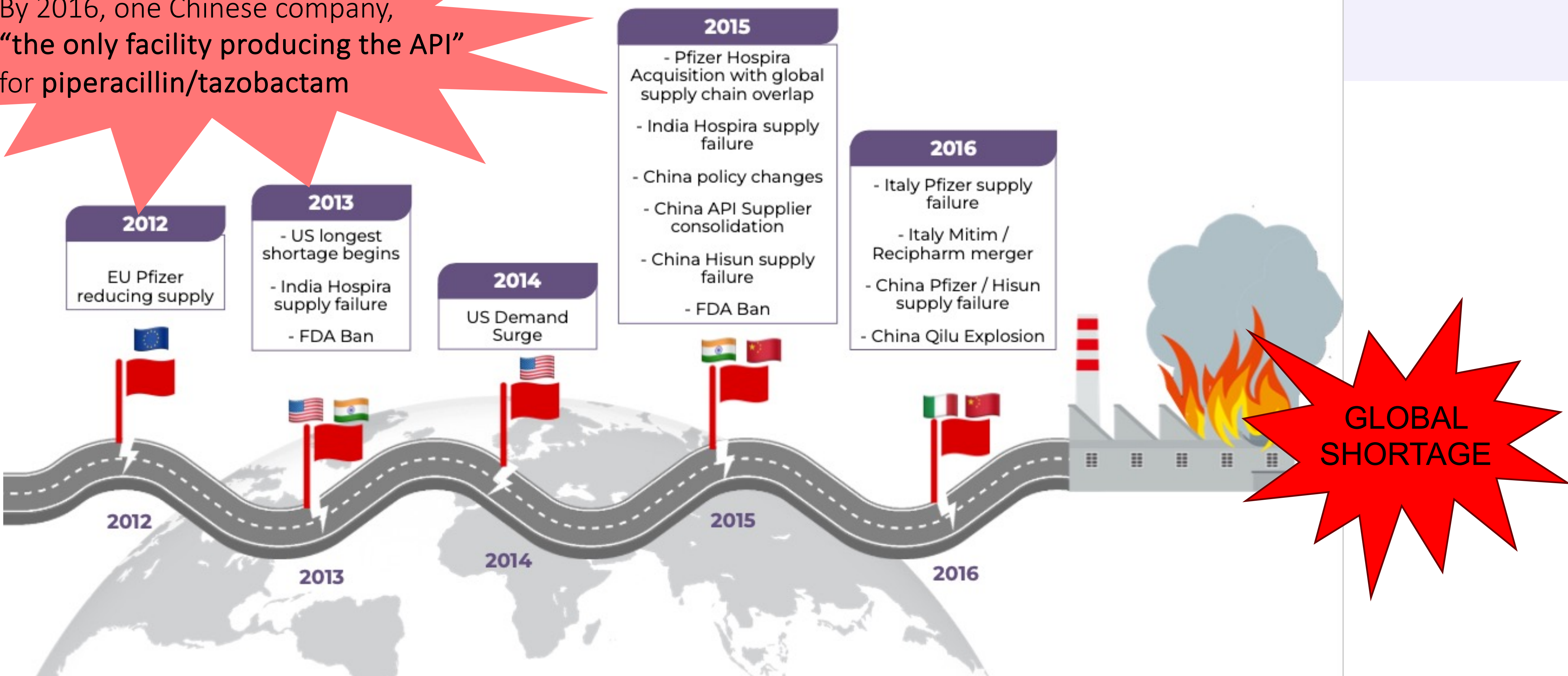
By 2016, one Chinese company, **“the only facility producing the API”** for **piperacillin/tazobactam**



A pharmaceutical policy accident: collision of shareholder capitalism and Chinese state capitalism driving the shortage of an essential antibiotic. Wells, N., Nguyen, V. K., & Harbarth, S. (2024). *Journal of Pharmaceutical Policy and Practice*, *17*(1), 2430441.

Market failures

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v

“old”

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The World Needs New Antibiotics. The Problem Is, No One Can Make Them Profitably.

New drugs to defeat ‘superbug’ bacteria aren’t reaching patients

By Dominique Mosbergen Follow

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Revenues – Costs

=

“Insufficient” Profit

Costs > Revenues ≠ Profits

-> No further investment -> no cash

Can they really all be bad drugs?

