Biotech Valuation for Licensing Negotiation

2014.

DeltaTech-Korea Ltd.

If The World Is Your Market... Is Your Partner.

DELTATECH INTERNATIONAL

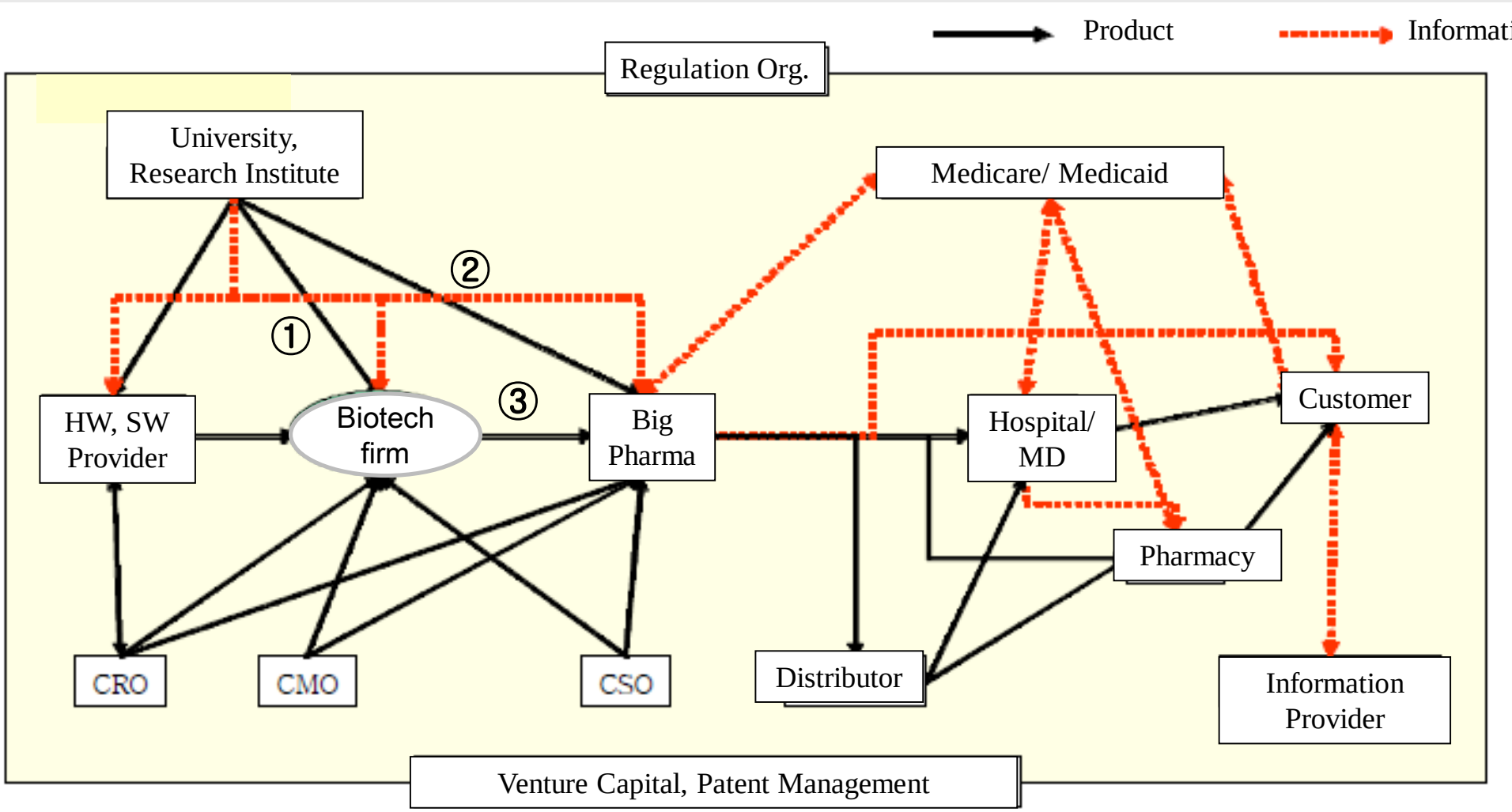
Contents

I. Biotech Transfer

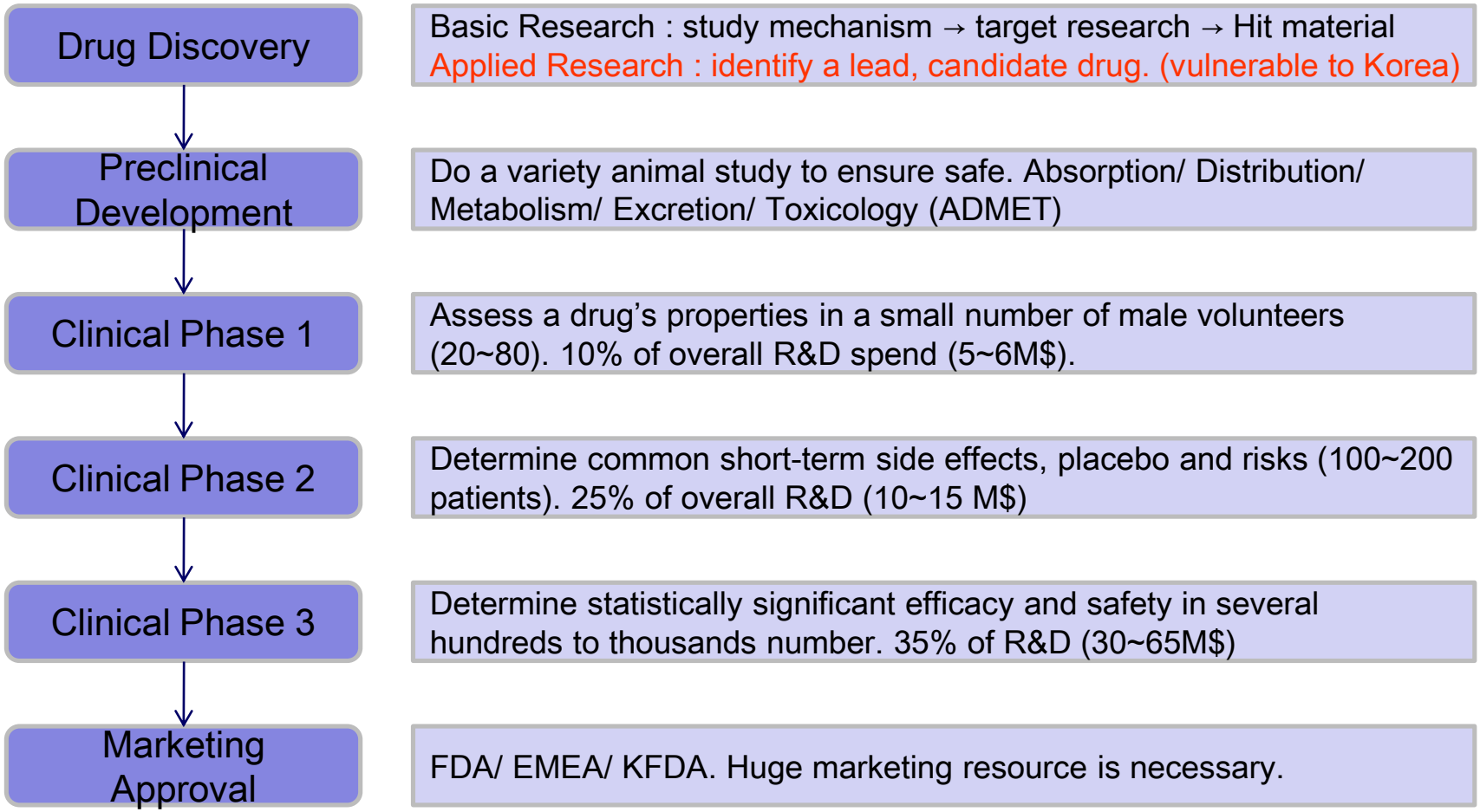
1. Eco-System
2. Commercialization Process
3. Bio Characteristics
4. TT Process
5. TT Challenges

