Forecasting strategies and success factors

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Today’s presenters

Speakers

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Ernst & Young LLP

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Ernst & Young LLP

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Parthenon-EY
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Agenda

Forecasting strategies and success factors

► What is strategic forecasting?
► Forecasting markets and revenue
► Modeling value and risk
► Commercial due diligence
Strategic forecasting
What is strategic forecasting?

<table>
<thead>
<tr>
<th>Planning purpose</th>
<th>Time frame</th>
<th>Key outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term strategic plan:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market evolution</td>
<td>5- to 10-year annual forecast</td>
<td>Product decision-making</td>
</tr>
<tr>
<td>New products</td>
<td>Typically generated annually</td>
<td>Portfolio plan</td>
</tr>
<tr>
<td>New competitors</td>
<td>May be updated off-cycle in the event of a major change in market or company</td>
<td>Pipeline optimization</td>
</tr>
<tr>
<td>New business development</td>
<td></td>
<td>Licensing and acquisition</td>
</tr>
<tr>
<td>Pre-launch planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term tactical plan:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget planning and revisions</td>
<td>1- to 2-year monthly forecast</td>
<td>Budget and revisions</td>
</tr>
<tr>
<td>Manufacturing and demand planning</td>
<td>Typically generated annually</td>
<td>Operational plan</td>
</tr>
<tr>
<td>Developing sales targets</td>
<td>Updated periodically throughout the year</td>
<td>Salesforce plan</td>
</tr>
<tr>
<td>Post-launch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forecasting for strategic planning</td>
<td>Annual forecast model</td>
<td></td>
</tr>
<tr>
<td>Forecasting for business planning</td>
<td>Monthly forecast model</td>
<td></td>
</tr>
<tr>
<td>Tracking/analytics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Strategic forecasting
Key inputs and analyses for clinical program forecasting

Secondary research

- Historical market trends
- Epidemiology
- Current treatments
- Competitive launches
- Treatment path and settings
- Analogous markets and products
- Pricing of comparable products
- Reimbursement restrictions

Primary research

- Patient flow and referral patterns
- Multi-stakeholder unmet needs
- Switching behavior
- Pricing, reimbursement, co-pays
- Evidence thresholds
- Product perceptions
- Willingness to pay
- Expected adoption

Market analysis

- Segmentation
- Market size
- Growth
- Competitive intensity

Scenario analysis

- Market
- Competition
- Clinical results
- Reimbursement

Adoption analysis

- Adoption rate
- Therapy duration
- Adherence
- Relative share
- Price sensitivity

Market model

Revenue model
Pre-launch forecasting
Wide range of inputs and analyses for launch planning

**Market analysis**
- Historical market trends
- Competitive intelligence
- Analogous markets

**Secondary research**
- Epidemiology
- Treatment settings

**Claims/EMR analysis**
- Patient flow
- Switching behavior

**Primary research**
- Qualitative PMR
- Quantitative PMR

**Belief and behavioral modeling and segmentation**
- Unmet needs
- Buying process
- Adoption attitudes
- Uptake velocity
- Referral patterns
- Treatment paths
- Pre-authorization, step edits
- Patient flow
- Co-pays
- Rejection rates substitution
- Pricing/margins
- Patient economics
- Pricing
- Rejection rates
- Substitution
- Fill rates
- Co-pays
- Rejection rates
- Substitution
- Pricing/margins
- Patient economics
- Pricing

**Forecasting**

**Product revenue**
- Competition
- Market share
- Source of business (physicians, patients, payers, channels, competitors)
- Pricing

**Financials**
- Profit and loss
- Cash flows
- Valuation
- Scenarios

**Operational plans**
- Manufacturing
- Distribution and stocking
- Salesforce plan
- Financing

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Forecasting to drive decision-making
Optimally positioning to maximize value of newly launched products

Market analysis
- Secondary research
- Claims/EMR analysis
- Primary research

Beliefs and behaviors
- Physician
- Patient
- Payer
- Pharmacy

Forecasting
- Product revenue
- Financials
- Operational plans

Tracking
- Positioning and messaging
- Segment uptake
- Competitor response
- Sales metrics

Inform
- Natural market position
- Positioning and messaging
- Pricing, reimbursement, contracting
- Regulatory and REMS strategy
- Distribution channel strategy
- Stocking and sampling strategy
- Medical communications plan
- Salesforce sizing and structure

