## **Table of Contents**

Table of Contents	
List of Figures	iii
List of Tables	V
Preface	vii
Acknowledgement	viii
Policy implications	xiv
Suggestions and recommendations	XV
Chapter 1	1
Introduction	1
Objectives	4
Limitations	5
Chapter 2	6
Review of Literature	6
2.1 Position of IPR policy among other related policy areas	7
2.2 Innovation and IPR policy	9
2.3 HEI network of India	10
2.4 Importance of HEI IP policies	12
2.5 Policy framework variations in different countries	12
2.6 National Intellectual Property Rights Policy of India 2016	14
2.7 HEIs' (universities and research laboratories) IPR Policies in different countries	16
2.8 Impact of National IPR policies and HEIs' (Universities and Research laboratories) IP policies on IP generation	25
2.8.2 IP Policy changes in the US after 1980	26
2.8.3 Impact of IP policy reforms in national laboratories in USA	
2.9 Impact of IP policy reforms on universities in USA:	
Chapter 3	
Methodology	
Chapter 4	
Detailed analysis of the Data	
Chapter 5	
Result and Discussions	
5.1 HELIP policy. Institutional practices towards innovation and intellectual property rights.	32

	. 33
5.2 Innovation linkages of HEIs	
Figure 14 R&D size of the collaborated industry and IP generation	. 50
5.3 Barriers of IP generation, commercialization and technology transfer	. 52
5.4 Top management's perspective and strategy of HEIs' innovation promotion	. 68
Discussion	. 79
Barriers and Enablers of IP generation and commercialization at Institutions of National Importance (INI)	. 79
Barriers and Enablers of IP generation and commercialization at Private Deemed universities.	.80
Barriers and Enablers of IP generation and commercialization at Central universities	.81
Barriers and Enablers of IP generation and commercialization at State universites	.82
Barriers and Enablers of IP generation and commercialization at Research Institutions (RIs)	.83
Summary and recommendations	. 86
Research Summary/annotation of project	. 90

## **List of Figures**

Figure 1 Schematic represention of theme of the study	4
Figure 2 Position of IPR among Science, Technology and Innovation	8
Figure 3 Position of IP policy among Science, Technology and Innovation policies	8
Figure 4 HEIs network of India	12
Figure 5 HEI type and responses count	31
Figure 6 Presence of IP cell	33
Figure 7 Presence of IP Policy	34
Figure 8 Age of HEI Vs. Presence of IP policy	36
Figure 9 HEIs and Source of funding to IP cell	37
Figure 10 HEI type and approximate annual budget to IP cell	40
Figure 11 Presence of IP policy Committee	42
Figure 12 Collaboration with industries and IP generation	47
Figure 13 Collaboration with Government incubation centres and IP generation	48
Figure 14 R&D size of the collaborated industry and IP generation	50
Figure 15 Type of HEI and their perception on industrial collaboration outside India toward	ls IP
generation	51
Figure 16 Barrier for IP generation: Lack of funding for the research project	53
Figure 17 Barrier for IP generation: Delay of releasing fund for research project	54
Figure 18 Barrier for IP generation: Lack of innovation facilities	55
Figure 19 Barrier for IP generation: Lack of technical guidance and support system	56
Figure 20 Barrier for IP generation: Lack of IP awareness among staff & researchers	57
Figure 21 Barrier for IP generation: Lack of financial support to researchers towards IP filing	ng58
Figure 22 Barrier for IP generation: Lack of sufficient skilled IP professional	59
Figure 23 Barrier for IP generation: Lack full time working staff in University IP cell	59
Figure 24 Barrier for IP generation: Lack of researchers focusing on research projects in cu	rrent
research areas	60
Figure 25 Barriers of IP commercialization and technology transfer: Lack of financial supp	ort for
managing intellectual property after registration/grant	60
Figure 26 Barriers of IP commercialization and technology transfer:Lack of facilities for	
incubation/commercialization activity	62
Figure 27 Barriers of IP commercialization and technology transfer: Lack of entrepreneuria	ıl
guidance/training for commercialization activity	63

