

Investing in KBC by Learning from Knowledge Networks

(Transforming Common-ownership Knowledge into Firm-KBC):
Connectivity, Risk Management and Policy

Mark Dutz, PRMED
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Outline

I. Connectivity vs Absorption-related economic competencies

- Application of CHS to Brazil
- What's missing? Connectivity investments in KNMs
- Exploring importance of connectivity

II. Understanding the role of KNMs and KBC in managing risk

- Conceptualizing KBC as investments in risk management

III. Towards a policy framework for “KBC for development”

- 3 policy examples
- Benefits:
 - of unpacking & measuring TFP components
 - of alliance with WAVES

I. Applying CHS to Brazil: “low” investments in economic competencies

KBC investments as % of expanded GDP, 2006

	US		UK		Germany		Brazil	
1. COMPUTERIZED INFORMATION	1.24	12%	1.42	15%	0.69	10%	1.10	26%
2. INNOVATIVE PROPERTY	4.07	39%	2.88	30%	3.38	50%	2.01	47%
Research and Development (R&D)	1.69	16%	0.98	10%	1.62	24%	0.56	13%
Mineral exploration & evaluation	0.78	8%	0.04	0%	0.01	0%	0.03	1%
Copyright & license costs	0.55	5%	0.20	2%	0.20	3%	0.11	3%
Development costs in financial ind.	0.55	5%	0.06	1%	0.70	10%	1.10	26%
Designs, incl. architectural & engineering	0.50	5%	1.60	17%	0.85	13%	0.21	5%
3. ECONOMIC COMPETENCIES	5.04	49%	5.35	55%	2.68	40%	1.17	27%
Reputation & Branding	1.35	13%	1.06	11%	0.53	8%	0.56	13%
Advertising expenditure	1.24	12%	0.84	9%	0.39	6%	0.51	12%
Market research/Branding	0.11	1%	0.22	2%	0.14	2%	0.05	1%
Training & Development	1.05	10%	2.33	24%	1.21	18%	0.34	8%
Continuing vocational training	-	-	-	-	0.61	9%	-	-
Apprentice training	-	-	-	-	0.60	9%	-	-
Business process improvements	2.64	26%	1.96	20%	0.94	14%	0.27	6%
Purchased	-	-	0.47	5%	0.51	8%	0.03	1%
Own-account	-	-	1.50	15%	0.43	6%	0.24	6%
TOTAL INVESTMENT IN KBC	10.35	100%	9.65	100%	6.75	100%	4.28	100%

➡ relatively weak correlation with TFP and export growth

I. What's missing? Connectivity-related competencies

Measure an **additional type of KBC focused on KNM**:

(3) economic competencies

i. **absorption-related** (investments to facilitate absorption & make better use of technologies)

- advertising
- market research/branding
- training & development
- business process improvement

ii. **Connectivity** (to facilitate capture & adaptation of technologies)

- **network building** (investments to learn from corporate partners, suppliers & buyers incl. locally-based MNCs and global value chains, universities and diaspora)
- **other investments that facilitate learning from global product knowledge**, and make knowledge transfer useful to the firm

I. Exploring connectivity investments in KNMs

Chilean wine industry as ideal case study

- growth of 25% p.a. in 1990s
- share of world X in top 5
- 2nd most powerful brand in the world (*Intangible Business*, 2010)