Optimize
- Base product value
- Alternatives
- Investment (e.g., price, promotion)
- Impact (e.g., share by segment share, price by channel)
- Incremental ROI
- Collective ROI
Forecasting strategies and success factors

► What is strategic forecasting?
► Forecasting markets and revenue
► Modeling value and risk
► Commercial due diligence
Product forecast success factors

- Quality of assumptions
- Quality of analytic framework
- Organizational alignment
- Governance and accountability
- Continuous feedback
Key forecasting success factors:

- Determine the level of driver detail
- Understand interdependent variables
- Leverage diversified information sources
- Think like the competition
- Think like the payer
- Leverage data analytics

Market modeling:

- Addressable market
- Patients
- Degree of segmentation
- Competitive landscape

Revenue forecasting:

- Market access
- Adoption
- Pricing

Value assessment:

- COGS
- Marketing and sales
Quality of assumptions
Level of driver detail

Key forecast drivers

<table>
<thead>
<tr>
<th>Population</th>
<th>Number of competitors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epidemiology</strong></td>
<td>Understand market position of each competitor, order of entry and objectives</td>
</tr>
<tr>
<td>Incidence or prevalence for a given disease state</td>
<td></td>
</tr>
<tr>
<td><strong>Symptomatic rate</strong></td>
<td>Launch date</td>
</tr>
<tr>
<td>Percentage of patients with a given disease state that are symptomatic</td>
<td>Understand how timing of launch date can impact peak share and uptake</td>
</tr>
<tr>
<td><strong>Diagnosis rate</strong></td>
<td>Launch date</td>
</tr>
<tr>
<td>Percentage of symptomatic patients who are correctly diagnosed</td>
<td>Need to understand the time required to launch, contemplating government regulations and payer review and negotiation processes</td>
</tr>
<tr>
<td><strong>Access rate</strong></td>
<td>Order of entry</td>
</tr>
<tr>
<td>Percentage of diagnosed patients who have access to health care and pharmaceuticals</td>
<td>What is the organization’s entry order relative to competition?</td>
</tr>
<tr>
<td><strong>Drug treatment rate</strong></td>
<td>Peak market share</td>
</tr>
<tr>
<td>Percentage of diagnosed patients with access who are treated with the indicated drug</td>
<td>Maximum volume expected</td>
</tr>
<tr>
<td><strong>Drug-treated patients</strong></td>
<td>Uptake curve</td>
</tr>
<tr>
<td></td>
<td>More science than art</td>
</tr>
<tr>
<td></td>
<td>Different across markets, therapeutic areas, products</td>
</tr>
</tbody>
</table>

Market segmentation

- Gender
- Class of therapy
- Indication
- Treatment site
- Disease severity
- Race
- Country
- Physician specialty

Uptake curve

- Peak share
- Product launch
- Time

Sales volume

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Quality of assumptions
Understand interdependent business drivers

- Pricing >>> Peak market share
- Pricing >>> Uptake curve
- Pricing >>> Reimbursement
- Pricing >>> Cannibalization
- Pricing >>> Compliance
- Pricing >>> Persistence

- Reimbursement >>> Peak market share
- Reimbursement >>> Uptake curve

- Marketing >>> Peak market share
- Marketing >>> Uptake curve

- Competition >>> Peak market share
- Competition >>> Uptake curve
- Competition >>> Pricing

- Time to market >>> Peak market share
- Time to market >>> Uptake curve
- Time to market >>> Pricing
Quality of assumptions
Leverage diversified information sources

► Internal empirical data and experience
► Proprietary market research
► Third-party market research
  ▶ WHO, IMS, DRI, BLS, Symphony Health, CDC, ISR, Cohen, US Census Bureau, National Health Surveys
► Salesforce intelligence
► Health economics and outcomes research (HEOR) team
► Managed care team
► PBM research
► Peer-to-peer networks
► Life sciences data hubs
► Key opinion leaders (KOLs)
► Social media
► Experience ("gut")
Quality of assumptions
Leverage diversified information sources: example

Real-world adoption curve archetypes

Successful asset

Typical asset

Transformational asset

2016 example assumptions

Unmet need
► Acceptable SOC but better outcomes desired (e.g., IBD)
► SOC is established (e.g., HTN – Entresto)
► Significant unmet need exists (e.g., Hep C – Sovaldi)