※ TT = Technology Transfer

1. Eco-system


Product
Information
Regulation Org.
University,
Research Institute
Medicare/ Medicaid
②
①
③
HW, SW
Provider
Biotech
firm
Big
Pharma
Hospital/
MD
Customer
Pharmacy
CRO
CMO
CSO
Distributor
Information
Provider
Venture Capital, Patent Management

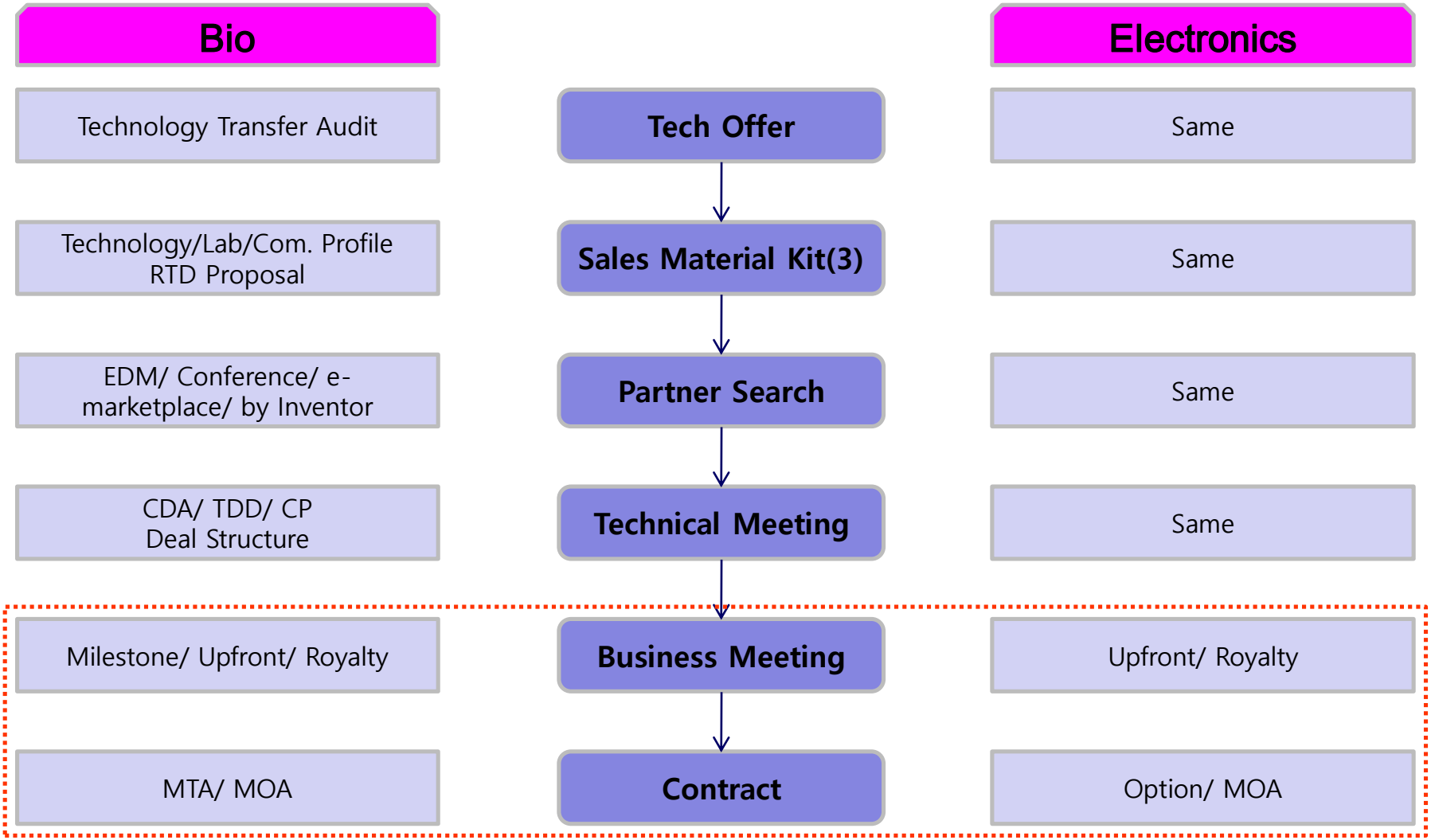
2. Commercialization Process



3. Bio Characteristics

Bio	Indicator	Electronics
Average 15 Years to Product Launch	R&D Speed	Technology Trend identifed → Fast Development
Large Investment, but Easy to copy,	Improvement/ Generics	Not to infringe patent → Design around
Few impact : Relevant to human life	Economic Cycle	Great impact : Popularity to low-priced products
Medical doctor	Purchase Decision	Consumer : benefit/ effect/ taste
Usage period shorten : clinical experiment (Supplementary Protection Certificates: 15Yr)	Patent life span	Registration shorten : compliing to fast trend change

