



Portfolio Management

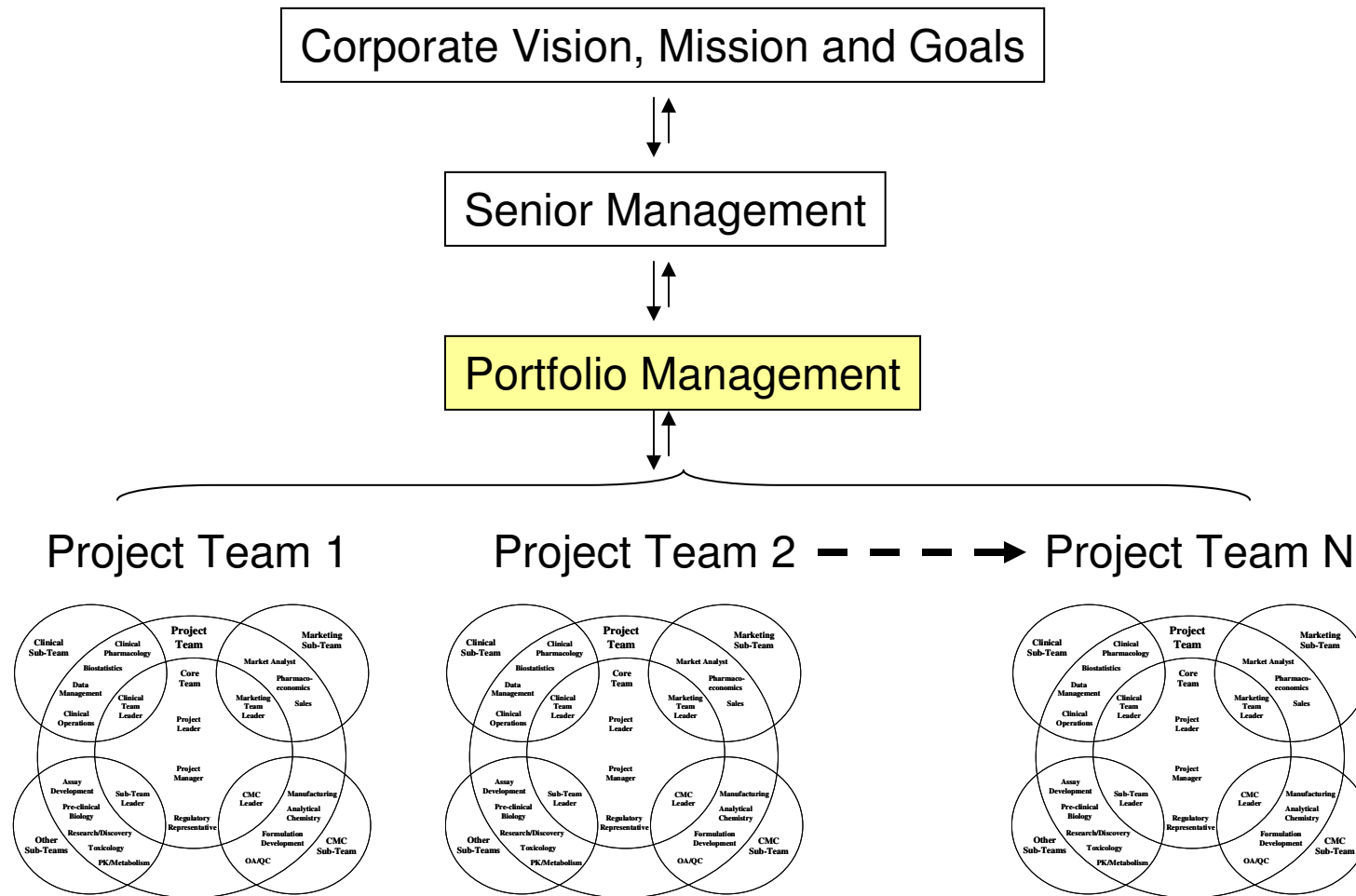
Where Science Meets Business

Patrick Grogan

Sr. Director, Strategic Planning

BD Biosciences

My Role In The New Product Development Process



Despite Patent And Healthcare Cost Containment Pressures Drug Development Continues To Thrive.....