Efficacy differentiation
► Solid proof, but modest differentiation from SOC
► Proof of efficacy advantage is questionable to SOC
► Proof of efficacy is convincing vs. SOC

Safety differentiation
► Proof of clear safety differentiation from SOC
► Similar to modest safety differentiation from SOC
► Similar to superior safety differentiation from SOC

Pricing vs. unmet need
► Modest pricing premium allowable as a second- or third-line therapy
► Pricing premium not supported and associated with payer restrictions
► Pricing premium criticized but accepted

Real-world evidence needs
► Real-world evidence essential for access
► Real-world evidence essential for access
► Real-world evidence necessary to defend share
Quality of assumptions
Think like the competition

► Competitive formulary position
► Competitive technology position
► Competitive market access position
► Pricing
► Marketing spend
► Strategic direction
Quality of assumptions
Think like a payer

Payers now have a very large and direct influence on what drugs are included on formulary lists and the reimbursement rates for those drugs

► What criteria are important to the payer for formularies (i.e., how does a drug get on the payer’s formulary list?)
► What is the economic value of the formulary
  ► What outcomes will actually be achieved for the patient population?
  ► What outcomes have already been achieved?
  ► What is the rationale for a product’s price point?
  ► Which product attributes justify a premium price?
  ► What is the patient’s ability to pay? Willingness to pay?
  ► What is the product value both at the launch and throughout a product’s life cycle via an integrated value story?
► What type of customer is the payer focused on (Medicare, Medicaid, other)?
► What line of business is the payer focused on (pharmacy benefits management, specialty pharma, other)?
► What is the financial condition of the payer?
► What does the negotiation process for the payer look like?
Pre-launch forecasting
Wide range of inputs and analyses for launch planning

Market analysis
- Historical market trends
- Competitive intelligence
- Analogous markets

Secondary research
- Epidemiology
- Treatment settings

Claims/EMR analysis
- Patient flow
- Switching behavior

Primary research
- Qualitative PMR
- Quantitative PMR

Belief and behavioral modeling and segmentation
- Unmet needs
- Socioeconomics
- Attitudes and beliefs

Forecasting
- Product revenue
  - Competition
  - Market share
  - Source of business (physicians, patients, payers, channels, competitors)
  - Pricing
- Financials
  - Profit and loss
  - Cash flows
  - Valuation
  - Scenarios
- Operational plans
  - Manufacturing
  - Distribution and stocking
  - Salesforce plan
  - Financing

Product revenue
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Unmet needs
- Buying process
- Adoption attitudes
- Uptake velocity

Referral patterns
- Treatment paths

Patient flow
- Pre-authorization, step edits

Patient
- Co-pays
- Fill rates

Payer
- Rejection rates
- Rejection rates substitution
- Pricing/margins
- Patient economics

Pharmacy
- Pricing/margins

Physician
- Referral patterns

Treatment settings
- Patient flow
- Switching behavior

Epidemiology
- Contracting
- Bundling
- Health economics
- Disease-management protocols

Historical market trends
- Analogous markets

Competitive intelligence
- Source of business
- Pricing

Analogous markets
- Epidemiology
- Treatment settings

Epidemiology
- Contracting
- Bundling
- Health economics
- Disease-management protocols

Historical market trends
- Analogous markets

Competitive intelligence
- Source of business
- Pricing

Analogous markets
- Epidemiology
- Treatment settings
Quality of assumptions
Leverage data analytics

## Analytics spectrum

<table>
<thead>
<tr>
<th>Business intelligence</th>
<th>Basic statistics</th>
<th>Intermediate statistics and analytics</th>
<th>Advanced analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data acquisition</td>
<td>Data profiling</td>
<td>Data mining</td>
<td>Descriptive statistics</td>
</tr>
</tbody>
</table>

