

# Get Better Deals by Understanding the Negotiation Practices of Multinational Pharmaceutical Companies

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Sr. Manager, Corporate Business Development, Eli Lilly and Co.

# Self-Introduction of Richard Brown

## Experience:



Consultant and Head, Tokyo Office, Plexus Ventures,  
January 2006 - Present

Sales, Marketing, Business Development and General  
Management, Eli Lilly & Co., 1979 - 2005

- » Sales: Medical Representative, District Sales Manager
- » Marketing: Market Research Manager, Product Manager, New Product Planning & Market Research Director (Lilly Japan), US Contracts and Pricing Director
- » Business Development: Corporate Business Development Manager, Business Assessment Director
- » General Management: Managing Director - Russia and CIS

Russian Linguist and Economist, Central Intelligence Agency,  
1974-77

## Education:

B.A. in Russian Language & Literature, Dartmouth College  
MBA in Marketing, Harvard Business School

## Summary:

6 Years in Business Development  
7 Years working in Japan and/or with Japanese  
Pharmaceutical Companies  
9 Years in Market Research and Forecasting  
27 Years in the Pharmaceutical Industry



# Perspective of a Military Strategist

之を躓けて動静の理を知り

孫子曰く、  
敵の兵力を分散させるためには、まず敵情の把握が必要である。敵軍を尾行してその行動基準を割り出し、敵軍の態勢を把握してその死活を分ける土地を割り出し、敵軍の置かれている状況を洞察して、その利害・得失の計謀を割り出し、また兵力の優勢な所と手薄な所とを割り出すのである。

General Sun Tzu, in Art of War, said:

“Although the enemy may be stronger in numbers, we may prevent him from fighting. Try to discover his plans and the likelihood of their success.

Rouse him, and learn what makes him active or inactive. Force him to reveal himself, so as to find out his vulnerable spots.

Carefully compare the opposing army with your own, so that you may know where strength is abundant and where it is deficient.”<sup>1</sup>

<sup>1</sup>Art of War by Sun Tsu, Chapter 6, 22-24. Sun Tzu was a general in China in the 6<sup>th</sup> Century B.C.

# Negotiation Tools and Techniques

This seminar will:

- reinforce the value of learning the other party's interests almost as well as you know your own company's interests, and how to do this
- describe the Tools (forecasting and valuation models, due diligence process) and Techniques (negotiation style) which are commonly used by multinational pharmaceutical companies today
- explain the importance of having a sophisticated and flexible valuation model prior to the beginning of negotiations, when you are setting your terms, and continuously as the terms change throughout the negotiation

Negotiations are a typical example of 2-player game in which there is incomplete information held by each party. According to Game Theory, one side can gain advantage by learning the opponent's strategy, the reason for their past actions and likely future actions, and importantly the way they keep score (i.e. how they will evaluate their success at the end of the negotiations)

# Agenda

- I. Importance of Partnering for Multinational Pharmaceutical Companies
- II. Standard Process for In-Licensing
- III. Tools Used for In-Licensing
- IV. Techniques Used During Negotiation
- V. Implications for Companies Negotiating with Multinationals
- VI. Q&A

# I. Multinational Pharmaceutical Companies Prioritize Successful Partnering



CEO Jeffrey Kindler: We need to align our organization to today's markets, so that we see opportunities quickly and act on them, whether that means increasing support for successful medicines, **entering into co-promotion and licensing agreements**, investing in new technologies, or acquiring new products and services from outside the company."



CEO Daniel Vasella: "The key to success in the global pharmaceutical market lies in the rapid discovery, development, and commercialization of innovative medicines that fulfill patients' needs. **Successful alliances contribute to the success of our partners and our own sustainable growth.**"



CEO Sidney Taurel: "**Successful alliances are more critical than ever to our strategy. We are working hard to be recognized as the pharmaceutical industry's premier partner by consistently creating value for our partners and for Lilly.**"



CEO: Richard Clark: "At Merck, **partnering is an essential component of our strategy** to discover and develop novel medicines that meet major unmet medical needs."

# Investment Analysts' Opinions of



## Positive Features

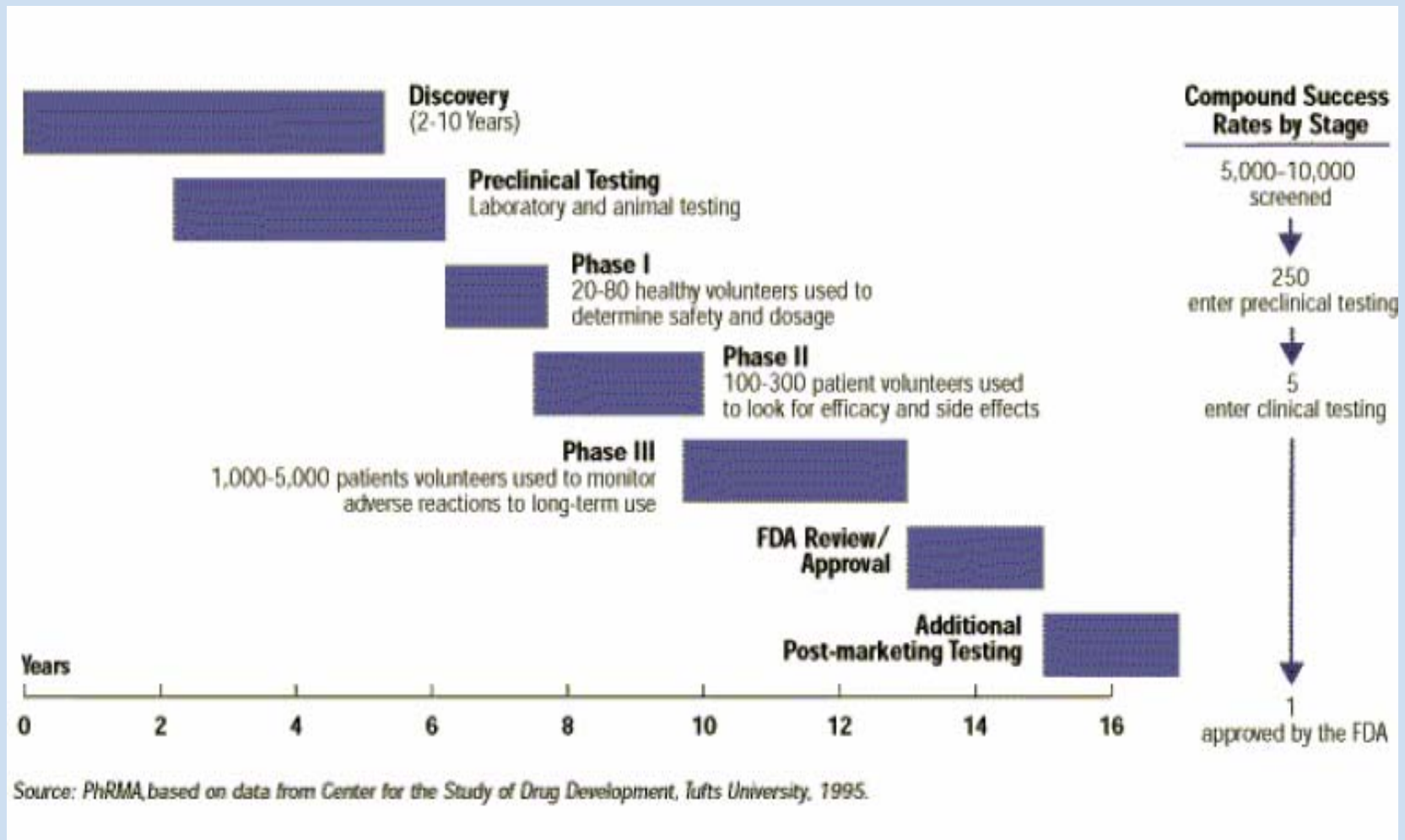
- Largest pharmaceutical company, sales of US\$51 billion
  - 8 products >US\$ 1 billion
  - Balanced international sales (48% of sales outside US)
- US\$ 22 billion in cash and short-term investments
- New CEO to streamline the organization and increase productivity
- Won recent Lipitor patent suit against Ranbaxy, keeping patent until 2010

## Negative Features

- Zocor patent expiry and falling prices will hurt Lipitor sales (“indirect generic”)
- No clear blockbuster in the pipeline (“worst pipeline relative to its size in the industry”)
  - New cholesterol drug, torcetrapib, coming out in very competitive market
  - Inhalable insulin, Exubera, faces patent challenges from Novo Nordisk

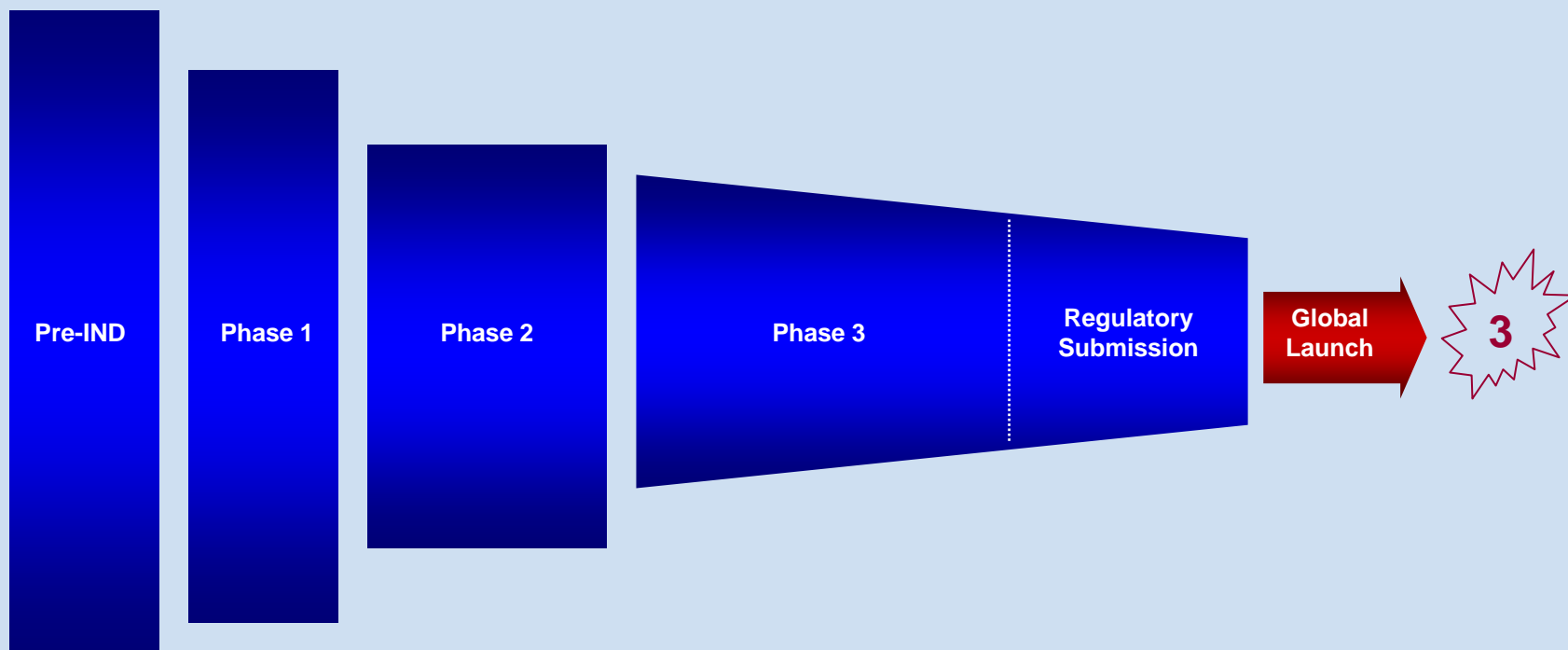
Even the largest multinationals with enormous resources  
need partnerships for growth