4. TT Process


Bio
Electronics
Technology Transfer Audit
Tech Offer
Same
Technology/Lab/Com. Profile
RTD Proposal
Sales Material Kit(3)
Same
EDM/ Conference/ e-marketplace/ by Inventor
Partner Search
Same
CDA/ TDD/ CP
Deal Structure
Technical Meeting
Same
Milestone/ Upfront/ Royalty
Business Meeting
Upfront/ Royalty
MTA/ MOA
Contract
Option/ MOA

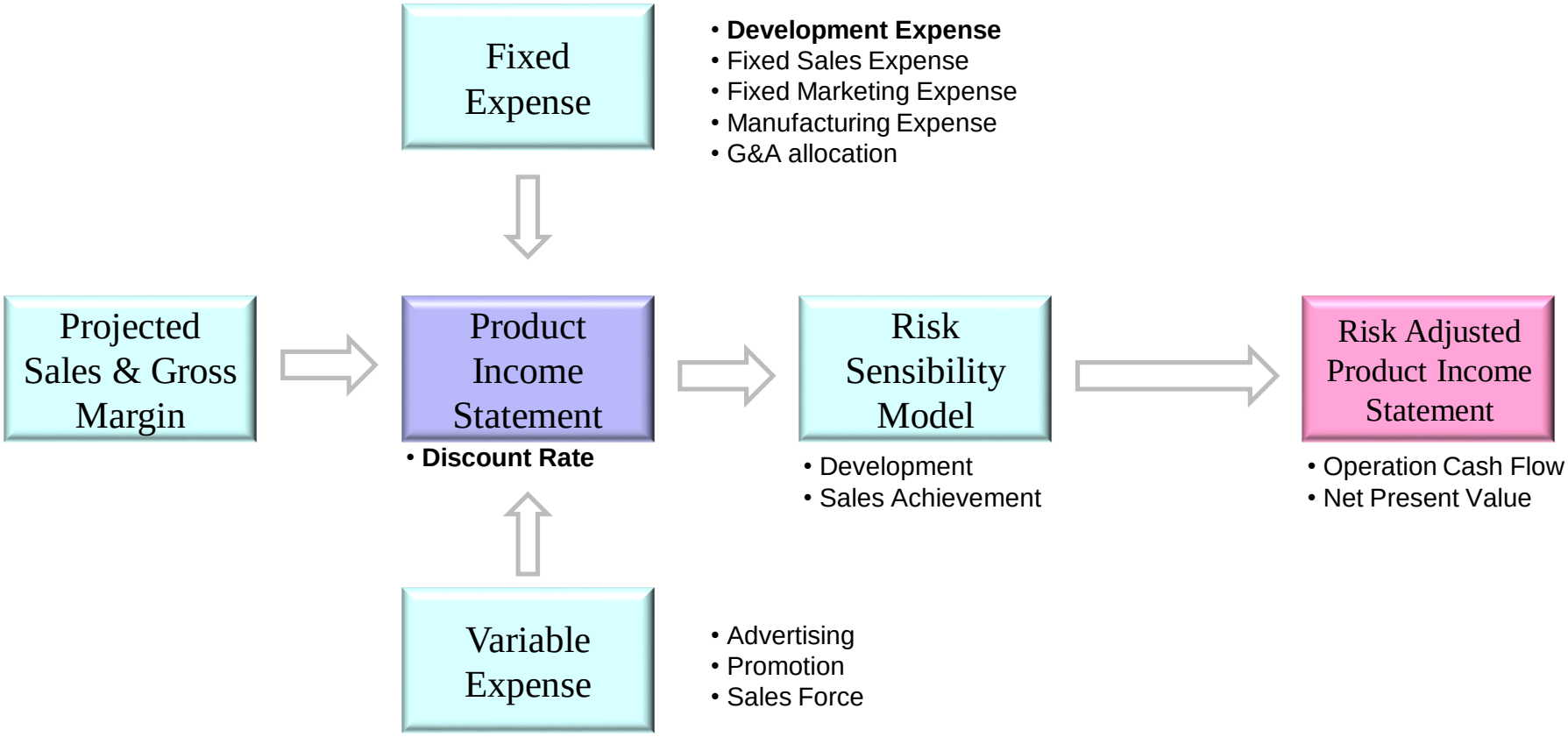
5. TT Challenges

TRL	. Prior to preclinical development: most tech offers . Long timeframe + large investment up to commercial product : Buy-side
Efficacy Test	. Not many approval institutes, over 6 month test period, test cost fee . Tech mechanism revealed to seeker during demonstration (Sell-side)
Commercial F/S	. Over 18 months taken (Buy-side) : technology proof + commercial feasibility
Bio Tech Firm	. Lack of financial resources for preclinical development, clinical etc. . Lack of commercialization capability to proof concept, approval, production, sales & marketing (Sell-side)
Valuation	. Difficulty to comply with bio industry characteristics → Market Approach

II. Valuation Approach

1. Framework
2. Cost Approach
3. Revenue Forecast
4. Discount Rate
5. Relief from Royalty
6. Royalty rate case

1. Framework



자료: David Kim (2009) "Valuation & Financial Terms in Licensing & Technology Transfer"

2. Cost Approach

	Preclinical	Phase 1	Phase 2	Phase 3	Approval	Phase 4
Period (Yr)	1	1	2	3	2	?
Overhead Cost	○	○	○	○		○
No. of Patients		○	○	○		○
Cost per Patient		○	○	○		○
Animal Study		○	○	○		
Probability on revenue generation(%)	10	25/20(*)	35/30(*)	72/67(*)	81	
FDA/KFDA Cost					○	