### Analysis Examples

<table>
<thead>
<tr>
<th>Extraction, transport and load</th>
<th>Aggregation and categorization</th>
<th>Pattern and outlier detection</th>
<th>Central tendency, correlation</th>
<th>Regression, advanced visualization</th>
<th>Predictive modeling</th>
<th>Simulation</th>
<th>Optimization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulling historical data from disparate systems, sources, formats and differing levels of detail. This type of analysis provides a common denominator for data points to make a related comparison.</td>
<td>Profiling like data into meaningful groups, categories, relationships, behaviors and trends.</td>
<td>Based on historical trends, data is identified by common characteristics, outliers and patterns.</td>
<td>Basic statistical reference gives an understanding of predictability, stability, uncertainty and influence, providing a baseline for developing decision models.</td>
<td>The visual exploration of large, complex data sets focused on the discovery of trends, relationships and outliers.</td>
<td>Statistical models based on historical data that can predict future outcomes based on past trends.</td>
<td>Simulates a range of outcomes (scenarios) by incorporating a range of distribution around key model inputs.</td>
<td>Identifies the optimal course of action using mathematical optimization techniques coupled with input and output constraints</td>
</tr>
</tbody>
</table>
Quality of analytic framework
Employs best practices in design

- **Transparency**
  - Clear audit trail
  - Powerful but clear formulae
  - Built-in visual error checking
  - Inputs clearly separated from outputs and calculations
  - Modular construction

- **Flexibility**
  - Driver-based inputs
  - Selectors to facilitate higher- or lower level analysis as needed
  - Sensitivities and “what-if” Analysis
  - Scenarios

- **Robustness**
  - Interactive management dashboard
  - Interactive risk dashboard
  - Interactive scenario dashboard
  - Integrated financial statements
  - Value bridges
  - Data visualization
  - Management reports

- **Access**
  - Excel
  - SharePoint
  - Access
  - SQL server
  - Power BI

Quality of analytic framework
Employs best practices in design
Forecasting strategies and success factors
► What is strategic forecasting?
► Forecasting markets and revenue
► Modeling value and risk
► Commercial due diligence
Measuring and visualizing value
Analytical frameworks

► Measures of value
  ► Profitability/profitability growth
  ► Revenue/revenue growth
  ► NPV, ENPV
  ► IRR, EIRR
  ► Return on equity
  ► Return on capital employed
  ► Return on invested capital
  ► Accretion/dilution

► Visualization of value
  ► Value walk
  ► Trend charts

Economic value
and
value to the organization

Change in estimated enterprise value (DCF method @ 20% discount rate)

Enterprise Value ($000s)

- Mgmt case
- Market share decline
- Price decline
- Distribution costs
- Launch delay
- Market case
- New competitors
- Favorable payer consideration
- Decline in patient compliance
- Price decline
- Low case

1,602
250
170
81
125
975
80
120
25
75
915

Margin trends

Q1 2015
Q2 2015
Q3 2015
Q1 2016
Q2 2016
Q3 2016
Q1 2017
Q2 2017
Q3 2017
Q1 2018
Q2 2018
Q3 2018

-70%
-60%
-50%
-40%
-30%
-20%
-10%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

Gross Margin
EBITDA Margin
Net Income Margin

* EBITDA = Earnings before interest taxes depreciation & amortization
## Understanding and visualizing risk

### Analytical frameworks

<table>
<thead>
<tr>
<th>Tools for understanding risk</th>
<th>Visualization of risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenarios</td>
<td>Risk/return dashboard</td>
</tr>
<tr>
<td>Sensitivities</td>
<td>Scenario dashboard</td>
</tr>
<tr>
<td>ENPV</td>
<td>Value walk comparative</td>
</tr>
<tr>
<td>EIRR</td>
<td>Scenario comparative</td>
</tr>
<tr>
<td>Discount rate</td>
<td>Tornado chart</td>
</tr>
</tbody>
</table>

---
### Understanding and visualizing risk
The three S’s of risk assessment

<table>
<thead>
<tr>
<th>Risk assessment</th>
<th>Pros</th>
<th>Cons</th>
<th>When to use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensitivity</strong></td>
<td>▶ Can focus attention on high-risk variables</td>
<td>▶ May fail to capture key interrelationships between variables</td>
<td>▶ Searching for high-impact variables (cost of capital, peak adoption) ▶ Conducting break-even analysis focused on individual variables</td>
</tr>
<tr>
<td><strong>Scenario</strong></td>
<td>▶ Enables you to capture interrelationship between variables</td>
<td>▶ May overstate downside risk and upside potential</td>
<td>▶ To reflect outcomes for a combination of variables ▶ Useful for modeling demand variability</td>
</tr>
<tr>
<td><strong>Simulation</strong></td>
<td>▶ Reflects the full range of outcomes and related probabilities</td>
<td>▶ Is only as good as the underlying assumptions, including distribution of variables</td>
<td>▶ Useful for selecting a few high-impact variables with significant interrelationships ▶ Requires basis in history or expectations</td>
</tr>
</tbody>
</table>
Quality of analytic framework
Helps the organization understand risk