A profitable growth company, **Genentech** has a strong and diverse pipeline with more than 100 projects in development. Our total operating revenues for 2007 were approximately **\$11.7 billion**, an increase of 26 percent from 2006, with total U.S. product sales of approximately \$8.5 billion, a 19 percent increase from 2006.

For the first nine months of 2008, **Pfizer** recorded reported revenues of **\$36.0 billion**, an increase of 1% compared with \$35.5 billion in the same period in 2007, despite the loss of U.S. exclusivity of Norvasc (March 2007), Zyrtec (January 2008) and Camptosar (February 2008),

Novartis delivers sustained strong performance in first nine months of 2008 underpinned by accelerating growth in pharmaceuticals

- *Continuing healthcare operations build momentum in the first nine months of 2008*

- o *Net sales advance 12% (+4% in local currencies) to USD **31.4 billion**, led by Pharmaceuticals and double-digit growth in Vaccines and Diagnostics*

- o *Operating income up 24% to USD 7.3 billion on the solid business expansion, enhanced productivity and currency benefits*

- o *Net income up 19% to USD 6.7 billion, impacted by a higher tax rate in 2008 and the start of financing costs for 25% Alcon investment; Basic EPS up 22% to USD 2.93*

The global pharmaceutical market is expected to show slightly slower growth this year, at a 5-6% pace, compared with 6-7% growth in 2007, according to IMS Health in its annual forecast. IMS predicts global pharmaceutical sales to grow to **\$735bn-745bn (€511bn-518bn) in 2008.**

....And Companies Continue To Invest Significantly in R&D

R&D Spending by **U.S. Biopharmaceutical Companies** Reaches Record **\$58.8 Billion** in **2007**

WASHINGTON, March 24, 2008 /PRNewswire-USNewswire/

-- America's pharmaceutical and biotechnology research companies invested a record \$58.8 billion last year in the research and development of new life-changing medicines and vaccines -- **an increase of nearly \$3 billion from 2006**, according to analyses by the Pharmaceutical Research and Manufacturers of America (PhRMA) and Burrill & Company.

Amgen's global R&D expansion is being driven by its robust pipeline. With over 45 molecules in development and an annual R&D budget of more than **U.S. \$3 billion**, Amgen remains focused on the promise of meeting unmet medical needs for patients with serious illness.

Pfizer reported adjusted research and development (R&D) expenses were **\$1.8 billion** in third-quarter 2008, an increase of 2% compared with the prior-year period.

In the second quarter of 2008 **Genentech** reported Non-GAAP R&D expenses were **\$611 million this quarter**, an 8% increase compared to Q2 2007. R&D expense was 19% of operating revenues this quarter, flat compared to last year. Consistent with our historical spending patterns, we forecast a ramp-up of our R&D spend in the second half of this year and for 2008 we continue to forecast R&D expense to be approximately 20% of revenues

Strong Revenue and R&D Investment Mask A Highly Risky Business Model That Must Change To Deliver The Promise Of The 21st Century Scientific Advances

- Fully capitalized cost of a New Chemical Entity (NCE) reaching market is \$800M to \$1B+!
- Time to market is 10 to 12 years!
- 300+ person-years of effort!
- 20+ functional skill-sets!
- 5 to 10% probability of success (Pre-Clinical testing to FDA approval)!

Thanks To Advances In Genomics And Cell Biology Research There Are An Almost Infinite Number Of Opportunities Available For Development

*Scientists at Wake Forest University Baptist Medical Center are about to embark on a **human trial to test whether a new cancer treatment will be as effective at eradicating cancer in humans as it has proven to be in mice.***