Figure 28 Barriers of IP commercialization and technology transfer: Low commercial values	ue of
innovation	64
Figure 29 Barriers of IP commercialization and technology transfer: Lack of efficient	
management level communication channels	65
Figure 30 Barriers of IP commercialization and technology transfer: Complexity of the	
innovation	66
Figure 31 Barriers of IP commercialization and technology transfer: Lack of interest show	vn by
the industry to license the technology	67
Figure 32 Barriers of IP commercialization and technology transfer: Lack of government	support
	68
Figure 33 Focus of top management on Establishing research teams for making innovation	ns in
basic research	70
Figure 34 Focus of top management on IP asset generation	71
Figure 35 Focus of top management on Commercialization of institution's IP	72
Figure 36 Focus of top management on Promoting IP generating collaborations	73
Figure 37 Focus of top management on Promoting collaborations for commercialization o	of IP
based innovations	74
Figure 38 Focus of top management on Supporting start-ups/spinoffs by faculty/students/s	staff.75
Figure 39 Focus of top management on Collaborative research with top global 100 univer	sities 76
Figure 40 Focus of top management on Improving research funding from Government	77
Figure 41 Focus of top management Improving research funding from industries	79
Figure 42 Correlation between collaboration, research and innovation; barriers and enable	ers of
innovations in INI innovation ecosystem	80
Figure 43 Correlation between collaboration, research and innovation; barriers and enable	ers of
innovations in Private Deemed Univesity innovation ecosystem	80
Figure 44 Correlation between collaboration, research and innovation; barriers and enable	ers of
innovations in Central Univesity innovation ecosystem	81
Figure 45 Correlation between collaboration, research and innovation; barriers and enable	ers of
innovations in State Univesity innovation ecosystem	82
Figure 46 Correlation between collaboration, research and innovation; barriers and enable	ers of
innovations in Central Univesity innovation ecosystem	83

## List of Tables

Table 1 Response rate of the survey
Table 2 HEI type and presence of IP cell
Table 3 HEI type and presence of IP policy
Table 4 Presence of IP policy and age of HEI
Table 5 HEI type and source of funding for IP cell
Table 6 HEI type and approximate budget to IP cell
Table 7 HEI type and presence of IP policy committee
Table 8 Type of HEI and their perception of impact of collaboration with industries on IP
generation46
Table 9 Type of HEI and their perception on impact of collaboration with government incubation
centres towards IP generation
Table 10 Type of HEI and their perception on R&D size of the collaborating industry towards IP
generation49
Table 11 Type of HEI and their perception on industrial collaboration outside India towards IP
generation50
Table 12 Type of HEI and their perception on lack of funding as a barrier of IP generation52
Table 13 Type of HEI and their perception Delay of releasing fund for the research project as a
barrier of IP generation
Table 14 Type of HEI and their perception on Lack of innovation facilities as a barrier of IP
generation
Table 15 Type of HEI and their perception on Lack of technical guidance and support system as
a barrier of IP generation
Table 16 Type of HEI and their perception on Lack of IP awareness among staff & researchers
as a barrier of IP generation
Table 17 Type of HEI and their perception on Lack of financial support to researchers towards
IP filing as a barrier of IP generation
Table 18 Type of HEI and their perception on Lack of facilities for incubation/commercialization
activity filing as a Barriers of IP commercialization and technology transfer6
Table 19 Type of HEI and their perception on Lack of entrepreneurial guidance/training for
commercialization activity as a Barriers of IP commercialization and technology transfer62
Table 20 Type of HEI and their perception on Low commercial value of innovation as a Barriers
of IP commercialization and technology transfer63

Table 21 Type of HEI and their perception on Lack of efficient management level	
communication channels as a Barriers of IP commercialization and technology transfer64	1
Table 22 Type of HEI and their perception on Complexity of the innovation as a barrier of IP	
generation65	5
Table 23 Type of HEI and their perception on Lack of interest shown by the industry to license	
the technology as a barrier of IP generation 66	5
Table 24 Type of HEI and their perception on Lack of government support technology as a	
barrier of IP generation 67	7
Table 25 Type of HEI and top management focus on Establishing research teams for making	
innovations in basic research68	3
Table 26 Type of HEI and top management focus on IP asset generation70	)
Table 27 Type of HEI and top management focus on Commercialization of institution's IP7	l
Table 28 Type of HEI and top management focus on Promoting IP generating collaborations72	2
Table 29 Type of HEI and top management focus on Type of HEI and top management focus on	
Promoting IP generating collaborations	3
Table 30 Type of HEI and top management focus on Supporting start-ups/spinoffs by	
faculty/students/staff74	1
Table 31 Type of HEI and top management focus on Collaborative research with top global 100	
universities	5
Table 32 Type of HEI and top management focus on Improving research funding from	
government	5
Table 33 Type of HEI and top management focus on Improving research funding from industries	;
77	7