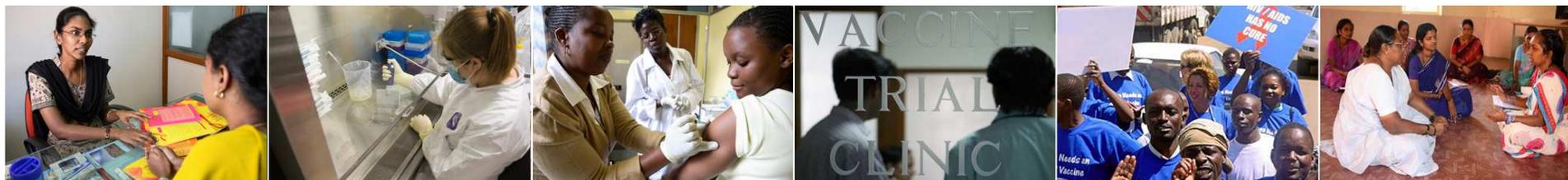

Innovative Financing Mechanisms for AIDS Vaccine R&D



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Product Development Partnerships (PDPs)

Primary contributors to the pipeline of drugs, diagnostics and vaccines for diseases of poverty

- Portfolio approach to R&D to balance risk while accelerating product development
- Partner with governments, academia, large pharmaceutical companies, biotechs and developing countries
- 143 candidates in various stages of development in 2010