○ = Data required

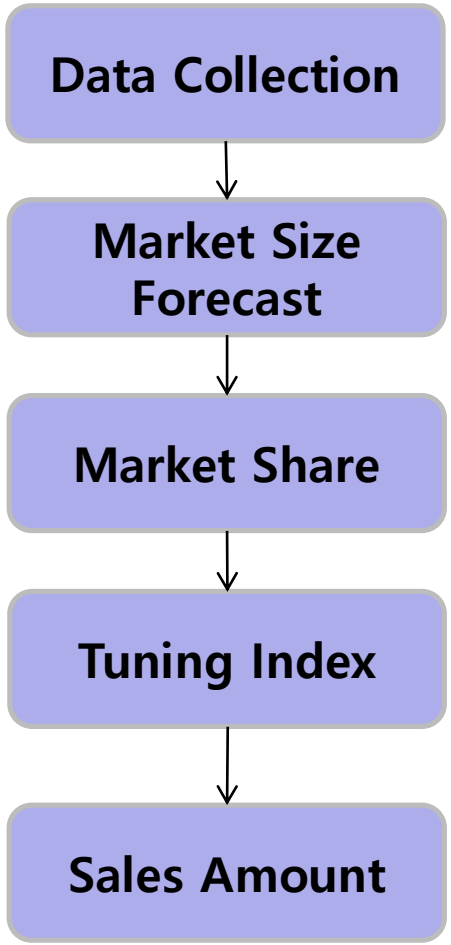
* = Chemical-component Drug

2. Cost Approach

Orphan Drug (Y/N)?		N	Orphan if <200,000 U.S. patients
Preclinical	Duration	1	
	Annual Overhead & Other Costs	$2,000,000	8 Scientists at $250,000 per scientist
	Probability of Reaching Revenue	10%	
Phase 1	Duration	1	
	Number of Subjects	60	20-80
	Cost Per Patient	$12,000	$8,000-15,000
	Animal Studies Phase 1	$500,000	
	Annual Overhead & Other Costs		
	Probability of Reaching Revenue	25%	20% for a chemical pharmaceutical
Phase 2	Duration	2	
	Number of Subjects	200	100-300
	Cost Per Patient	$12,000	$8,000-15,000
	Animal Studies Phase 2	$1,000,000	
	Annual Overhead & Other Costs		
	Probability of Reaching Revenue	35%	30% for a chemical pharmaceutical
Phase 3	Duration	3	
	Number of Subjects	2000	1,000-5,000
	Cost Per Patient	$6,000	$4,000-7,500
	Animal Studies Phase 3	$1,500,000	
	Annual Overhead & Other Costs		
	Probability of Reaching Revenue	72%	67% for a chemical pharmaceutical
Approval	Duration	2	0.5-1 for fast-track
	FDA Fees (PDUFA II)	$309,647	
	NDA/BLA Preparation Fees	$1,000,000	$500,000-1,000,000
	Annual Overhead & Other Costs		
	Probability of Reaching Revenue	81%	
Phase 4	Duration		
	Number of Subjects		
	Cost Per Patient		
	Annual Overhead & Other Costs		
	Likelihood of Becoming Gold Standard		

자료: David Kim (2009) "Valuation & Financial Terms in Licensing & Technology Transfer"

3. Revenue Forecast



- No. of Patients (10,000-) (A)
- Increase/ Decrease rate of patient (B)
- Prescription Rate of patient (C)

- Market = A X B X C

- Case research on the market penetration rate of proxy company's new medicines

- Index generation : sales forces compared to proxy company (Sales staffs/ sales budget)

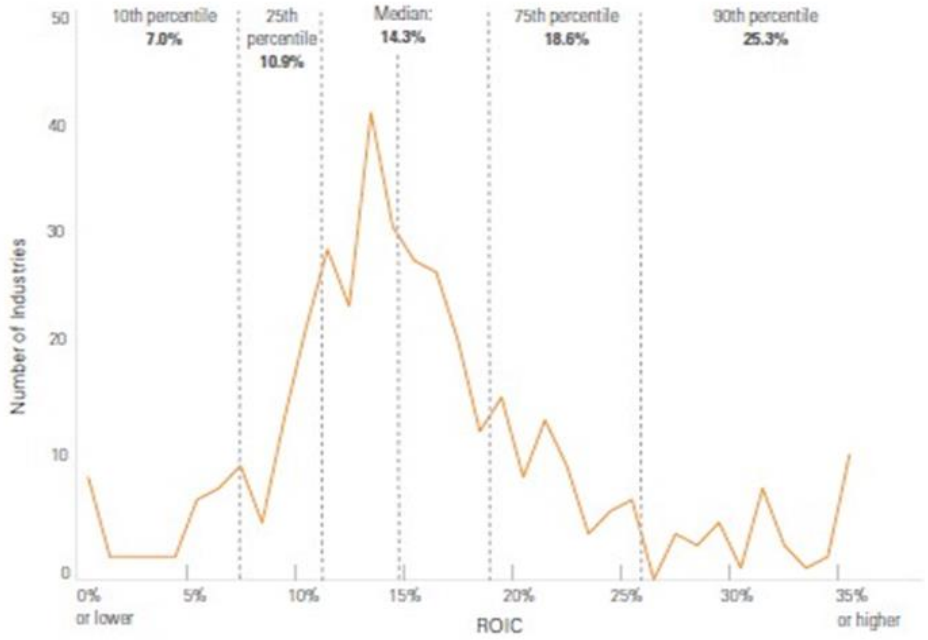
- Market size X Market share expected X Tuning Index

3. Revenue Forecast

	2021년	2022년	2023년	2024년	2025년	2026년	2027년	2028년	2029년	2030년
연간 소비금액(원) /환자(A)	178,850	178,850	178,850	178,850	178,850	178,850	178,850	178,850	178,850	178,850
고혈압 환자수 (만명)(B)	1,220	1,308	1,401	1,502	1,610	1,726	1,850	1,983	2,126	2,279
약물치료 비중(C)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
약물치료 환자수 (D=BXC))	4,025,571	4,315,179	4,622,343	4,955,148	5,311,911	5,694,348	6,104,373	6,543,867	7,015,041	7,520,106
시장규모(억원) (E=AXD)	719,973	771,770	826,706	886,228	950,035	1,018,434	1,091,767	1,170,371	1,254,640	1,344,971
대용기업 시장 점유율(F)	0.0055	0.0083	0.0124	0.0186	0.0278	0.0418	0.0626	0.0940	0.1410	0.2114
대용 매출액 (백만원)	3,960	6,367	10,230	16,451	26,453	42,536	68,398	109,983	176,853	284,379
조정계수	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
추정 매출액 (백만원)	**2,772**	**4,457**	**7,161**	**11,515**	**18,517**	**29,775**	**47,878**	**76,988**	**123,797**	**199,065**