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Opportunity cost
=> access lost

»**93%** of clinical developers are small biotechnology companies

»**87%** preclinical stage are very small, **privately funded** organizations (11–50 employees) with **limited resources**" (WHO 2024)
https://iris.who.int/bitstream/handle/10665/378316/9789240097735-eng.pdf?sequence=1

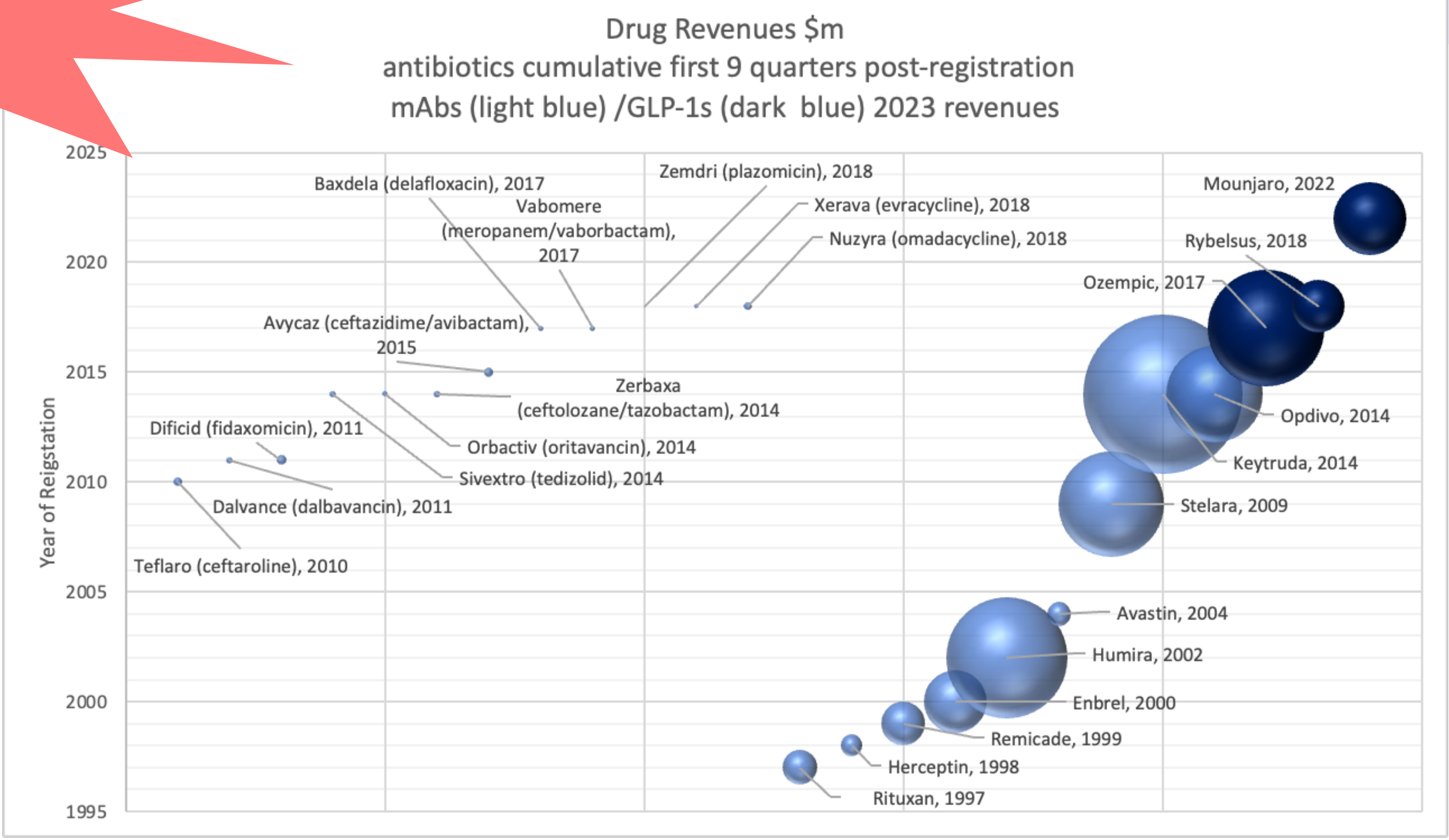
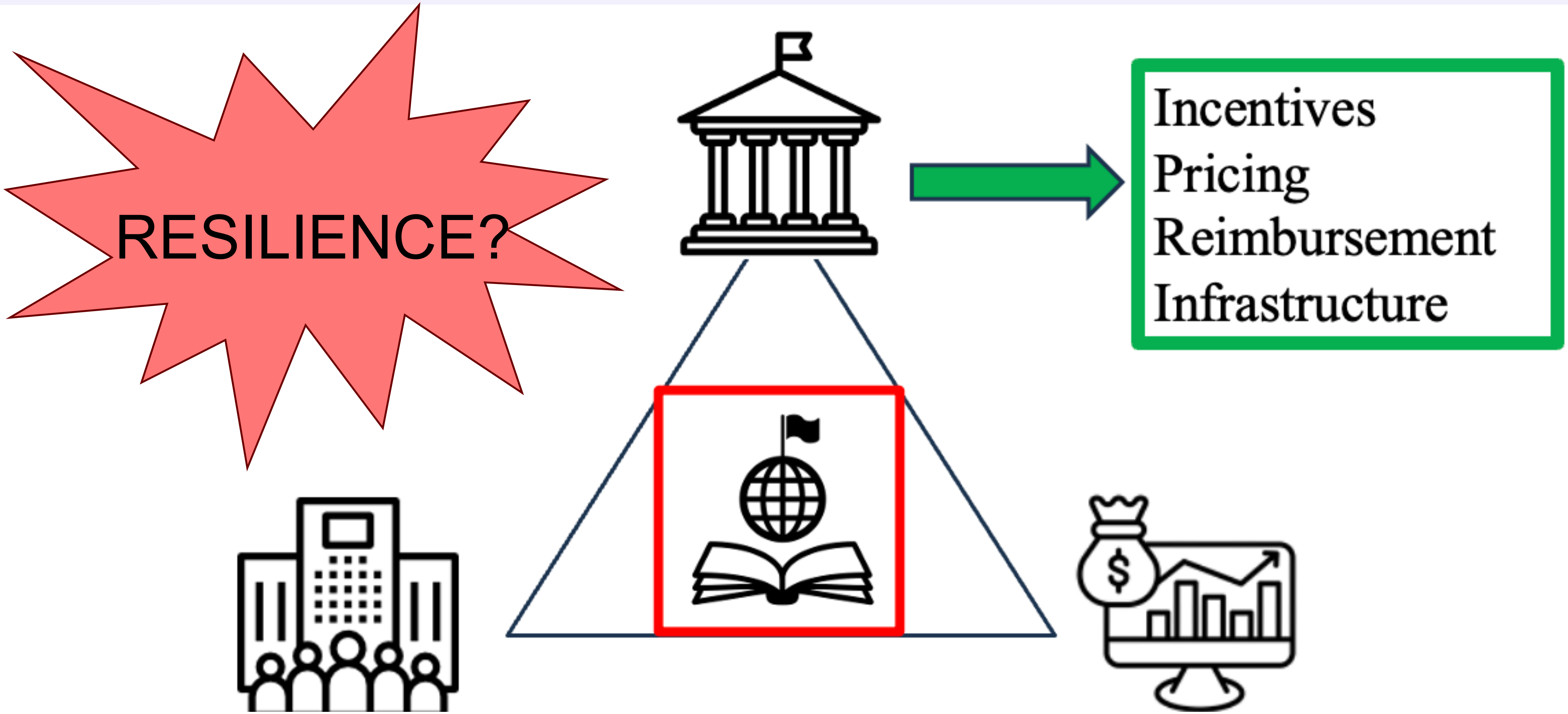


Chart: Wells analysis, data from (i) Antibiotic revenues from "Antimicrobial Drugs Market Returns Analysis: Final Report, Office of the Assistant Secretary for Planning and Evaluation (ASPE), 2022," (ii) mAbs and GLP-1 revenues from company reports 2023. Novo Nordisk revenues in Danish Krone converted to USD using the 2023 average exchange rate from http://www.ofx.com.

Policy?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