# History Suggests a Large Pipeline is Need to Ensure a Steady Flow of Launches



We can apply these success rates to a company's development portfolio, and predict the number and timing of launches

# Many multinationals state an objective to launch “2-4 new chemical entities per year”



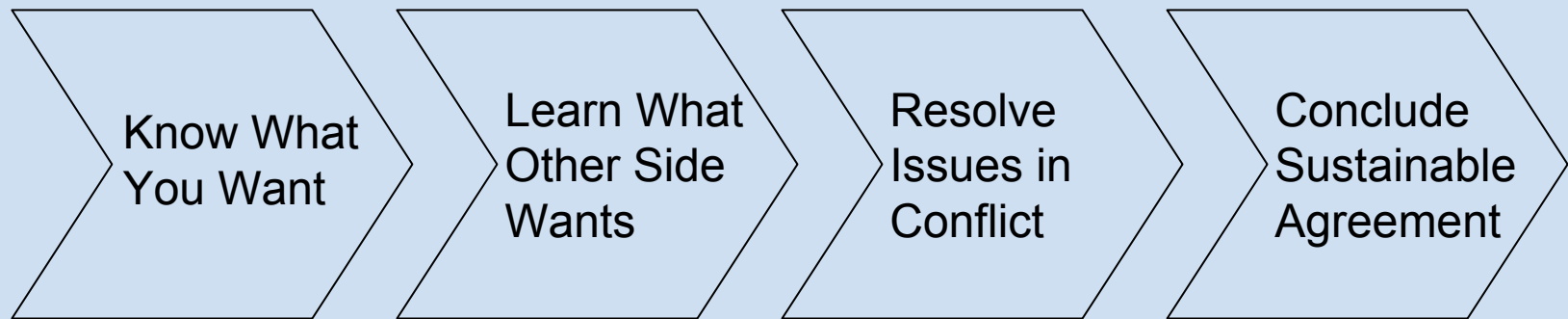
Annual Throughput	28.7	16.1	8.4	4.8	3.3
Years In Phase	1	1	2	3	1.5
Number of Pipeline Compounds	28.7	16.1	16.8	14.4	5

>50 clinical phase compounds are needed to deliver 3 NCE's per year!

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- I. Importance of Partnering to Multinational Pharmaceutical Companies
- II. Process Used for In-Licensing**
- III. Tools Used for In-Licensing
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- V. Implications for Companies Negotiating with Multinationals

# The Negotiator's View of the In-Licensing Deal Process



- Understand the asset of interest and the importance of acquiring
- Identify the internal “champion” of the project
- Determine the value of the asset
- Confirm with management the acceptable terms

- Determine why they are seeking a partner, and their selection criteria
- Prepare a rationale for how your company meets their criteria; listen for any concerns

- Focus attention on the issues and what each side’s real interests are
- Look for ways to resolve issues in a way that benefits both sides

- Establish a clear governance system and method for settling disagreements
- Ensure clear disengagement procedure if project fails
- Transfer knowledge gained during the negotiation period to the new team

# In-Licensing Involves a Large Number of People and Functions

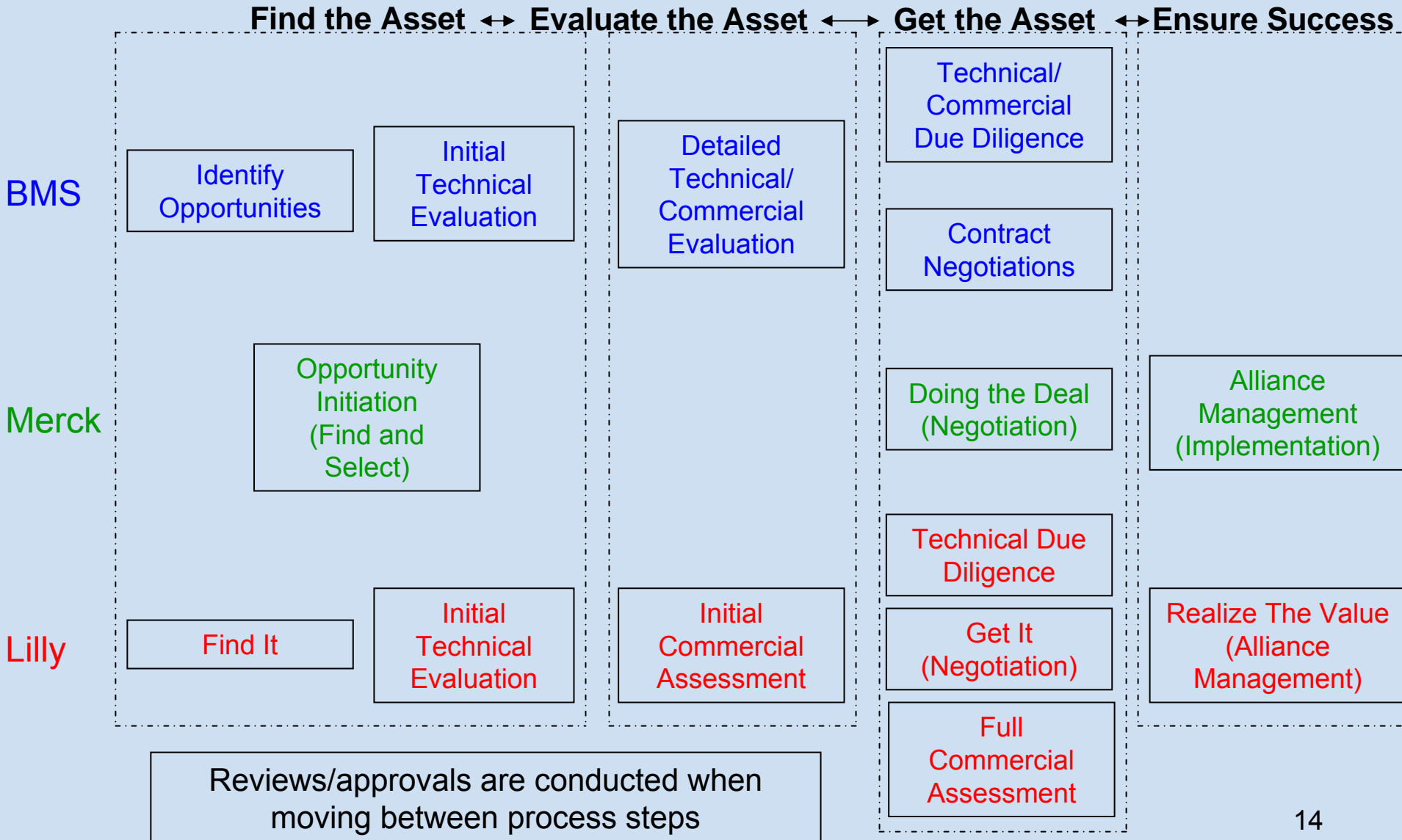
- Scientific or Commercial “Owner” or “Champion” of the Project
- Licensing & Business Development Negotiators
- Marketing Department, including Market Research
- Corporate Finance
- Accounting and Tax
- Manufacturing
- Product Development
- Project Management
- Toxicology
- Clinical Development Planning
- Regulatory
- International Management
- Others

# Companies Need a Clear Process to Manage In-License Opportunities

- Multinationals continuously monitor many thousands of opportunities each year
  - In 2005, US biotech raised US\$17 billion through partnering, primarily with “Big Pharma”, up from US\$ 10 billion in 2004
  - In 2005, Merck considered > 4,000 opportunities, reviewed confidential information under CDAs for >600, and signed 44 agreements
  - Since 2000, Pfizer has signed 1600-1800 agreements per year
- Potential opportunities need to be carefully screened so that the company’s research scientists are not excessively burdened with licensing activities
- Multinationals need to react quickly to opportunities as they arise, obtaining review and approval efficiently in their large organizations
- Senior management will often request an explanation when another company in-licenses a desirable asset
  - Was our company aware of the asset?
  - Did we try to get it? If not, should we have tried?

A process that brings the right information to the appropriate decision makers in a timely fashion is essential in a large organization

# Each Multinational Follows a Very Similar Licensing Process




# Multinationals “Dedicate” Resources to Manage the Licensing Process

## Example of Licensing Process and Participants



Departments in blue are usually dedicated resources to Business Development and Licensing

The licensing process requires many diverse skills, and multinationals tend to divide this process so that appropriate functional experts contribute at each step, and so that senior management is kept informed.



# Process Step 1: Find the Asset

- Staffed by Scientists and Reports to Head of Research
- Periodically receive priorities from each scientific or business group
  - Scientific platforms/mechanisms of interest
    - Decision based on advancing or replacing internal programs, and cost of licensing
  - Business: compounds that fill gaps in the marketed products portfolio
    - Decision based on strategic fit, financial return and risk
- For compounds of interest, “Find the Asset” group coordinates an “Initial Assessment”, with or without a Confidential Disclosure Agreement
  - Project leader contacts originator to learn if compound can be licensed
  - Scientists assess the available safety/efficacy data on the compound
  - Scientists search for similar compounds from other companies, at all stages of development (“competitive landscape”)
  - Market researchers estimate market size and identifies “critical success factors” that would drive higher or lower sales
  - Patent attorney may do a patent search, if patent has issued
  - Chemist estimates relative cost of manufacturing, given structure

Identified compounds need management approval to proceed to the next phase (“Get the Asset”); tentative approvals are contingent upon a positive Due Diligence report and suitable contract terms



## Process Step 2: Get the Asset

- Usually led by business people (e.g. marketing, finance), with support from staff (e.g. legal, accounting)
- Continued Scientific and Commercial Evaluation
  - Each contributor to the “Initial Assessment” (in Step 1) updates their evaluation, based on new information as it becomes available
- Due Diligence is scheduled as early as possible
  - Need to understand any gaps in development that will impact resources and timing
  - Required before “binding terms” can be submitted
- Elements of a financial valuation are collected and a financial model is built
  - Sales forecast, clinical plan, marketing expenses, cost to manufacture, etc.
  - The most significant drivers of financial return are identified from the model
- The negotiation team prepares a strategy for securing these value drivers, meeting the guidelines received from senior management, and managing risks identified during Due Diligence

The negotiation team will try not to engage in significant discussions with the originator until the above preparation has been completed (with the possible exception of Due Diligence)

# Process Step 3: Realize Value from the Asset

- This process officially begins after the agreement has been signed
  - Some companies assign “alliance managers” to be involved as early as the Due Diligence visit, to begin to judge the potential compatibility of the two companies
- “Realizing the value” is the primary task of the Project Team leader for the in-licensed compound
  - Alliance managers assist the Project Team leader to ensure effective communication between the companies, resolve misunderstandings
  - Alliance managers often advocate the position of the partner to senior management

The Alliance Management Process is the focus of the December 2006 seminar

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- III. Tools Used for In-Licensing**
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# Analysis and Planning are Essential Prior to the Negotiations

算多きは勝ち、算少なきは敗る

そもそもまだ開戦もしないうちから、廟堂で籌策してすでに勝つのは、五事七計を基準に比較・計算して得られた勝算が、相手よりも多いからである。

勝算が相手よりも多い側は、実戦でも勝利するし、勝算が相手よりも少ない場合は実戦でも敗北する。

私がこうした比較・計算によって、この戦争の行方を観察するに、もはや勝算は目に見えている。冑

“The general who wins a battle makes many calculations in his mind before the battle is fought. The general who loses a battle makes only few calculations beforehand. Therefore, many calculations lead to victory, and few calculations to defeat: how much more when no calculations at all are made! It is by focusing on this point that I can predict who is likely to win or lose.”<sup>1</sup>

<sup>1</sup>Art of War by Sun Tzu, Chapter 1.