► Tools for understanding risk
  ► Scenarios
  ► Sensitivities
  ► ENPV
  ► EIRR
  ► Discount rate

► Visualization of risk
  ► Risk/return dashboard
  ► Scenario dashboard
  ► Value walk comparative
  ► Scenario comparative
  ► Tornado chart

NPV | Probability | ENPV
---|-------------|------
High 500 | X 20% | 100
Expected 400 | X 50% | 200
Low 300 | X 30% | 90
100% | 390

Expected NPV
Discount rate considerations

- A formulary’s cost of capital depends on the riskiness of the project, and not the firm’s overall hurdle rate.
- Assets should be evaluated with an appropriate cost of capital for each individual formulary, based on its particular risk characteristics.

![Diagram showing the relationship between WACC, risk, and NPV products.]

- Incorrectly rejected, positive NPV products: \( \text{risk} > \text{return} \)
- Incorrectly accepted, negative NPV products: \( \text{return} > \text{risk} \)
- Correctly rejected, negative NPV products: \( \text{risk} > \text{return} \)
- Correctly accepted, positive NPV products: \( \text{return} > \text{risk} \)

Quality of analytic framework
Helps the organization understand risk
Quality of analytic framework
Helps the organization understand risk

Tools for understanding risk
- Scenarios
- Sensitivities
- ENPV
- EIRR
- Discount rate

Visualization of risk
- Risk/return dashboard
- Scenario dashboard
- Value walk comparative
- Scenario comparative
- Tornado chart

### 1. Risk dashboard

<table>
<thead>
<tr>
<th>Pugh Matrix Rating</th>
<th>207.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Fit/Value Creation/Feasibility/Risk</td>
<td>Moderate</td>
</tr>
<tr>
<td>107.0</td>
<td>53.0</td>
</tr>
</tbody>
</table>

#### Qualitative Risk Rating

<table>
<thead>
<tr>
<th>Risk Type</th>
<th>Rating</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement risk?</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Commercial risk?</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Engineering risk?</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Strategic risk?</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Legal risk?</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Financial risk?</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Regulatory risk?</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Production risk?</td>
<td>5.0</td>
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</tr>
</tbody>
</table>

#### Pugh Matrix Heat Map

<table>
<thead>
<tr>
<th>Strategic Fit:</th>
<th>Row score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows for continued operations</td>
<td>45.0</td>
</tr>
<tr>
<td>Improves customer satisfaction</td>
<td>5.0</td>
</tr>
<tr>
<td>Enables a higher capacity utilization to drive cost reduction</td>
<td>24.0</td>
</tr>
<tr>
<td>Allows for customer expansion</td>
<td>18.0</td>
</tr>
<tr>
<td>Aligns with our footprint strategy</td>
<td>15.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value Creation:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivers Economic Profit</td>
<td>3.0</td>
</tr>
<tr>
<td>Short payback period</td>
<td>30.0</td>
</tr>
<tr>
<td>Has positive cash flow</td>
<td>20.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feasibility/Risk:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumptions are predictable and reliable</td>
<td>16.0</td>
</tr>
<tr>
<td>Reduces a significant business risk</td>
<td>27.0</td>
</tr>
<tr>
<td>Ease of implementation; ability to execute</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Total score** 207.0
Tools for understanding risk

- Scenarios
- Sensitivities
- ENPV
- EIRR
- Discount rate

Visualization of risk

- Risk/return dashboard
- Scenario dashboard
- Value walk comparative
- Scenario comparative
- Tornado chart

Quality of analytic framework
Helps the organization understand risk
Quality of analytic framework
Helps the organization understand risk

Tools for understanding risk
- Scenarios
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Visualization of risk
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Change in enterprise value ($000s)