4. Discount Rate

Average Return on Invested Capital in U.S. Industries, 1992–2006

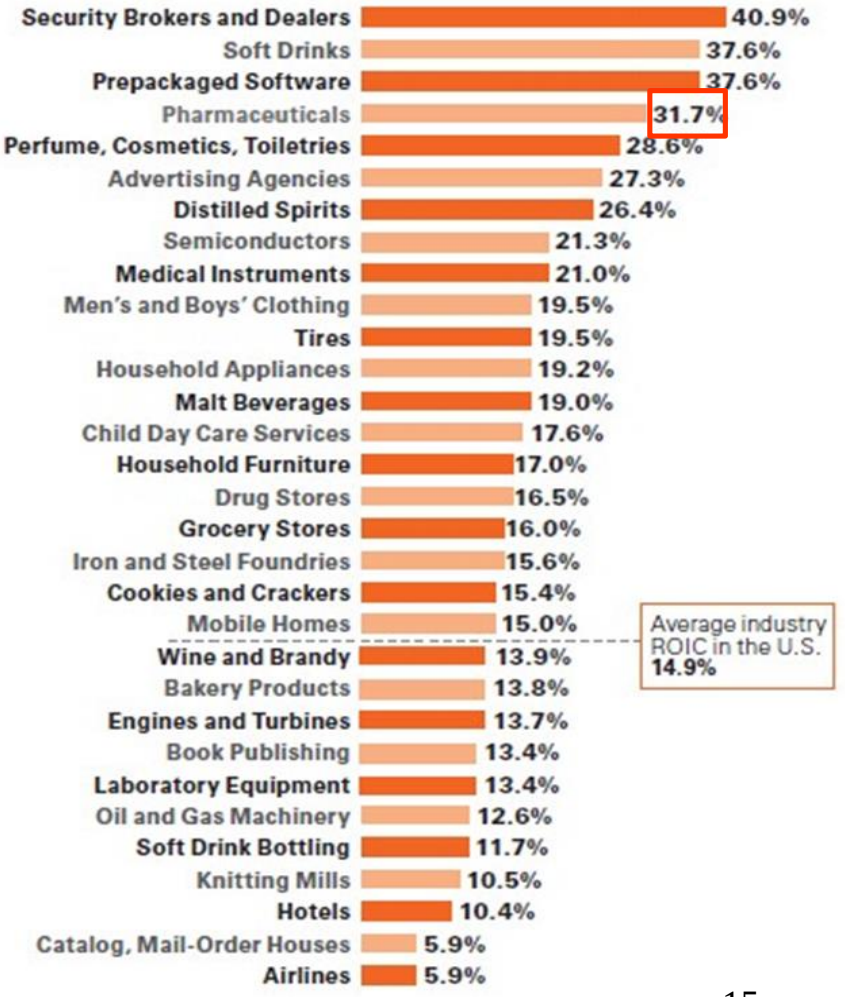


Return on invested capital (ROIC) is the appropriate measure of profitability for strategy formulation, not to mention for equity investors. Return on sales or the growth rate of profits fail to account for the capital required to compete in the industry. Here, we utilize earnings before interest and taxes divided by average invested capital less excess cash as the measure of ROIC. This measure controls for idiosyncratic differences in capital structure and tax rates across companies and industries.

Source: Standard & Poor's, Compustat, and author's calculations

Profitability of Selected U.S. Industries

Average ROIC, 1992–2006



출처 : Michael E. Porter (2008) , Harvard Business Review, Jan.