# Tools Used for In-Licensing

The essential tools applied to in-licensing projects are:

- A. Sales forecasting methodologies
- B. Financial valuation models
- C. Due diligence assessment process

Increasingly, the tools used for in-licensing are identical to the tools applied to internal projects. The reasons for this are:

- Senior management asks why the compounds for in-licensing are evaluated more closely and critically than the compounds developed internally
- Simultaneous to the growing sophistication of in-licensing tools has been the emergence of “Portfolio Management” as a discipline, in which “valuation” and “risk” are key factors
- In-licensed compounds can be smoothly added to the portfolio, since they have been assessed in the same way as the current compounds under development; there is reasonable assurance that the in-licensed compound will be resourced

Full and accurate (to the extent possible) business cases are constructed early in the in-licensing process – at Step #2 (“Get the Asset”)

- Substantial effort earlier in the process would likely waste the company’s resources on projects that don’t go forward

# A. Sales Forecasting Methodologies

- Forecasting a compound's future sales is very difficult, and there is often little confidence in the forecast's accuracy
  - It is often said, "We know the forecast is wrong; we just don't know if it is too high or too low."
  - Often the people doing forecasts have limited experience in pharmaceutical marketing, and do not have strong credibility to senior management
  - Executives tend to remember when a forecast has been wrong more often than when the forecast comes close to matching actual sales
- Forecasting methodologies have been changing
  - Prescription-based Forecast:
    - Starts with prescription or unit volume of drugs for the target disease, based on historical trends
    - Forecasted share of your drug is based on market research (or "guess"! ). This method is widely used because the data is easy to obtain
  - Patient-Flow Forecast: This method has gained popularity because it simulates the market dynamics

# “Patient Flow” Methodology for Sales Forecasting

Forecasting sales of “Drug A” which treats a condition affecting elderly people

## Forecast Variables

- Population > 60 years of age (current and projected through 2020)
- Prevalence of condition
- Seek treatment for the condition
- Receive an accurate diagnosis
- Receive pharmaceutical treatment
- Receive Drug A
- Compliance with Drug A
- Reimbursed price less distributor margins

## Calculations

- No. of people in susceptible age group
- X % prevalence
- = No. of patients with the condition
- X % visiting physician
- = No. of patients consulting physician
- X % accurately diagnosed by physician
- = No. of diagnosed patients
- X % receiving drug therapy
- = No. of drug-treated patients
- X % patient share attained by Drug A
- = No. of patients on Drug A
- X Average days on drug (out of 365 days)
- = Days of therapy on Drug A
- X Price per day of therapy
- = Total sales of Drug A per year

# Advantages of “Patient Flow” Forecasting Methodology

Simulates how the market actually works

- Patients become aware of a problem and visit the doctor
- The doctor asks the patient some questions, performs some tests, and arrives at either a correct or incorrect diagnosis
- Etc.

Market researchers can conduct focused interviews and do desk research to estimate each of the lines or “nodes” of the Patient Flow model

- Such a forecast can be better defended in front of management, since there is evidence to support each calculation

Marketing planners can focus on the nodes where drug usage can be most effectively increased

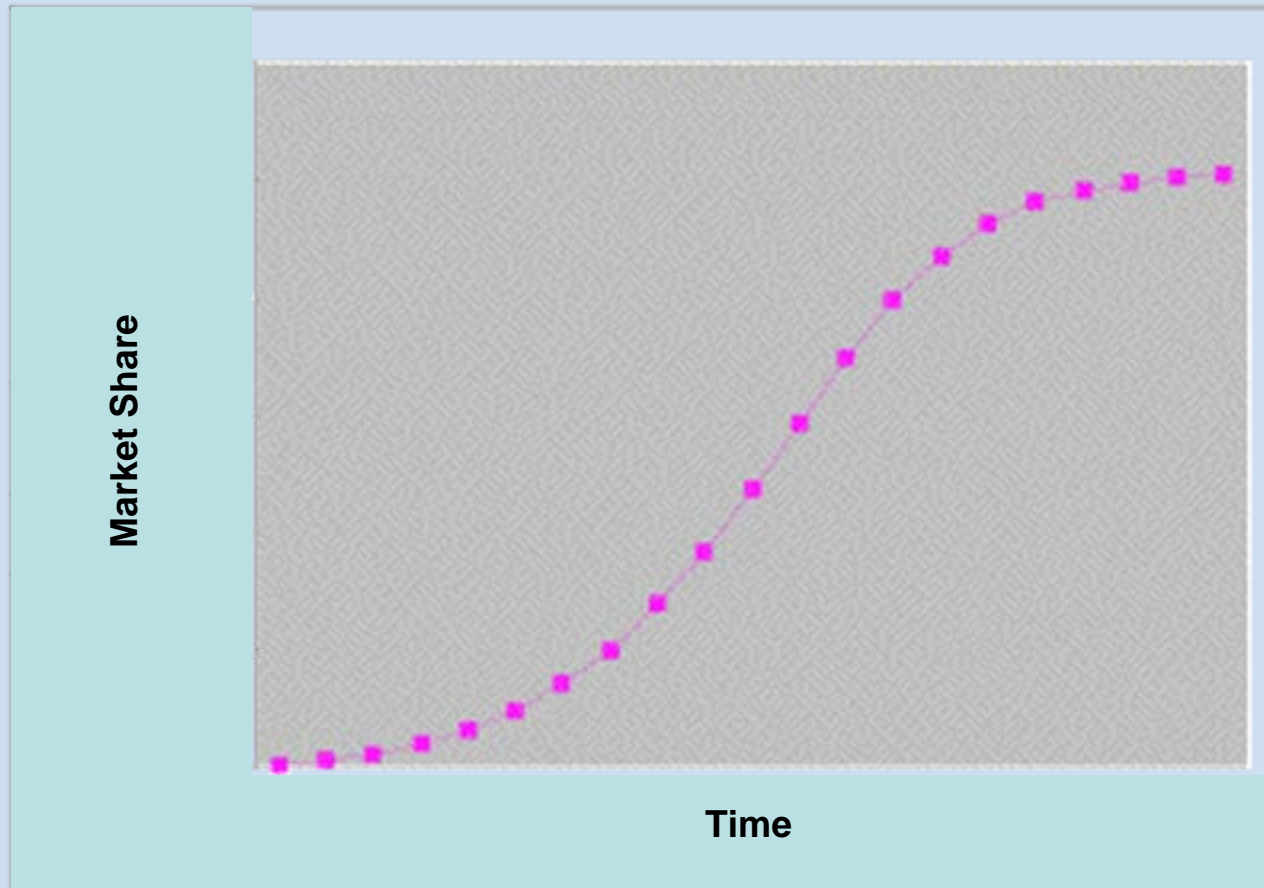
- for example, if proper diagnosis occurs only 50% of the time, the company may choose to spend marketing budget on programs that improve physician awareness and diagnostic skill
- by setting achievable targets for improvement at each node and the cost of the supporting programs, the planners can select those “interventions” that will yield the biggest “return on investment”

# Example of Forecasting using the Patient Flow Methodology – Best Estimate

Calculations	Year 20XX
No. of people in susceptible age group	30 million
X % prevalence	x 11%
= No. of patients with the condition	
X % visiting physician	x 70%
= No. of patients consulting physician	
X % accurately diagnosed by physician	x 65%
= No. of diagnosed patients	
X % receiving drug therapy	x 70%
= No. of drug-treated patients	
X % patient share attained by Drug A	x 33%
= No. of patients on Drug A	
X Average days on drug (out of 365 days)	x 180 days
= Days of therapy on Drug A	
X Price per day of therapy	x ¥500
= Total sales of Drug A per year	<u>¥ 31 billion</u>

Based on the “best estimate” for each node, the forecast in year 20XX is determined to be ¥31 billion

# Typical Sales Forecast Resulting from Using “Best Estimates” for Each Node, Every Year



“S-shaped curves” are the most typical form of pharmaceutical product launches

# Forecasts Based only on the Best Estimate Do Not Show Commercial Risk

- In addition to calculating the “best estimate” forecast, many companies have traditionally calculated “low” and “high” scenarios; these forecasts can be done using a calculator
- With personal computers and spreadsheet programs like Excel®, one can do many different scenarios, called “What if” analysis. In “What if” analysis, you change one or more values to see how the result is affected.
- The most current methodologies have a more rational way of representing uncertainty in a forecast: by defining a probability distribution for each unknown variable, and letting a sophisticated software program such as Crystal Ball® randomly select a value

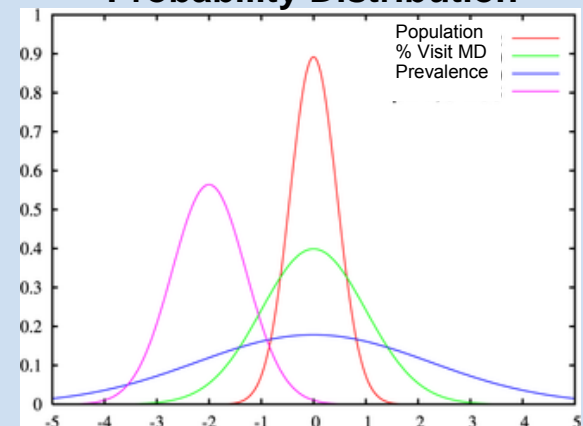
## “Best Estimates”