Price:
- 5% decrease: (25)
- 5% increase: 35

Time to launch:
- 5% decrease: (20)
- 5% increase: 18

Access rate:
- 5% decrease: (15)
- 5% increase: 15

Reimbursement rate:
- 5% decrease: (10)
- 5% increase: 20

Persistence:
- 5% decrease: (11)
- 5% increase: 11

Marketing spend:
- 5% decrease: (10)
- 5% increase: 10

Gross to net adjustments:
- 5% decrease: (9)
- 5% increase: 9

Supply cost:
- 5% decrease: (5)
- 5% increase: 5

Other:
- 5% decrease: 0
- 5% increase: 0

+- 5% change in key variables
- 5% decrease
- 5% increase
Forecasting strategies and success factors

► What is strategic forecasting?
► Forecasting markets and revenue
► Modeling value and risk
► Commercial due diligence
### Forecasting for deal diligence
Proactive “pre-diligence” on markets and companies

#### Proactive pre-transaction market and target assessment

**Proactive market assessment**
- Identify attractive adjacent disease areas
- Evaluate competition, pricing, promotional synergies
- Understand treatment paths, unmet needs and threshold performance requirements
- Evaluate disruptive technologies, products, patents
- Develop informed perspectives on clinical feasibility and outcomes

**Preliminary target assessment**
- Identify and evaluate potential licensing or acquisition candidates in targeted disease areas
- Profile and prioritize products and companies

#### Product and company transaction diligence

**Commercial due diligence**
- Perform secondary and primary research on targets
- Test product profile with physicians, payers, patients
- Assess competitive landscape and likely adoption
- Evaluate product economics, likely reimbursement and market access plan
- Define optimal product positioning
- Validate clinical/regulatory path
- Identify key risks and mitigation strategies

**Forecast growth potential of marketed and pipeline competitors by therapeutic class**

**Forecast revenues under alternative market and product scenarios**

**Asset value and deal model**
- Model asset value (risk-adjusted NPV of free cash flows)
- Analyze and benchmark analogous deals
- Model transaction economics and alternative structures
- Evaluate deal terms under different scenarios
## Forecasting for Deal Due Diligence

Acquisitions require perspective on full portfolio and expansion options

<table>
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<tr>
<th>Sources of strategic value of a target</th>
<th>Discovery</th>
<th>Preclinical</th>
<th>Early clinical</th>
<th>Late clinical</th>
<th>Commercial</th>
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<td>Platform technology potential</td>
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<td>Preclinical pipeline potential</td>
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<td>Core assets in Core indications</td>
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<td>Non-core assets</td>
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<td>Non-core indications</td>
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<td>Life cycle extensions</td>
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<td>Additional inorganic franchise</td>
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<td>expansion options</td>
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<tr>
<th>Critical value drivers for due diligence</th>
<th>Platform and pipeline potential</th>
<th>Core commercial potential</th>
<th>Franchise expansion</th>
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<td>Technology disruptive potential</td>
<td>Competitive landscape and differentiation</td>
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<td>Technical and clinical KOL insights</td>
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<td>Product positioning and adoption by segment</td>
<td>Follow-on L&amp;A options</td>
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</table>
Forecasting for deal diligence
Tight timetables require focus on high-impact value drivers

Week 1
Week 2
Week 3
Week 4
Week 5
Week 6

**Full scale strategic and commercial diligence**
- Target has a large, complex portfolio of commercial and pipeline assets including new markets for acquirer
- Ongoing deal process allows multiple weeks of effort prior to finalizing bid

**Limited strategic and commercial diligence**
- Target has a limited portfolio with a select number of assets driving deal value
- Evaluate selected assets via primary research and sensitivity analysis

**Targeted due diligence**
- Thorough diligence on one or two lead assets
- Typical private equity diligence

**Focused, issues-based diligence**
- Targeted research on biggest risks to deal value
- In-depth interviews with KOLs, payers or other experts
- Secondary research, literature reviews or other secondary data analysis
Forecasting for deal due diligence
Structuring transactions to mitigate and share risks

► Sharing developmental and commercial risks and costs
► Share increase use of options in alliances and M&A
  ► Option-based product licensing deals
  ► Equity options on early-stage companies
► Evaluate contingent consideration tied to milestones
  ► Milestones in alliances ranging from regulatory to reimbursement and revenue
  ► Structured deals with contingent payouts, whether contractual or contingent value rights (CVRs)
► Consider corporate venture capital (VC) and/or VC co-investment in early-stage assets
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