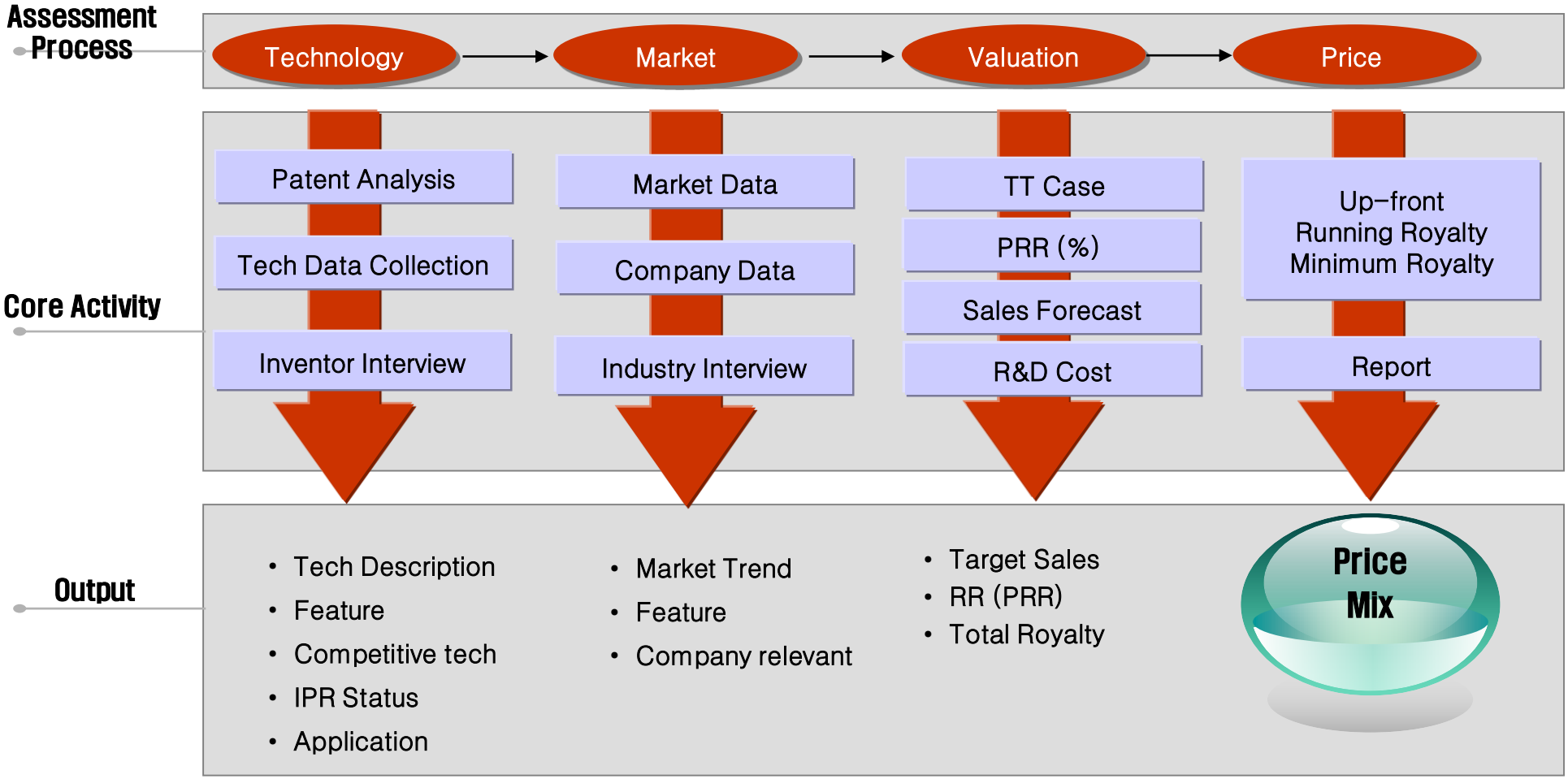
4. Discount Rate

	Discovery	Preclinical	Phase 1	Phase 2	Phase 3	Sales	Extension
Case	10,000	250	9	5	2	1	
Success Rate(%)	100%	25%	0.09%	0.05%	0.02%	0.01%	
Dis. Rate Ⅰ	70~100%	50~70%	40~60%	35~50%	25~40%	?	?
Dis. Rate Ⅱ(TT)	50~70%	35~45%	30~40%	25~35%	20~30%	15~20%	8~18%
Dis. Rate Ⅲ (VC)	?	>80%	50~70%	40~60%	30~40%	20~35%	

Source : Nature Biotechnology Volume 22 (2004)

Source II, III 출처 : Richard Razgaitis (2009) “Valuation & Dealmaking” P.271

5. Relief from Royalty



Source : DeltaTech-Korea Ltd.

5. Relief from Royalty

	2008	2009	2010	2011	2012
Revenue a/	$15,000,000	$16,500,000	$18,150,000	$19,965,000	$21,961,500
Royalty Rate	0.0605	0.0605	0.0605	0.0605	0.0605
Reasonable Royalty	$907,500	$998,250	$1,098,075	$1,207,883	$1,328,671
Discount Factor b/	1	0.8696	0.7561	0.6575	0.5718
PV of Royalty	$907,500	$868,078	$830,255	$794,183	$759,734
Total PV of Royalty	$4,159,749				

Royalty Rate Case

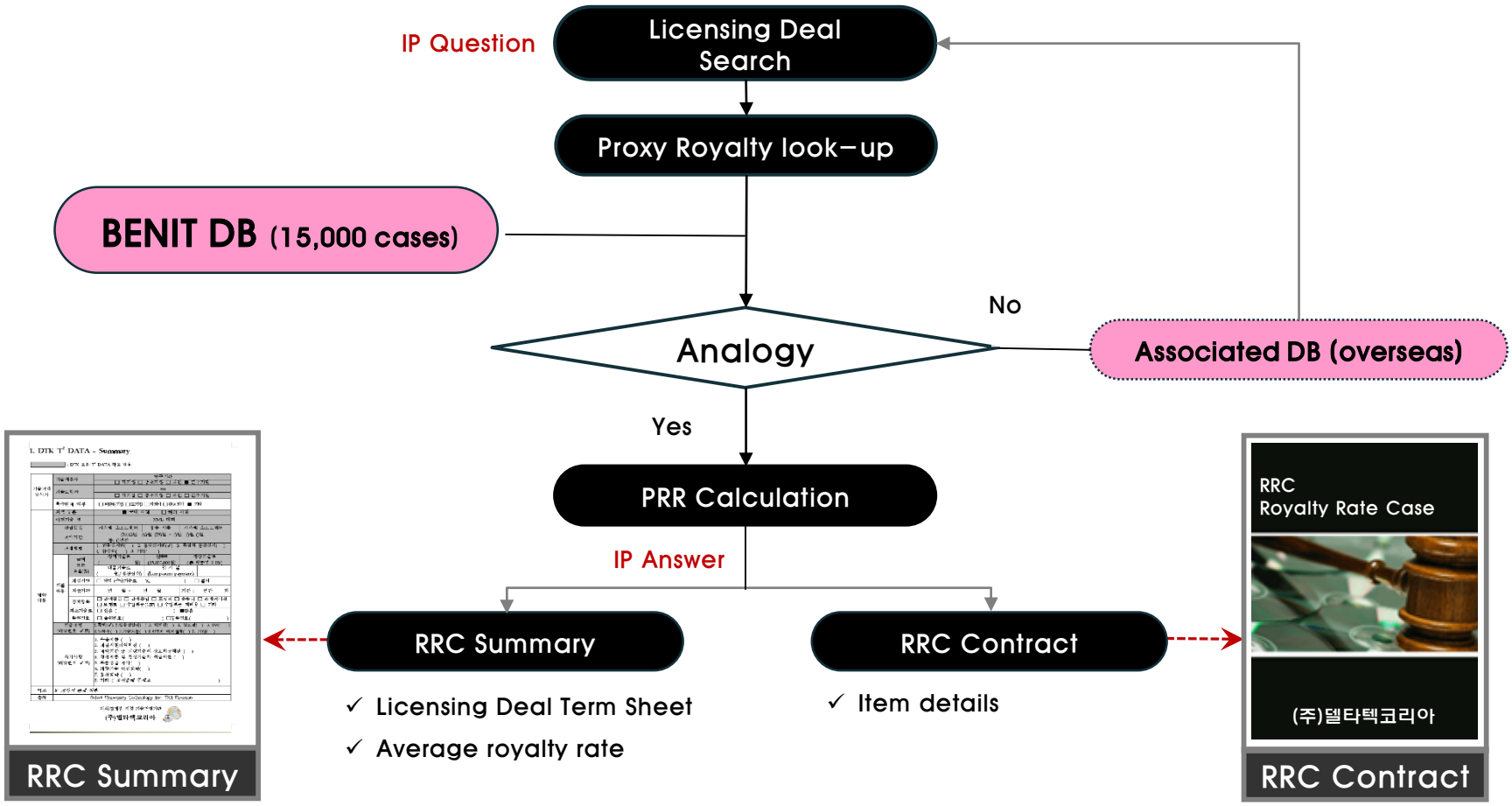
a/ Assumes annual growth rate of 10.00%

b/ Assumes discount rate of 15.00%

Source : DeltaTech "Licensing Practice Manual" Internal Material

6. Royalty Rate Case

Royalty Rate Case (RRC) : Data Provision of Licensing Deal



Source : DeltaTech-Korea Ltd.