Limitations of traditional PDP funding

- **Insufficient**
- **Short-term**
- **Restricted**
- **Unpredictable**

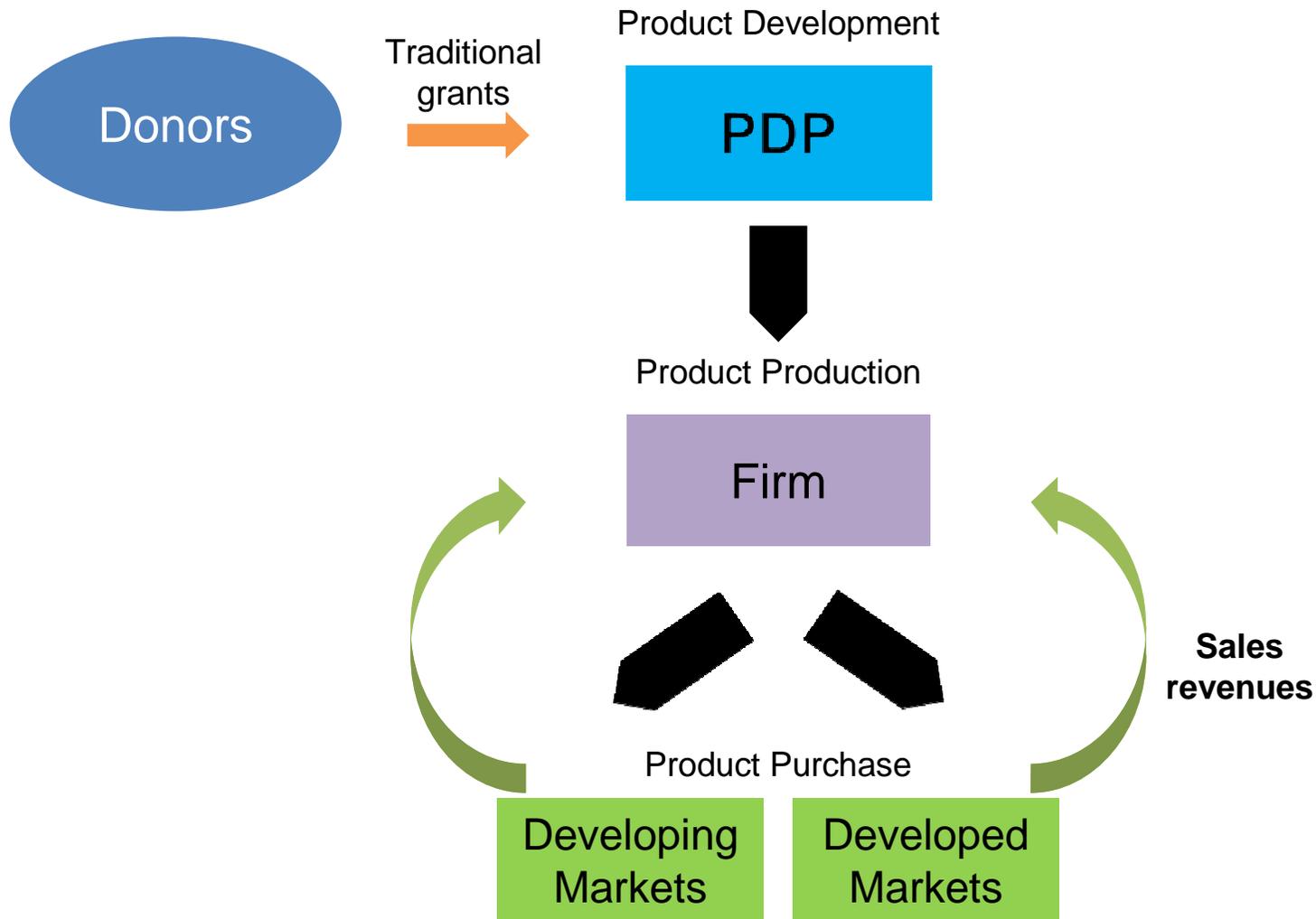
Global health R&D financing needs

- **Additional resources**
- **Allow for changes in R&D**
- **Protected from political and economic shifts, stable**