<u>Variable</u>	<u>Value</u>
Population (mil.)	35
Prevalence	11%
% Visit Doctor	60%

## “3 Scenarios”

<u>Variable</u>	<u>Low</u>	<u>Med</u>	<u>High</u>
Population (mil.)	33	35	37
Prevalence (%)	8	11	14
% Visit Doctor (%)	50	60	67

## “Probability Distribution”



# Example of Forecasting using the Patient Flow Methodology – 3 Scenarios

## Forecast Assumptions in Year 20XX

Calculations	Best		
	<u>Downside</u>	<u>Estimate</u>	<u>Upside</u>
No. of people in susceptible age group	28 million	30 million	32 million
X % prevalence = No. of patients with the condition	x 10%	x 11%	x 12%
X % visiting physician = No. of patients consulting physician	x 70%	x 70%	x 67%
X % accurately diagnosed by physician = No. of diagnosed patients	x 55%	x 65%	x 75%
X % receiving drug therapy = No. of drug-treated patients	x 65%	x 70%	x 80%
X % patient share attained by Drug A = No. of patients on Drug A	x 25%	x 33%	x 45%
X Average days on drug (out of 365 days) = Days of therapy on Drug A	x 160 days	x 180 days	x 200 days
X Price per day of therapy = Total sales of Drug A per year	x ¥300	x ¥500	x ¥700
	<u>¥ XX billion</u>	<u>¥ YY billion</u>	<u>¥ ZZ billion</u>

# Example of Forecasting using the Patient Flow Methodology – “Probabilized” Sales

## Forecast Assumptions in Year 20XX

Low	Medium	High
<u>1(90/10)</u>	<u>(50/50)</u>	<u>(10/90)</u>
33 million	35 million	37 million
x 10%	x 11%	x 12%
x 50%	x 60%	x 67%
x 50%	x 65%	x 85%
x 60%	x 80%	x 90%
x 40%	x 50%	x 60%
x 120 days	x 160 days	x 220 days
x ¥600	x ¥800	x ¥1,200
<u>¥ XX billion</u>	<u>¥ YY billion</u>	<u>¥ ZZ billion</u>

How are these numbers used to generate a sales forecast –  
 Answer A or Answer B?

Answer A: multiply all the values in each column together to determine the Low, Medium and High sales forecasts

Answer B: develop a probability distribution for each variable, by setting the 90/10, 50/50 and 10/90 values, and run thousands of simulations; graph the results, from lowest to highest. This forms a probability distribution of expected sales outcomes.

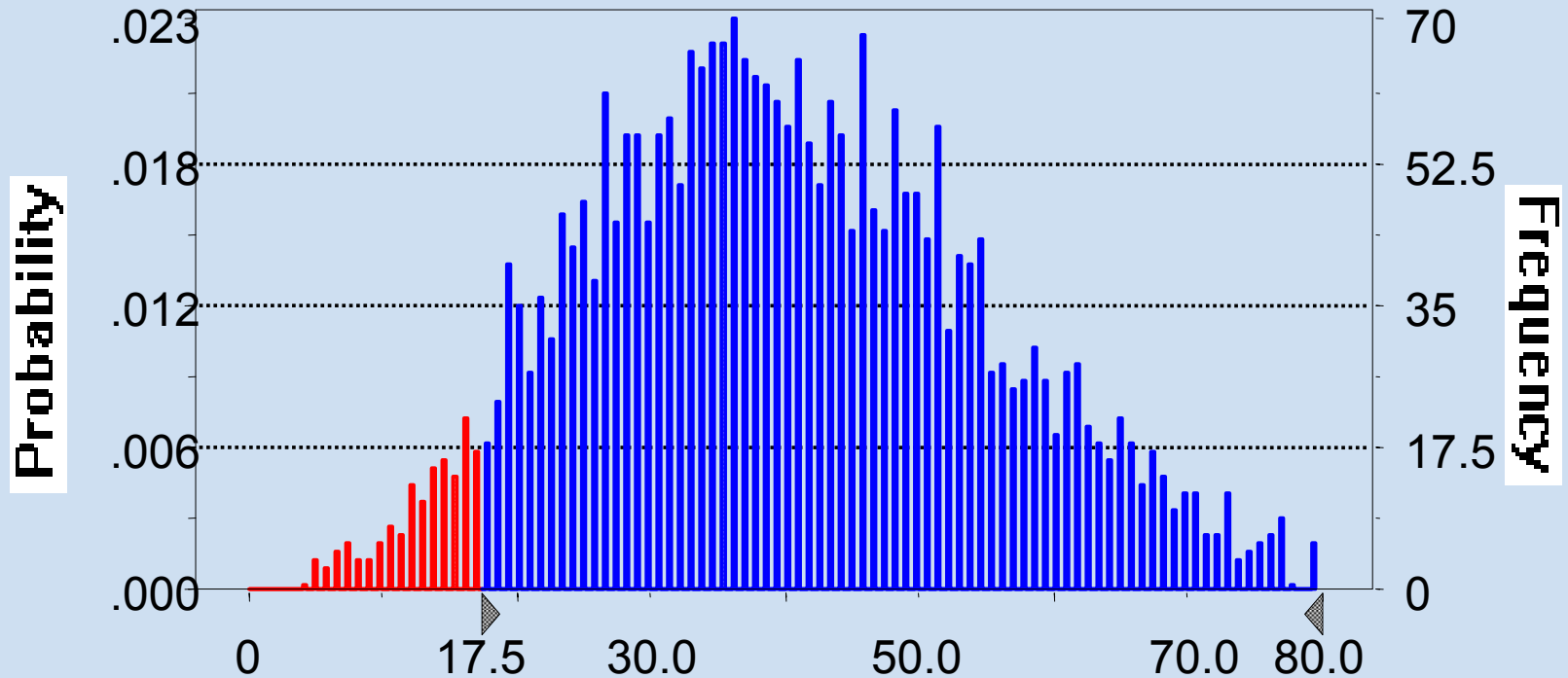
# Histogram of Possible Sales Forecasts from "Crystal Ball" Model

## Forecast: Sales of Elderly Medication

3,000 Trials

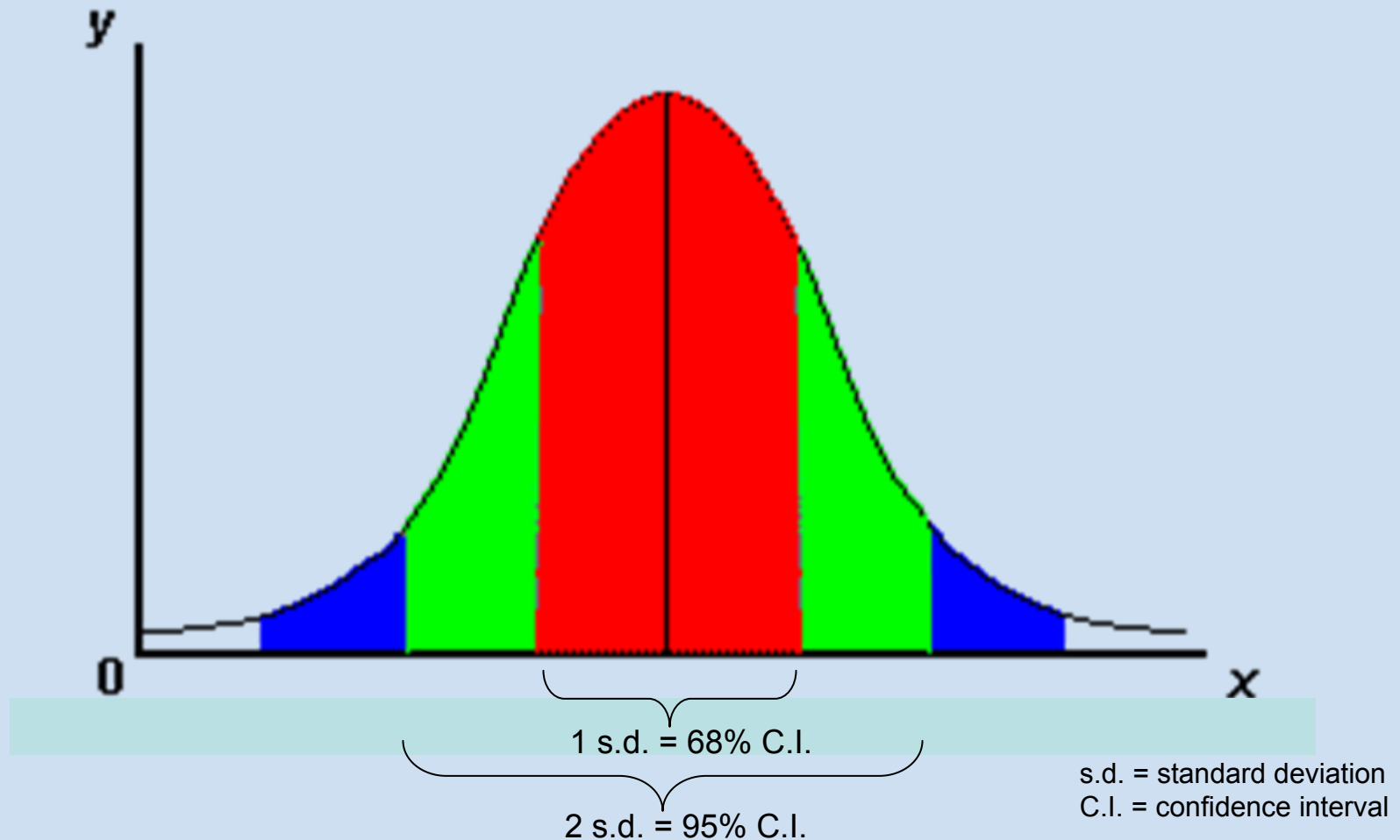
Frequency Chart

20 Outliers



Certainty is 95% that sales will exceed ¥17.5 billion

# Statistical Models Allow One to “Bracket” the Range of Likely Outcomes



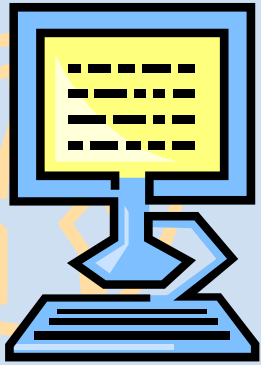
There is 95% confidence that the actual result will be within the red + green range of forecasted outcomes

# Deriving Probability Distributions

It is important to properly define the range for each value in the sales forecast or the compound valuation. Some of the methods that are used include:

- Historical Data, for example:
  - population growth/decline data
  - length of time spent in Phase 3 trials in your company's experience
- Survey/Sample Data:
  - epidemiological studies of disease prevalence
- Analogous Situations
  - % of patients who visit a doctor for similar diseases as the one you are forecasting
  - cost of manufacturing compounds with similar chemical structures as the one you are valuing
- Expert Opinion
  - experts' estimate of the % of physicians who are capable of accurately diagnosing the disease
  - experts' opinion of the probability that a compound with a certain mechanism will result in a positive clinical trial

# Commercially Available Sales Forecasting Models



To further assist in sales forecasting, particularly in determining what share of market the new product will achieve, software is available that contains sales history on many pharmaceutical products. The software selects a product uptake curve based on the description of the new compound compared to past products launched.