***rNAPc2 Inhibits Colorectal Cancer in Mice** through Tissue Factor*

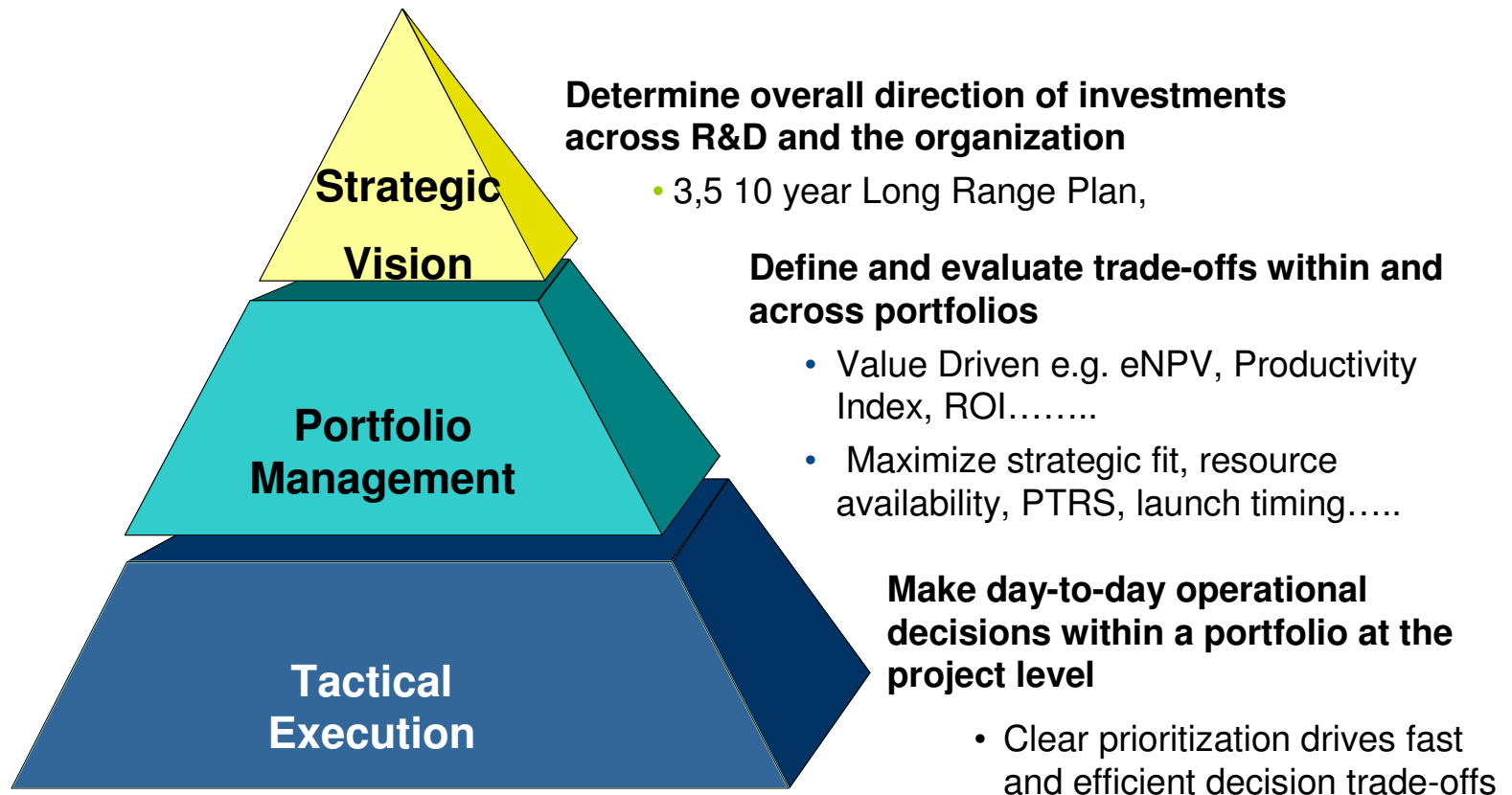
Vaccine Protects Against Prostate Cancer in Mice

Wednesday, February 13 (Reuters Health) - An experimental vaccine can provide long-term protection against prostate cancer in mice genetically predisposed to the disease, new research indicates.