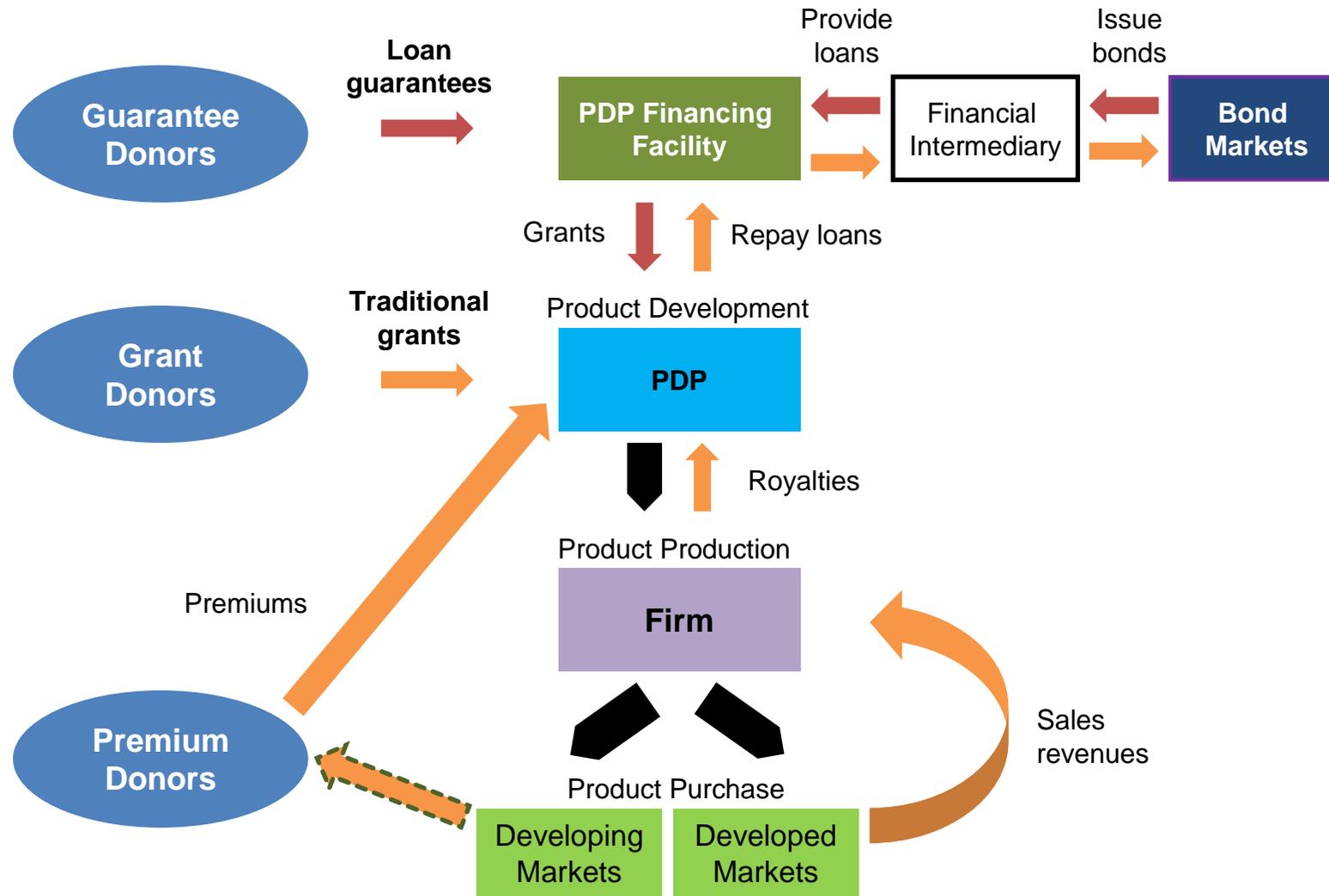
Key Features of PDP Financing Facility

- **Makes available to PDPs today some of the value their work will create in the future**
 - Sale of government-backed bonds in capital markets
 - Revenues from product sales would at least partially repay bondholders
- **Portfolio approach to funding PDPs**
 - Pools risks associated with developing vaccines for AIDS, TB, malaria and neglected diseases
 - Avoids having to pick a winner in advance

Current Approaches to Funding PDPs Rely Primarily on Traditional Grants



PDP Financing Facility: make available today some of the future value PDPs will create



Merits and Risks to PDPs

Benefits	Risks
Longer term financing and more flexibility than traditional grants	Requires establishment of new structure (but could link to existing institutions)
Premiums support R&D, but paid only on success	May replace but not add to current funding for R&D
Donors face deferred & possibly lower payments	Royalties may deter partnership agreements
Spreads risk across PDPs, disease areas, and product portfolios	
Mechanism could be funded through variety of revenue sources	

Prizes: A Mechanism To Spur Innovation?

- Innovation is key to solving difficult scientific challenges
- Need to bring in ideas from outside of traditional AIDS vaccine research

Prizes

- Pay only for results
- Allow for multiple approaches to reach the same goal
- May accelerate time it takes to solve the problem
- Cast a wider net to attract participants from outside the field of interest
- Can mobilize significant resources and investment



Prizes: Historical Examples

Date	Challenge	Prize/Present Value	Notes
1714	Determine longitude at sea (British Govt.)	£20,000/ US\$3.64 million	Multiple solvers; over £100,000 awarded
1919	Solo flight from New York to Paris (Raymond Orteig, hotel magnate)	US\$25,000/ US\$316,000	Total investment by competitors approx. 16 times the prize value
1994	Develop accurate diagnostic test for sexually transmitted infections (Rockefeller Foundation)	US\$1million/ US\$1.3 million	Unsolved
1995	Private space flight (X prize, funded by Amir and Anousheh Ansari, aeospace entrepreneurs)	US\$10million/ US\$12 million	Total investment of competitors \$100 million
2006	Improved movie recommendations (Netflix)	US\$1million/ US\$1.1 million	Prize awarded Sept. 2009
2007	Biomarker for measuring disease progression in ALS (Prize4Life)	US\$100,000	Prize awarded April 2009; Prize winner was dermatologist
2010	Targets for anti-kinetoplastid drugs and small molecule compounds to validate these targets (DNDi)	US\$10,000	Competition open until April

IAVI's 2008 InnoCentive Challenge:

Design a stable HIV Envelope trimer that mimics the functional HIV trimer within a 4-month timeframe

The Prize

- \$150,000 for full solution
- Up to \$500,000 in bonuses and research contracts from IAVI

The Response

- Interest from over 300 potential solvers in 39 countries
- Only 4 submissions of which 2 were sent to IAVI for review, but no winner

The Lessons

- Generalize the challenge and target solvers from outside the field
- Address need for up-front resources
- Consider milestone awards
- Ensure timeline commensurate with the challenge

Final thoughts

- Developing new health technologies requires innovative strategies for both financing and organizing R&D
- An R&D financing mechanism, like the PDP Financing Facility, can provide long-term, predictable financing and create advantages for both PDPs and donors
- Applying innovative approaches to conducting the science may attract new thinking, and generate both breakthroughs and additional investments

Imagine a world **without AIDS**





IAVI International AIDS Vaccine Initiative

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As of June 2009