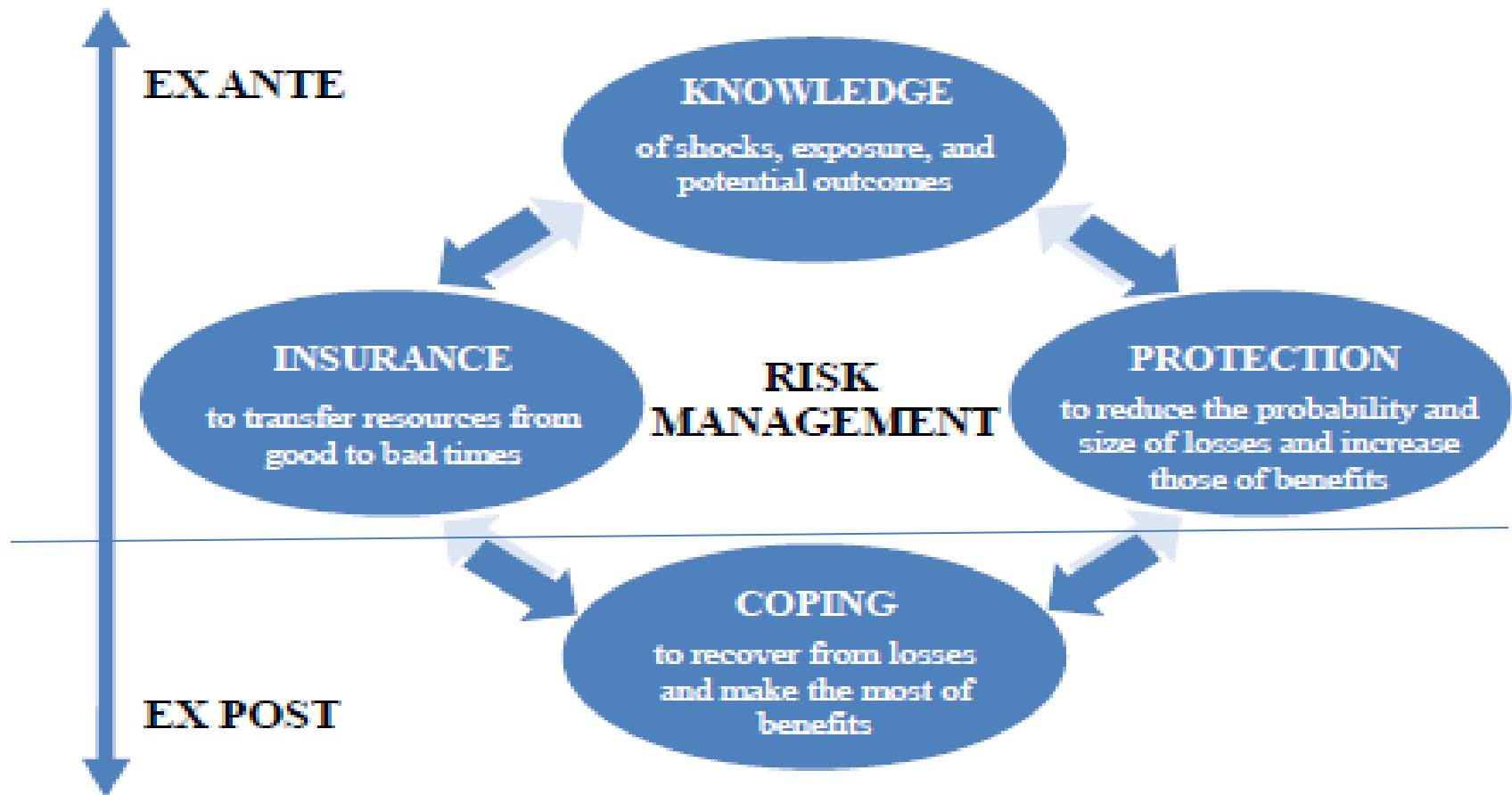
Pilot survey

- spending on connectivity linked to KNMs
 - on external consultants
 - on university & public research experts
 - on learning from industry associations, value chains, marketing channels
 - on in-house learning from global knowledge

Test hypotheses

- on most important correlates of export growth
- on spillovers across regions

II. Understanding the role of KBC in managing risks



Investments in KBC = investments in firms' pillars of risk management,
providing firms with abilities to commercialize technologies =
investments in the resilience of development outcomes

III. Policy examples

- (1) India: **DBT support of global consortia thru SPVs and domestic PPP support**
 - 78% of surveyed firms now co-develop
 - 86% of these jointly monitor via milestones & joint review processes

- (2) Chile: **CORFO TA Fund and subsidies**
 - for firms to hire global consultants
 - for “Technological capture trips”

- (3) Turkey: **How to support local learning beyond EU Customs Union**
 - upgrade quality standards to supply FDI export platform
 - improve managerial practices to eliminate delivery uncertainties
 - adopt co-development protocols

III. “Making the policy case”: Unrealized benefits

(1) Benefits of measuring rather than estimating TFP as residual

- Document benefits:
 - unpack traditional TFP
 - measure importance of KBC types in specific industries relative to benchmarks
- Explore rationale for support (where government failure < market failure)

III. “Making the policy case”: Unrealized benefits

(2) Benefits of **alliance between WAVES and KBC agenda**

- WAVES (Wealth Accounting and Valuation of Ecosystem Services):
global partnership, launched 2010, to measure share of natural capital in national accounts, and promote its use in economic decision-making
 - Natural capital = minerals & energy, forest timber, agricultural land, fisheries, water + air & water filtration, flood protection, carbon storage, pollination for crops & habitat for wildlife services (values often not captured in markets)
- A similar “Beyond traditional GDP” agenda = boosting LT prosperity
- Build capacity to measure “both natural & knowledge K”, incl. “green KBC”
 - recent Brazil study breaks down green R&D spending beyond renewable energy including biodiversity (energy systems, sustainable resource extraction) and green agriculture (biotech and sustainability of agricultural production)
- Demonstrate benefits to policymakers

References cited

- Dutz, Mark, Ioannis Kessides, Stephen O'Connell and Robert Willig (2012), "Competition and Innovation-Driven Inclusive Growth", Chapter 7 in Luiz de Mello and Mark Dutz (eds.), *Promoting Inclusive Growth: Challenges and Policies*, Paris: OECD Publishing.
- , Sergio Kannebley Jr, Maira Scarpelli and Siddharth Sharma (2012), "Measuring Intangible Capital in an Emerging Economy: An Application to Brazil", *Policy Research Working Paper 6142*, The World Bank.
- and Siddharth Sharma (2012), "Green Growth, Technology and Innovation", *Policy Research Working Paper 5932*, The World Bank.
- and K. Vijayaraghavan (2012), "Supporting Affordable Biotechnology Innovations: Learning from Global Knowledge and Local Experience for Accelerated Commercialization", forthcoming in: *Emerging Domains of Innovation Policy: Supporting Entrepreneurship, Base of Pyramid and Green Innovation with Improved Implementation*, OECD and The World Bank.
- , Javier Troncoso, Harun Onder and Zeinab Partow (2012), "Measuring Firm-level Intangibles as a Driver of Growth in Chile: A Pilot Study", Mimeo, The World Bank.
- (2012), "Enterprise Resource Reallocation and Innovation: Managing Technology and Demand Risks to Unleash Development Opportunities", Background paper for *World Development Report 2014: Managing Risk for Development*, Mimeo, The World Bank.
- World Bank (2011), *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium*, Washington, DC: The World Bank.
- World Bank (2006), *Where is the Wealth of Nations?: Measuring Capital for the 21st Century*, Washington, DC: The World Bank.