

IGNITING INNOVATION

*Rethinking the Role of Government in
Emerging Europe and Central Asia*

Itzhak Goldberg
John Gabriel Goddard
Smita Kuriakose
Jean-Louis Racine

Europe and Central Asia Region



THE WORLD BANK

Contents

<i>Foreword</i>	<i>ix</i>
<i>Acknowledgments</i>	<i>xiii</i>
<i>Contributors</i>	<i>xv</i>
<i>Abbreviations</i>	<i>xvii</i>
Overview	1
Why innovation matters	4
Acquiring technology from abroad	9
Connecting research to firms	12
Restructuring options for RDIs	14
Bringing innovations to market	14
1. Why innovation matters—and what the government should do about it	19
The rationale for innovation	26
Coping with spillovers	28
Coping with unequal information and the “funding gap”	30
Why the government should play a role	33
2. Acquiring technology from abroad—leveraging the resources of foreign investors and inventors	39
Cross-border knowledge flows	42
Acquiring foreign technology	54
How well do ECA firms absorb knowledge?	62
Case study: The role of FDI in helping Serbia acquire technology	69

3. Connecting research to firms—options for reforming the public RDIs	81
Incomplete restructuring of RDIs	83
RDIs outside ECA	85
A snapshot of RDIs in ECA	91
Government funding and governance	100
A roster of obstacles	106
A proposed RDI reform strategy	110
Options for restructuring RDIs	112
Options for public funding to support RDI reforms	115
Case Study: Finland's shift to a knowledge-based economy: The Role of TEKES	118
4. Bringing innovations to market—boosting private incentives through public instruments	123
Basic principles of instrument design	125
Basic types of instruments	131
Financial instruments for ECA	135
Institutional support instruments	144
Monitoring and evaluation	148
Conclusion	151
Case study: How Israel has promoted innovation in recent decades	152
References	157
Boxes	
1 Demystifying innovation and absorption	5
2 Poland at a crossroads: Expanding from technology absorption to broader meanings of innovation	6
1.1 Defining innovation and absorption	21
2.1 A snapshot of coinvention in Poland	53
3.1 Restructuring of RDIs faces important legacy challenges	109
4.1 Catalyzing private sector innovation in Turkey through an improved institutional environment and financial instruments	127
4.2 Using grants and loans for innovation support in Croatia	132
4.3 Do matching grants for industrial R&D help the Israeli economy?	138
4.4 Armenia's efforts at enterprise incubation	144