## Inputs

- Number of patients receiving pharmaceutical treatment
- Product profile relative to standard of therapy
- New mode of therapy, or replacement of older therapy
- Order of product launch within the therapeutic category
- Relative price to the standard of therapy
- Share of promotional “voice” (SOV) among all products for this disease

## Output

- Applies an Uptake Curve for this Disease Category (for example, dry eye in elderly patients)
- Highlights those attributes of a drug that lead to high penetration in the therapeutic category
- $R^2$  (measurement of how closely the regression curve matches the data) usually above 90% - high correlation

Thousands of previously launched products are contained in the analogue database (example: IMS Analogue Planner™)

## Forecast Variables

- Population > 60 years of age (current and projected through 2020)
- Prevalence of condition
- Seek treatment for the condition
- Receive an accurate diagnosis
- Receive pharmaceutical treatment
- Receive Drug A
- Compliance with Drug A
- Reimbursed price less distributor margins

← Model most useful here

## B. Financial Valuation Models

Multinationals seek to understand the value of a compound they wish to in-license as early as possible, despite many unknowns

The starting point is to calculate the net present value (NPV) of the compound, which is calculated by determining the future cash flows, positive and negative, and then discounting them by the company's chosen "discount rate" (also called "hurdle rate" or "weighted average cost of capital"). The formula is:

$$NPV = \sum_{t=1}^N \frac{C_t}{(1+r)^t}$$

where **t** is the time period, **C** is the net cash flow, and **r** is the discount rate

The essential cash flows (+ and -) for a compound still in development include:

- Development expenses: clinical trial costs, physician fees, cost of CT material, etc.
- + Product sales: forecasted units multiplied by the assumed price
- Cost of goods sold (COGS)
- Sales and marketing promotional expenses
- Projected milestone and royalty payments paid by the licensor ("deal terms")

Timing of the cash flows has a large impact on the valuation; key events include:

- the start and duration of Phase 2 and Phase 3 trials
- product launch
- patent expiration

# As in Sales Forecasting, there are many Unknowns in Determining a Compound's Value

- Cost of goods sold (COGS): the manufacturing costs at commercial scale-up may only be known after final process set in Phase 2 or later
- Sales force promotion: the number of details will depend on the physician targets, whether specialists or general physicians, and the anticipated level of competitor promotion. May not be known until Phase 3.
- Timing of regulatory submission and product launch: these depend on the speed of enrollment in the clinical trials and the review period for the regulatory authority (MHLW, FDA)
- Probability of the compound successfully completing clinical trials: this will be decided after each phase, based on the clinical results observed

A sophisticated model of valuation needs to take into account a range of uncertainty around key variables, in the same way as the sales forecast deals with uncertainty

# Example of a Net Present Value Calculation

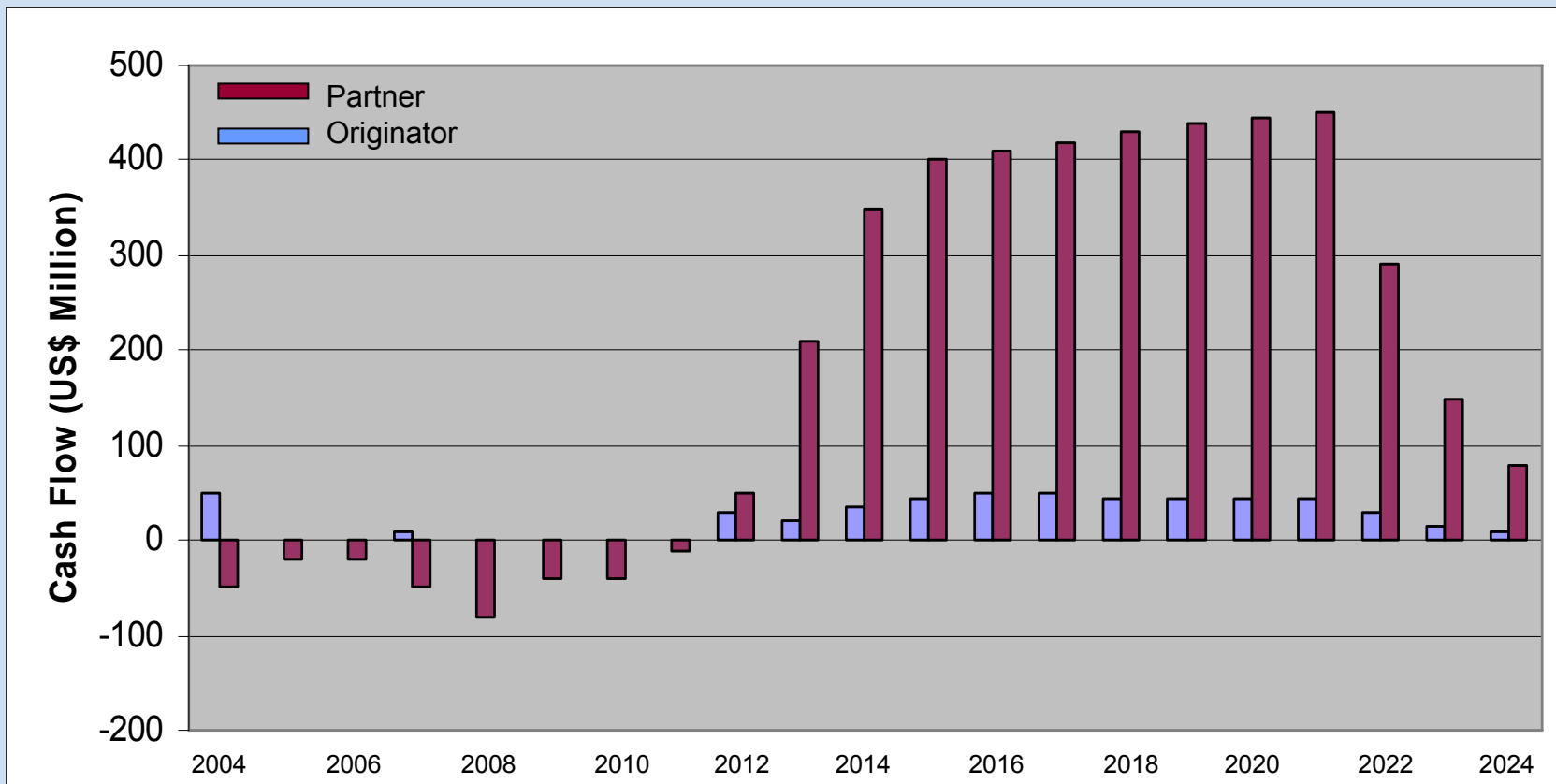
The compound in this example is a pre-clinical asset, licensed in 2004. The negotiation team has done its analysis and made the following assumptions:

<u>Compound Assumptions</u>	
Stage of development:	Pre-clinical
Probability of technical success (i.e. launch):	12%
Future development expenditures:	\$284 million
Launch year	2012
Forecast peak-year sales	\$808 million
 <u>Deal Terms Assumptions</u>	
Partner pays all future development expenses	
Originator receives following fees:	
• Signing Fee	\$50 million
• Beginning Phase 3 milestone	\$10 million
• First country launch milestone	\$40 million
• Royalty on net sales	10%

It often helps to graph the cash flows when calculating the NPV

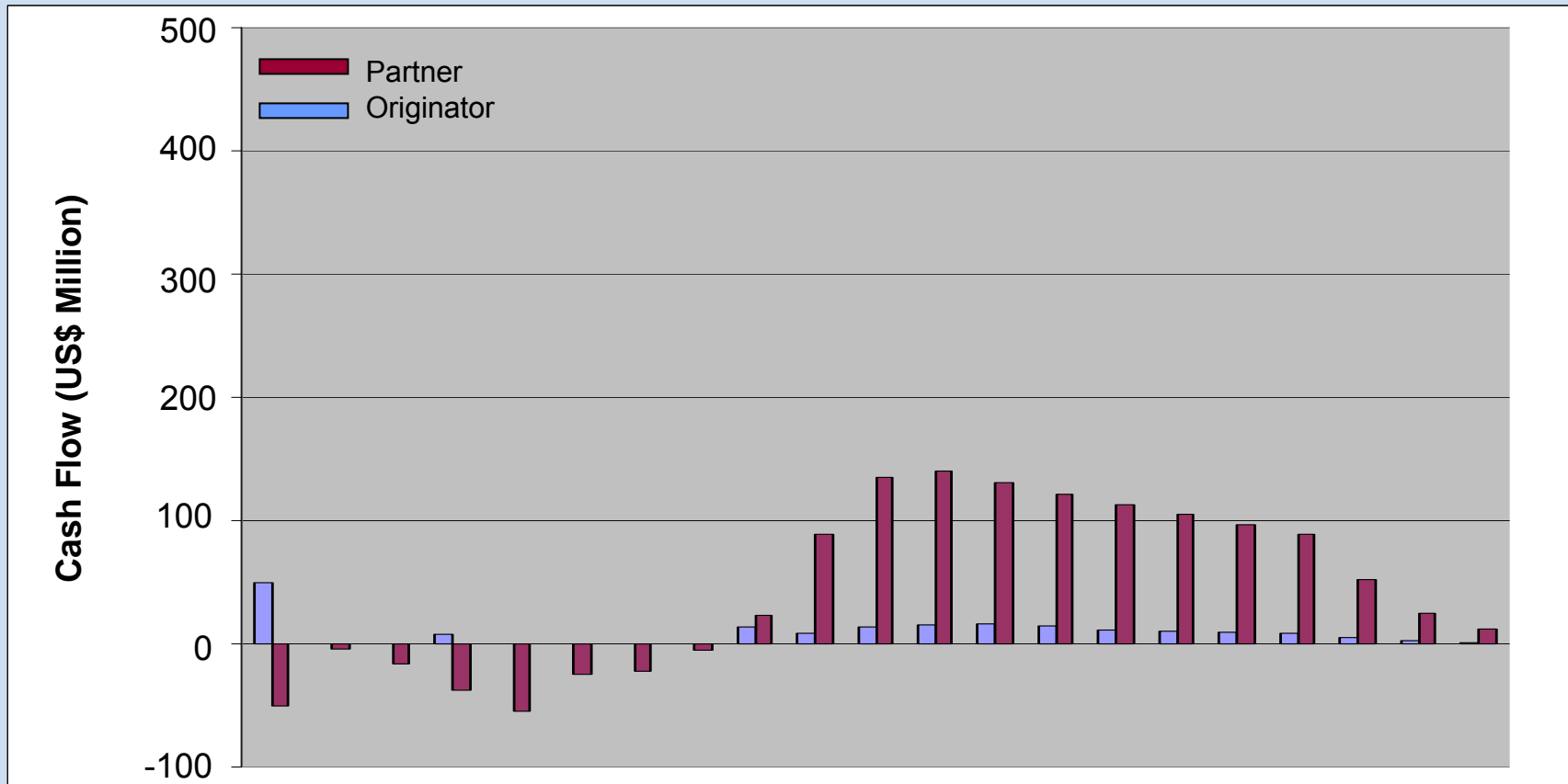
# Visualizing the Cash Flows in Each Year