6. Royalty Rate Case

www.benit.kr

6. Royalty Rate Case

기술거래 당사자	기술제공자		*** 연구기관		
			□ 대기업 □ 중소기업 □ 개인 ■ 연구기관		
	기술도입자		(주)***		
			□ 대기업 ■ 중소기업 □ 개인 □ 연구기관		
	특수관계 여부		■ 비관련기업 □ 모기업 □ 자회사 □ 관계회사 □ 기타		
계약 내용	지역 구분		■ 국내 사례 □ 해외 사례		
	이전기술 명		XML 매퍼		
	산업분류		시스템 소프트웨어	응용 제품	시스템 소프트웨어
	계약기간		2004년 4월 29일 ~ 2009년 4월 28일 (총: 5년간)		
	기술거래방법		1. 전용실시권( ) 2. 통상실시권(✓) 3. 독점적 통상실시( ) 4. 양수도( ) 5. 기타( )		
	지불 내용	전체기술료			
		금액 또는 요율(%)	정액기술료 (10,000,000원)	선불금 (15,000,000원)	경상기술료 (*총 매출액* 2.0%)
		재실시권	□ 허여 (수납기술료 %,) □ 불허		
		지급기간	2004년 ~ 2010년		
		최소 기술료	□ 있음 ( ) ■없음		
		특허번호	□ 출원번호(2010-10-***) □등록번호( )		
	기술유형 (해당번호 ✓표)		1.특허(✓) 2.실용신안권( ) 3. 디자인( ) 4. 상표권( ) 5. SW( ) 6.노하우( ) 7.기술자문( ) 8.반도체 배치설계( ) 9. 기타( )		
비고	*※ 계약서 존재*				
출처	Select University Technology Inc. DTI Division				

Source : DeltaTech-Korea Ltd.

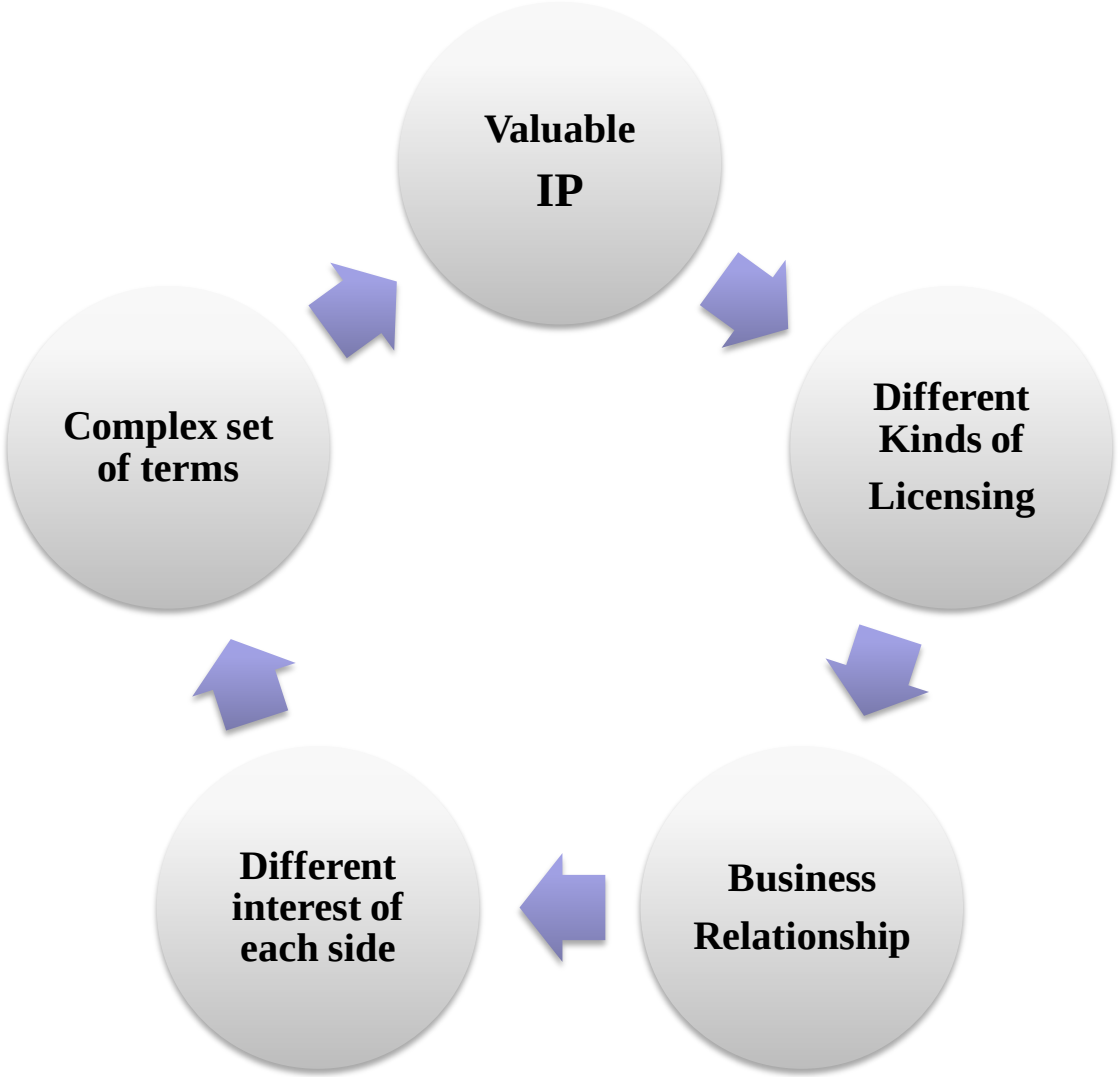
III. Licensing Negotiation

1. Amicable Circumstance
2. 5 Fundamentals
3. Business Reasons
4. Key Terms
5. Things to Consider
6. Negotiation Training

1. Amicable Circumstance

<Licensor> **<Licensee>**

2. 5 Fundamentals



3. Business Reason

Assistance in using the IP (know-how)?
Training?
Development of technology or a product?
Manufacturing?
Purchase of products or equipment?
Multiple products?
Investment in R&D or other?
Distribution of products or technologies?
A license (consent) to use a patent or copyrighted material or trade secret (or other IP) that belongs by law to the other party?
A license to use a trademark or logo?
A license that will enable you to comply with a technical standard or specification?