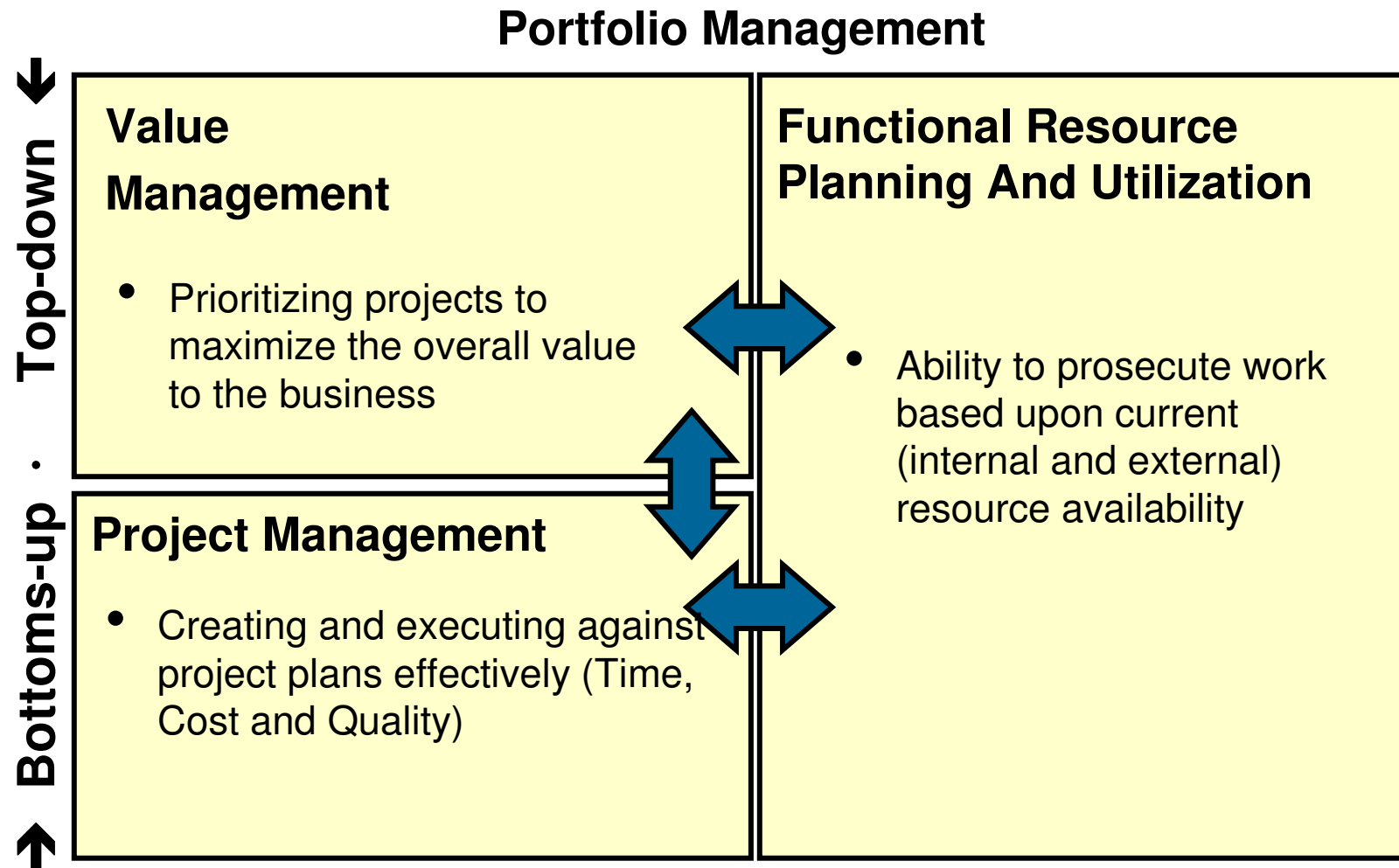
A gene** found at the scene of a variety of tumors connects with other proteins to help cause and **speed the growth of two types of treatment-resistant brain cancer, according to a recent study in mice.

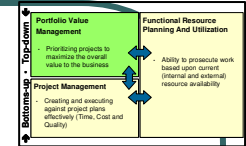
Portfolio Management Bridges The Organization's Strategic Vision With Tactical Execution

Portfolio Management can contribute to trade-off decisions at all three levels of decision-making: strategic, portfolio and tactical.



Successful Commercialization Increasingly Requires The Simultaneous Execution Of Three Interdependent Capability Sets

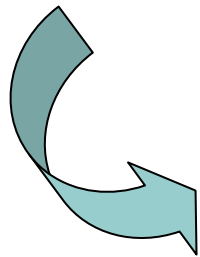




Portfolio Management Provides A Framework For Individual Project Valuation and Prioritization

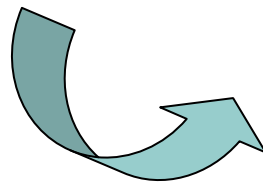
Target Product Profile(s)

- Qualitative and quantitative description of product potential
- Base/Optimistic/Pessimistic (BOP) outcomes articulated
- “Team contract” with management



Product Scenarios

- Project Schedule
- Project Cost
- Project Scope/Quality



Product Financials

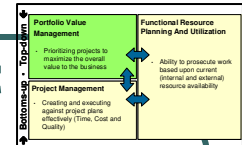
- Integrated financial analysis
- Probabability adjusted (PTRS), NPV, ROI, Productivity Index etc.