## No Discounting and No Probabilizing



The partner appears to receive the vast majority of the asset's cash flows, with the revenue in later years easily exceeding early investments

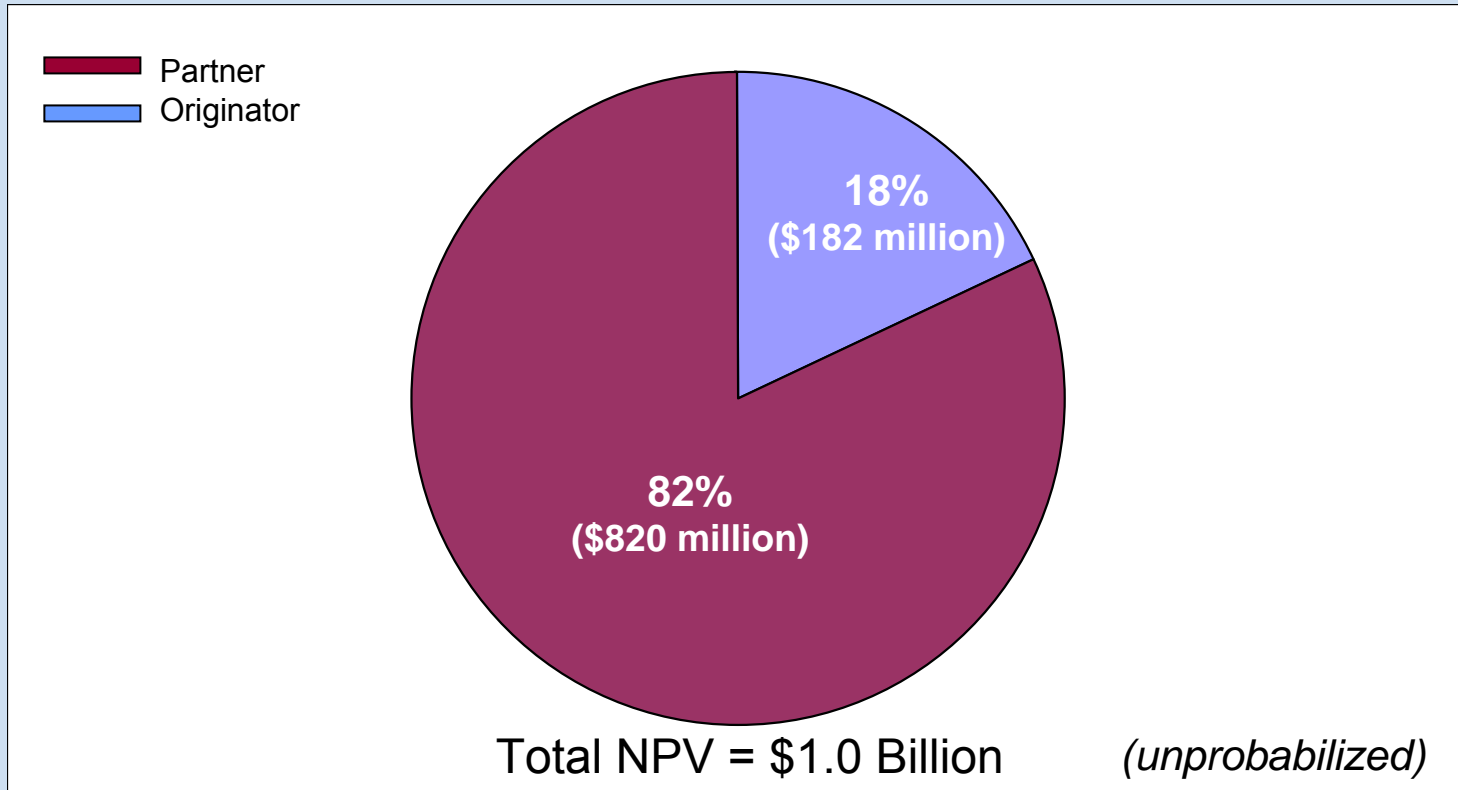
# Discounted Cash Flows in Each Year (No Probabilizing)



The partner still appears to receive the majority of the value, but later years are much smaller due to the 'time value of money'

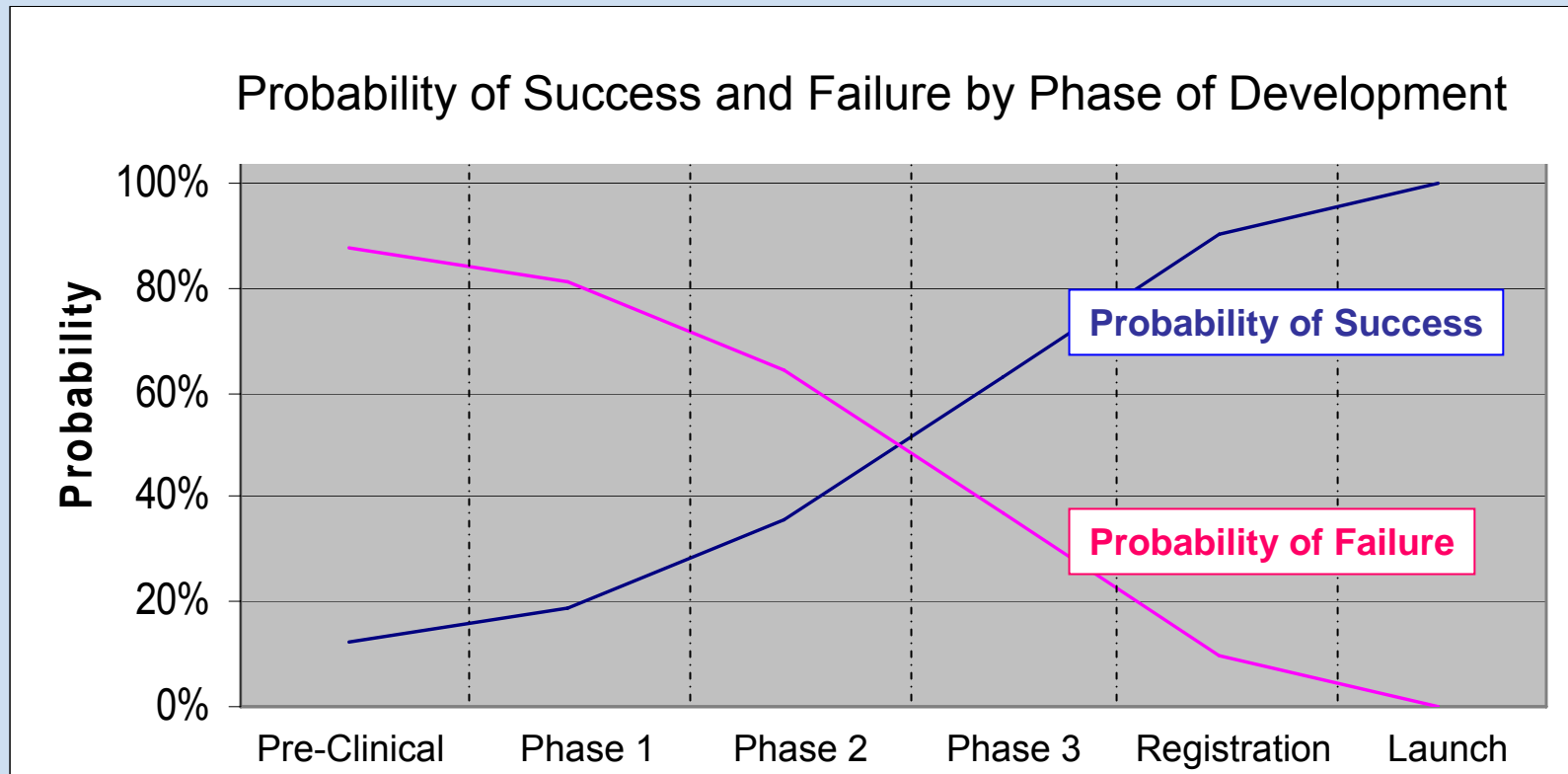
# Net Present Value

## Discounted Cash Flow



On an NPV basis, and assuming the product is launched, the partner would receive 82% of the compound's total value

# The Probability is Great that a Current Pre-Clinical Compound will Fail During Development



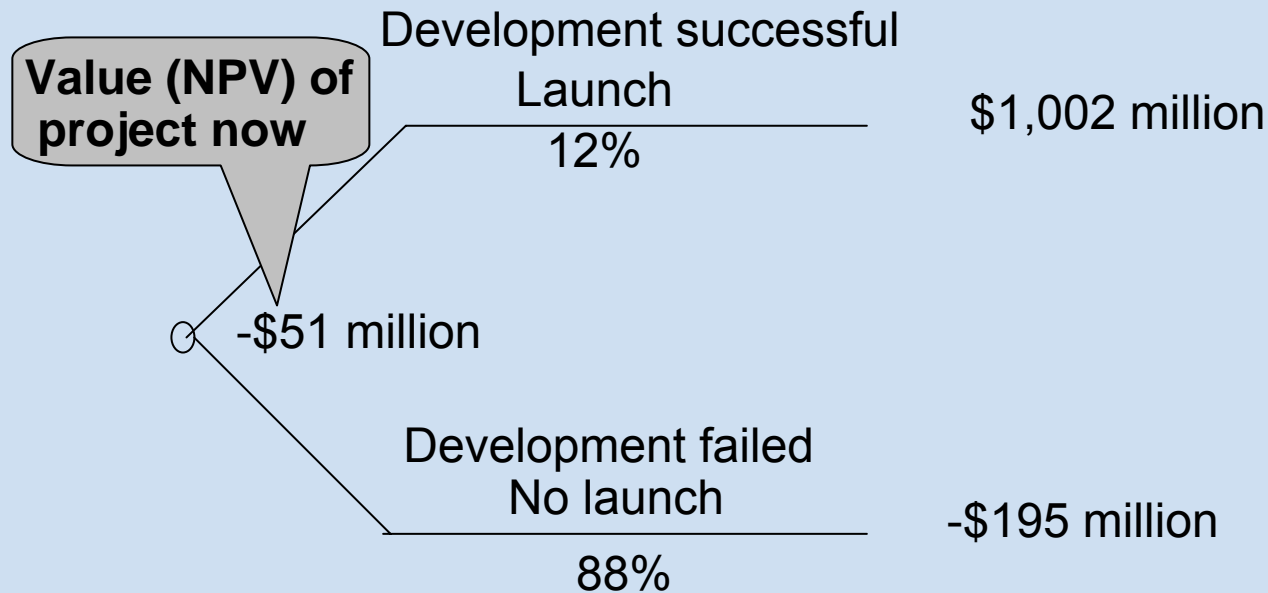
Go	59%	52%	57%	70%	90%
Stop	41%	48%	43%	30%	10%
P(Invest)	100%	59%	31%	18%	12%

Chart reproduced from Pharmaceutical Executive, "Risks and Rewards; How to Protect the Hand You're Dealt", by Joseph Dillon, October, 2005.