4. Key Terms

1. The subject of license	. What is the subject matter of this license? . Is the thing that is being licensed completed? . Who owns the IP that underlie the technology? . Can you see the technology before you commit? . Do you need a license to use the trademark?
2. The kinds of rights	. What is the scope of rights? . What is the territory? . Is there an exclusivity commitment?
3. Financial terms	. How much will the licensee pay for the use of the technology? . How will the licensee pay? . When to use cross licenses and covenants not to sue? . What are performance/ warranties/ indemnities? . How does licensing relate to financing of joint venture and corollary activities/ pricing of products?
4. Technology's growth and development over time	. Will the licenses receive rights to future release, versions and products? . Are service and support/ spare parts included in the license? . How to deal with documentation, know-how, consulting and training? . What special terms relate to the future relationships of the parties?

5. Things to Consider

Before going into negotiation, you should be able to answer the following questions:

- What are your invention's **possible applications**?
- What are the estimated **sizes** of the various **potential markets** for each of these applications?
- Which of your **invention's features** are most desired by the industry?
- **In what form** might your product be presented to the consumer?
- What is the route your product would take through the **distribution chain** from manufacturing to retail?
- How much **pull-through marketing** will be required, and which companies can do the best job?
- Are there several **market-channel opportunities**, like mail-order, online sales, etc.?
- Are there any **barriers to commercialization** or reasons to make a design or production change?
- Which companies have strength with which markets?
- Which companies have strong international distribution and sales in foreign markets?
- **Which companies and products** may be potential competitors?

6. Negotiation Training

Course 개요

기술이전협상 코스는 아래와 같은 내용으로 구성됩니다

- 사전 점검 사항 (기술수요자/ 기술공급자)
- 기술상담
- 거래상담 (협상 SW 활용)
- 협상 후속 작업

Course Content

기술거래협상 코스가 제공하는 교육내용은 아래와 같습니다. 기본 2일을 기준으로 기업(관)의 실정에 맞추어 교육 기간과 과목을 조정할 수 있습니다.

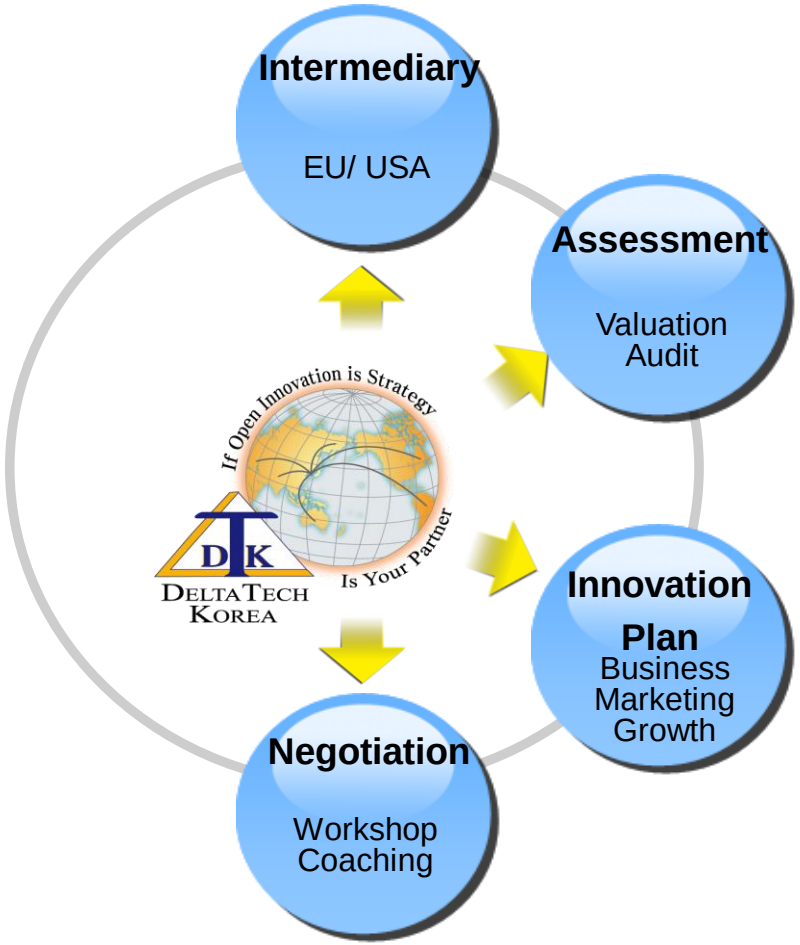
주제	과목	주요 학습 내용	학습 방법
[주제 1] 기술상담	기술상담	· 사전 점검과 NDA 체결 · 기술발표회 · 기술상담 자료 · 기술상담 요령	강의 Q&A
	전화 및 이메일 상담	· 전화 상담 요령 · 이메일 상담 요령 · 전화/이메일 상담 특징	강의 Q&A
[주제 2] 거래상담	거래상담 (1)	· 협상 준비사항 · 협상 팀 구성 · 거래조건 설정(TERM SHEET) · 협상실행 요령 · BATNA & PENDING LIST	WORKSHEET 협상 SW 활용
	거래상담 (2)	· CASE 숙지 · 협상 실습	수강생 참여 협상 SW 활용

IV. Conclusion

IV. Conclusion

- Do not get greedy, but flexible w/ licensing negotiation: License = Long-term Partnership
- Persuasive valuation method: Relief from Royalty - Much cheaper than Income Approach
- Deal Promoter = Technology Transaction DB + Licensing Professional
- Negotiation skill-up : Training workshop

“Thank you!”



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