# How Multinationals Incorporate the Probability of Development Success/Failure

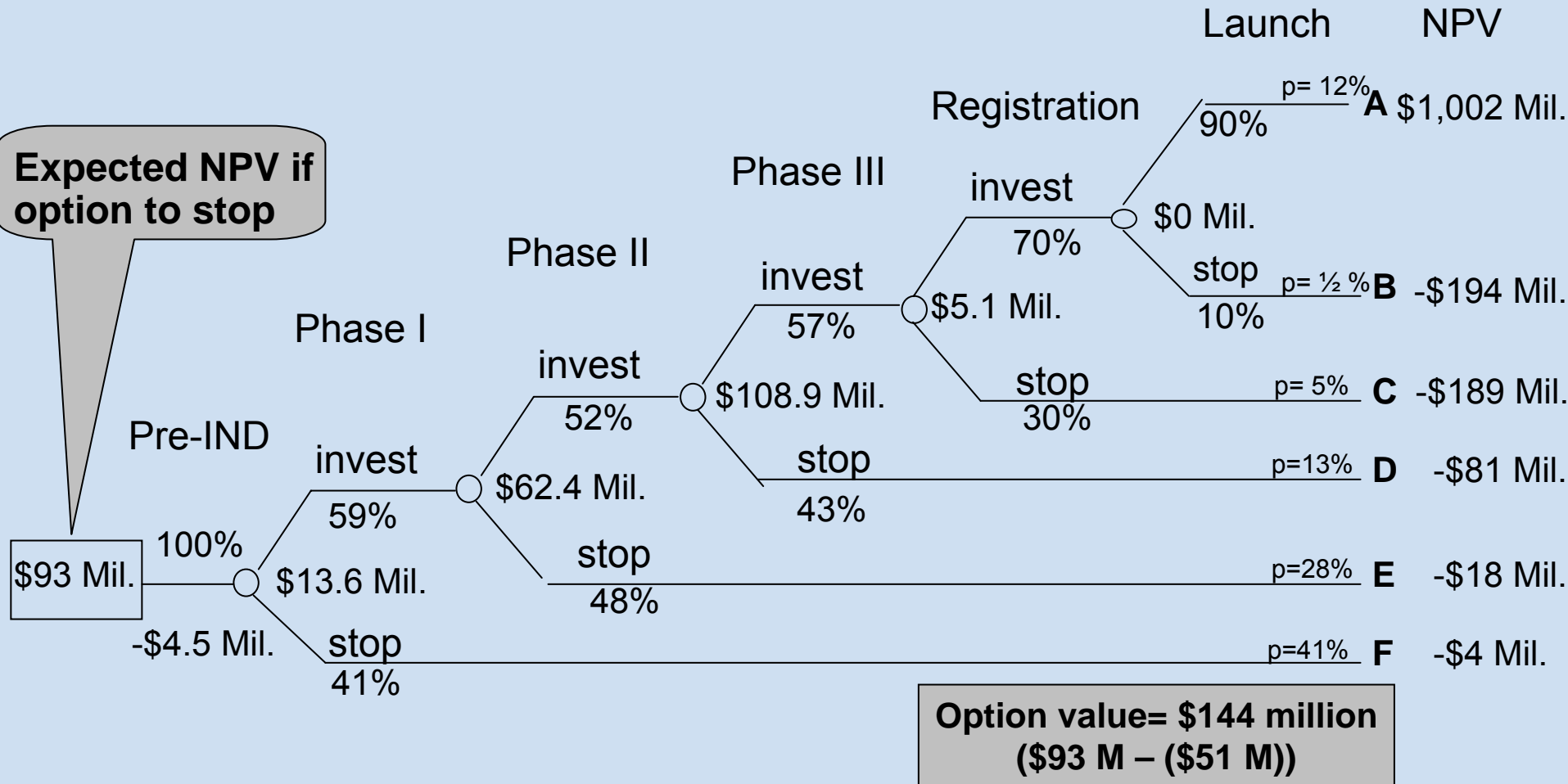
- NPV is commonly applied to capital investment projects (for example, building a factory), where there is very low uncertainty and low risk about whether the investment will be completed
- In pharmaceuticals, there is high uncertainty and high risk in developing a compound. Development of a compound may be changed or stopped due to the company's evaluation of study results or other factors.
- Multinational pharmaceutical companies have begun to apply another method, called "real options" ("real" means that the assets are real, rather than financial instruments; "options" means that management has flexibility to change the initial strategy as information is received), to better simulate how probabilities and values change based on investment decisions.
- Decision tree analysis is used to model future activities, possible outcomes and uncertainties
- Note: Traditional NPV analysis will always undervalue projects that have high uncertainty and where more information will become available that could change the investment decision

# Illustration 1: Traditional pNPV



Making the calculation in this way assumes the company continues to develop the compound through Phase 3; in reality, the decision whether to proceed in development may be made many times during development

# Example 2: Option-based Probability Adjustment for Pharmaceutical Projects



This decision tree shows all likely outcomes during development. Corresponding to each outcome, there is a probability and an NPV. The *expected NPV* is the weighted average (probability \* NPV) of all the outcomes (A-F).

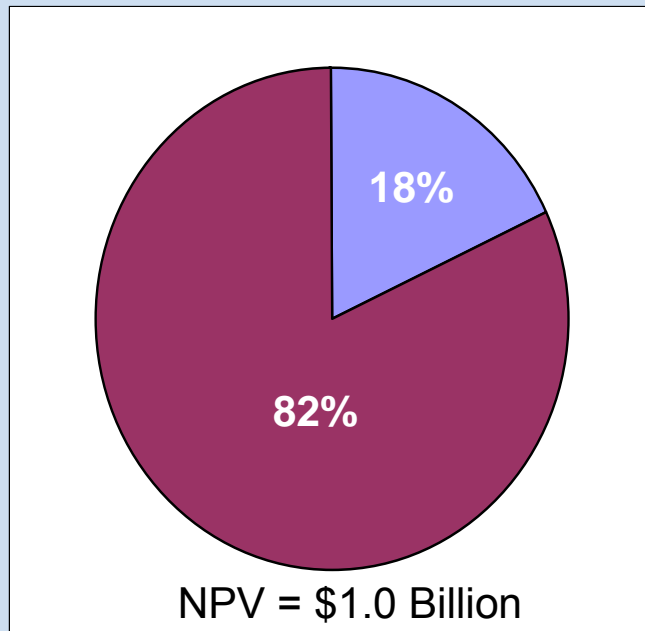
# Implications of the “Real Options” View of Compound Development

- The relatively higher value (pNPV) given to pharmaceutical R&D projects, vs. low-risk investments, is due to management flexibility to change, and even discontinue, the investment at each decision point (management requires the flexibility to discontinue development for any reason)
- Development teams are required to define “critical success factors” for each study, so that results can be clearly and objectively evaluated compared to expectations (team cannot wait until results are obtained and then define success)
- Management reviews occur frequently, whenever new and meaningful data has been generated, to evaluate results and determine investment priorities
- Management may determine that a compound has not met its critical success factors, although it may still be a marketable drug; they may decide to return an in-licensed compound to the originator, or to out-license an internally discovered compound

Viewing a portfolio of compounds as if it were a portfolio of financial assets (e.g. stocks or real estate) allows management to “place bets” where the greatest returns are likely to be realized

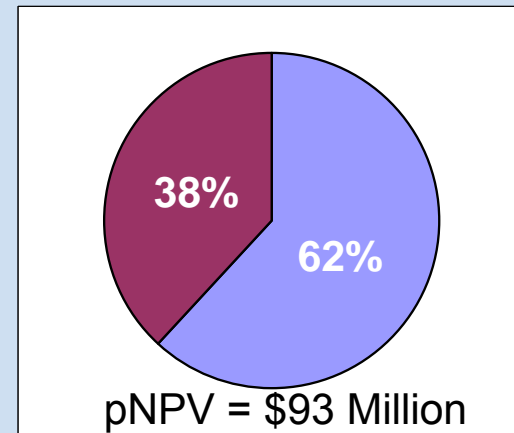
# The pNPV Demonstrates that the Partner is Bearing a Large Part of the Risk

Non-Probabilized NPV



■ Partner  
■ Originator

Option-Based Probability-Adjusted NPV



The partner invests considerable resources for development and makes milestone and other payments to the originator, well before the product starts to generate sales (if ever)

# C. Due Diligence and its Role in Negotiation

Definition: An evaluation into the details of a potential investment or purchase, in which all the material facts relevant to the investment or purchase are verified

Purpose, and Importance to the Negotiation:

1. Assess potential risks and benefits,
2. Identify risks that may harm the value of technology, and
3. Develop strategies for overcoming any such risks

Process:

- Licensee assigns internal experts from each relevant functional area, who will evaluate the originator's data supporting the claims.
- These experts generate questions that need to be addressed, and all questions are sent to the originator to assist in gathering the appropriate documents
- Due diligence team arrives to the originator's "due diligence document room"; the originator's experts are present or available to answer questions

Output: Areas are identified where gaps exist between what is expected (based on stage of development) and what is actually found

# Influence of Due Diligence on the Negotiation

- Due Diligence is viewed as an objective, unbiased evaluation of the development stage of the target compound; as such, it is very difficult for either the “champion” within the licensee or especially the negotiation team to ignore the due diligence findings and recommendations
- The due diligence process can reveal certain characteristics of the licensor
  - Degree of openness to discuss issues of the compound (seen as predictor of future openness and cooperation)
  - Thoroughness of documentation to support each essential development step: optimization, selection, toxicity, human dosing, etc. (whether there is sufficient evidence to convince the regulatory authorities)
  - Capabilities of the preclinical, clinical, project management, regulatory, patent, process development and other functions of the licensor (to judge whether the licensee’s resources will be needed to support these activities)
- The licensor’s response to the due diligence report should be constructive
  - If some findings are a surprise, make sure you understand the facts that the due diligence team used to base their findings; correct mistaken assumptions
  - The due diligence team may reach negative conclusions from certain findings; rather than fight these conclusions, try to identify possible solutions (it is unlikely that the licensee’s management will change their view if the facts didn’t change)

Negotiations that have progressed for months can be halted based on due diligence findings; it is best to schedule it as early as possible

# The NPV Model is an Important and Often Consulted Guide to the Negotiation Team

- The multinational company is acutely aware of linkages between various deal terms, because each change made to the terms affects the projected deal value and deal split
- By running the model with different variables, the negotiation team can determine the financial impact of each proposed deal structure
- The model allows the negotiation team to focus on those elements that will deliver the desired value to the company, and trade off elements that don't affect value



The NPV model operates as a control panel for guiding the negotiation

# Agenda

- I. Importance of Partnering to Multinational Pharmaceutical Companies
- II. Process Used for In-Licensing
- III. Tools Used for In-Licensing
- IV. Techniques Used During Negotiation**
- V. Implications for Companies Negotiating with Multinationals

# Some Differences in Negotiating Style are Culture-Based

## Degree of Formality

- US: quite informal in speech and appearance; use first names
- JPN: business-like and formal; use last names

## Face-to-face meetings

- US: happy to use video- or web-conferencing, consider it quick and efficient
- JPN: face-to-face best for building trust and communication easier

## Extent of Authority

- US: initial positions and “fall-back” positions pre-established; use of NPV model allows for immediate effect of each concession
- JPN: movement from present position unlikely during the current negotiation session; appears that concessions need to be approved by senior management

## Awareness of Past Company Interactions

- US: focus on the immediate issues in the current negotiation; new people representing the company each time
- JPN: memory of previous negotiations; same people likely to be involved

# More Differences in Negotiating Style

## Confrontation and Conflict

- US: direct, not highly concerned with effect on other party; challenging
- JPN: more vague expressions, neither “yes” nor “no”, less confrontational

## Mealtimes:

- US: opportunity to gain time on the agenda by working through lunch
- JPN: separate time from negotiations to build relationship

## Results vs. People:

- US: results more important than maintaining relationships
- JPN: relationships as important as the results; maintain politeness and respect

## Negotiation Protocol

- US: low awareness of or sensitivity to formal seating arrangements
- JPN: formal seating arrangement

## Silence

- US: not accustomed to silence in a group session; tendency to talk if Japanese side is silent
- JPN: comfortable with silence

So many books exist on this popular subject that it can be dangerous to assume that the other party will act in a “culturally stereotypical” way

# Impact of Negotiation Research on Multinationals' Behaviors

The Harvard Negotiation Project, founded in 1979, has led research into a variety of diplomatic and business negotiations. Some of its publications (e.g. Getting to Yes<sup>1</sup>) are “required reading” for negotiators and business students. The basic recommendations from this research are;

1. Separate the people from the problem
  - Participants should see themselves as working side by side, attacking the problem, not each other
2. Focus on interests, not on positions
  - Stating positions, such as “we can’t accept anything less than 20% royalties”, often hides the underlying interests that you are trying to satisfy, and are hard for the other side to accept
3. Generate a variety of possibilities before deciding what to do
  - Stated “positions” tend to be “win-or-lose”, where one side wins and the other loses; however, “interests” can often be satisfied in a number of ways
4. Insist that resolution of issues be based on some objective standard
  - Standards such as “maximizing the value of the asset” or “leveraging the capabilities of each party” can facilitate resolving disagreements in an efficient way

<sup>1</sup>Fisher R and Ury W, Getting to Yes: Negotiating Agreement Without Giving In, 1981.

# Behaviors that are Associated with Principled Negotiation

1. Separate the people from the problem
  - Write the issue on a flipchart in the room, in the form of a drawing if possible, so that both parties can “attack” the problem in front of them (and not each other).
2. Focus on interests, not on positions
  - Ask the other party why it has taken a certain position; listen for clues as to the underlying interest or desire that the position represents.
  - Use expressions such as, “why is it important for you to obtain \_\_\_\_\_?”
3. Generate a variety of possibilities before deciding what to do
  - Once you have identified the interest of the other party, “brainstorm” with them other ways they may be able to achieve their objective
  - Make sure both sides realize that proposed solutions during brainstorming have not yet been reviewed or approved by management
  - Use expressions such as, “if we could do X, would that be a reasonable alternative to Position Y?”
4. Insist that resolution of issues be based on some objective standards
  - Have a discussion very early in the negotiations regarding “guiding principles” for the collaboration. Guiding principles should serve to remind the negotiating teams why the two companies are pursuing the collaboration, and be referred to when the two sides are deadlocked
  - Agree on what basis the deal value will be shared by each party; the concepts of “value received commensurate to the risk assumed” or “equitable deal split” based on development stage may be introduced at this time

# Creating and Claiming Value During a Negotiation

## Creating Value

- An asset's total value, without including financial terms, is called the "System Value", expressed as an eNPV
- "System Value" is the "size of the pie before it is cut" between the parties
- Issues that arise during negotiations can be considered as opportunities to look for ways to increase value for both parties, rather than "win or lose" contests; this "cooperative" approach is more often used by multinationals, than the "competitive" approach
- "System Value" will increase if the two sides can identify opportunities to increase sales, decrease expenses or reduce time to market (e.g. locate manufacturing in a low-tax country; conduct a Phase 2/3 trial rather than separate Phase 2 and 3 trials)

## Claiming Value

- The process of "cutting the pie", whether or not the parties were successful in growing the size of the pie in a cooperative way
- Multinationals keep track of their portion of the pie using the NPV model, previously described

# Equitable Deal Split

## Deal Split

- The portion of the value that each company receives, including payments from licensee to licensor, expressed as a percentage of the “System Value”

## Equitable Deal Split

- Refers to a “fair” split of the “System Value”, based on the amount of risk that each party is assuming at each future phase of development.
- **The actual deal split will be a function of the ability of each negotiation team and also of the attractiveness of the asset to other bidders**

Example “Equitable Deal Split” ranges (% of the pNPV that goes to the licensee)

Prior to 1st human dose:	80-90%
End of Phase 1:	60-70%
End of Phase 2:	40-50%
End of Phase 3:	20-30%

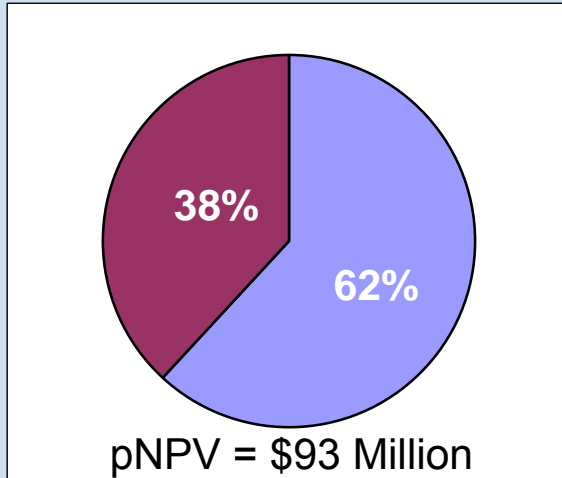
Deal Splits are never made public, so one cannot identify “comparables” except from one’s own experience

# Rationale for Progressive Deal Split Ranges

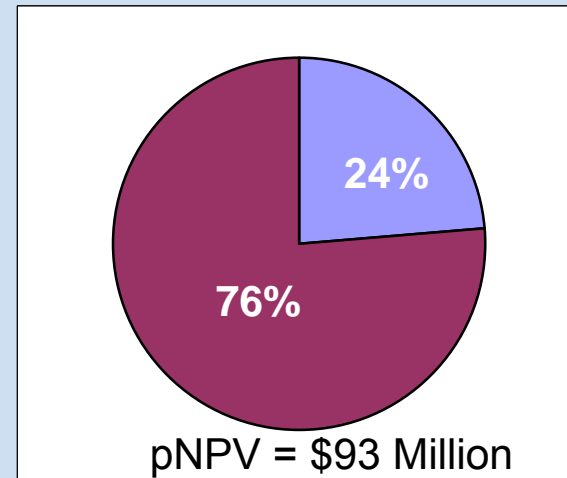
- The originator is entitled to be rewarded for discovering the compound, and for reducing the uncertainty, or risk, whether the compound will be successfully developed; the larger the risk reduction prior to licensing-out, the greater the originator's share of the value
- The partner needs to be sufficiently financially motivated to take over the development costs of the compound; setting high deal terms, especially "front-loaded" payments, reduces the partner's share of the value and lowers the financial attractiveness of the project
- The market demand for compounds rises significantly after "proof of concept" studies have been completed. Multiple companies may wish to bid for late-stage products, thereby driving up the terms they are willing to pay for access to them
- Early stage compounds are more numerous and their therapeutic benefits may not yet be proven. These compounds generally do not attract as many bidders, and therefore the price to access them is not high

Licensees make the conceptual argument for deal splits to be in the "normal range"; licensors tend to refer to carefully selected "comparable deals" to justify a greater share of the value

# Example of Terms Adjustments Leading to an Equitable Deal Split



- In our previous example, the licensee receives only 38% of the pNPV, lower than the hypothetical range: 80-90%
- The upfront fee of \$50 million, which is both immediate and certain, is the primary driver of value going to the originator
- The partner sees a pNPV of \$31 million



- If one moves \$45 million of the upfront fee to later in development:
  - new \$10 million milestone at beginning of Phase 2
  - \$10 million more to the milestone at Phase 3
  - \$25 million more at product launch
- The deal split becomes 76% to the partner, or \$70 million in pNPV

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# Implications for Companies Negotiating with Multinationals

- I. Clinical assets, particularly past the “proof of concept” stage, will usually attract multinationals’ interest
  - multinationals constantly seek to replenish and upgrade their pipeline as compounds fail in development or appear to lose market potential
  - even if the multinational has an internal development program in the same field, it may wish to accelerate the program by acquiring a more advanced compound
  
- II. Established deal processes require the collection of large quantities of information about the target compound; once the information has been analyzed and reviewed with management, the negotiating team will receive instructions from management regarding what is an “approvable deal”
  - prior to the first significant business discussions between the two parties, the multinational’s negotiation team has prepared in detail a summary of both the scientific and commercial aspects of the compound, and received from management a tentative approval to move forward, provided there are no significant (i.e. negative) findings from Due Diligence (although this tentative approval is subject to being withdrawn, if budgets or other circumstances change)

# Implications for Companies Negotiating with Multinationals (cont.)

- III. Highly sophisticated tools (forecasting, valuation, due diligence process) are used before and/or during the business discussions
- The individuals using these tools need to be trained in both their operation and the proper interpretation of results
  - The cost of developing or acquiring complex forecasting or valuation tools may appear too great if the number of deals being negotiated per year is low; however, obtaining a better result during negotiations could easily outweigh this expense
  - In addition, because these tools can be equally valuable for evaluating and managing the internal portfolio of compounds, it is an investment that most pharmaceutical companies will probably consider in the future
- IV. Multinationals generally adopt a cooperative approach to negotiating, hoping to build System Value and also to maintain a positive relationship with the other party
- When claiming value, it is important to understand the impact of trading off different deal terms
  - Companies that have invested in automated valuation models will have an advantage in rapidly testing various alternatives that maintain expected value

# Question and Answer Period

Possible Topics from the Audience:

- What functions are normally represented in the Multinational's negotiation team
- How are business development teams evaluated by their management for salary increases and bonuses
- What kind of training do negotiators get prior to entering their first real negotiation

This is your chance to ask any questions about the Multinational Companies!

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