Elements Of A Target Product Profile

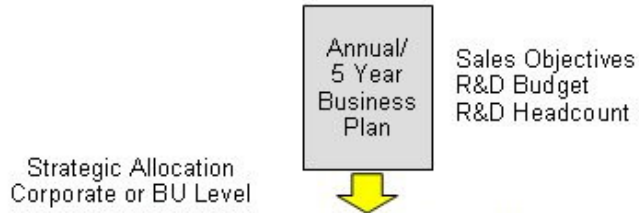
The BD FACSCanto II system will answer more questions in less time. With up to 8 colors and many automation features, it will boost the efficiency of your flow work. Compact and designed for ease-of-use, it can be fitted into any laboratory.

- Patented optical design for best detection sensitivity
- Lowest sample carryover ever at <0.1%
- Acquisition speed of 10,000 events/sec with no scatter compromise
- Fully integrated fluidics cart
- BD FACSCanto clinical software
- BD FACSDiva™ software
- 2D barcode reader option†
- Choice of two automated sample loading systems with integrated covers for operator safety
- BD FACS™ Loader with 40-tube capacity
- BD™ High Throughput Sampler for 96- and 84-well microtiter plate capacity

Portfolio Management Uses These Individual Project Valuation and Prioritization Outputs To Drive Investment Decisions



PD-Trak Portfolio Management Capabilities



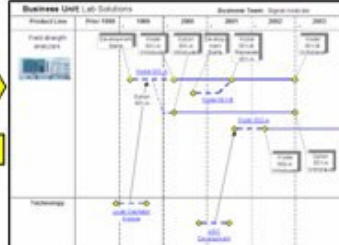
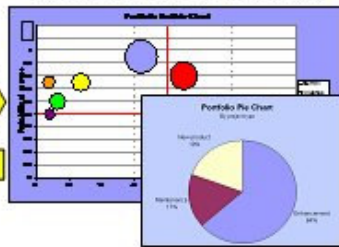
	Technology Development	New Products	Enhancements & Line Exten.	TOTAL
Business Unit A	7%	24%	4%	35%
Business Unit B	2%	16%	7%	25%
Business Unit C	0%	6%	1.1%	17%
Business Unit D	2%	14%	6%	22%
TOTAL	11%	60%	28%	99%

Master Project Schedule
Corporate or BU Portfolio Mgt.

PROJECT NAME	BU/Prod Line	PORTFOLIO INFORMATION					Score
		Project cost	Sales over life	NPV	DPI	Score	
Description	Process	Remaining cost	Profit over life	R-Factor	Prob. Of Success		
Vtnc	Technology/Standard	\$2,331k	\$29.5M	\$45.2M	32.6	80%	80.8
DWDM optical power meter	Standard	\$391k	\$23.2M	10.0	80%		
Leo	Technology/Standard	\$2,331k	\$58.5M	\$60.8M	35.3	50%	84.2
3GHz signal generator	Standard	\$861k	\$30.5M	13.1	50%		
Adps	Industrial/Standard	\$1,208k	\$13.3M	\$13.5M	1000.0	75%	82.3
High speed compressor	Standard	\$1k	\$6.9M	5.7			
Canon	Industrial/Standard	\$2,331k	\$10.5M	\$6.3M	74.5	60%	81.5
High power compressor	Standard	\$51k	\$4.0M	1.7			
Canon	Technology/Standard	\$2,331k	\$5.9M	\$2.3M	1000.0	80%	80.3
3GHz spectrum analyzer	Standard	\$1k	\$2.2M	0.9			
Adarius	Industrial/Standard	\$903k	\$6.1M	\$3.6M	19.2	75%	77.9
High power compressor	Standard	\$143k	\$2.2M	2.4			
GeminiL	Industrial/Standard	\$2,331k	\$42.1M	\$32.1M	76.2	95%	86.1
Micro compressor	Standard	\$401k	\$16.1M	6.9			
Taurus	Industrial/Standard	\$403k	\$4.6M	\$3.9M	4.9	50%	40.1
High efficiency compressor	Standard	\$403k	\$1.8M	4.5			

Scorecard Method
Development Productivity Index

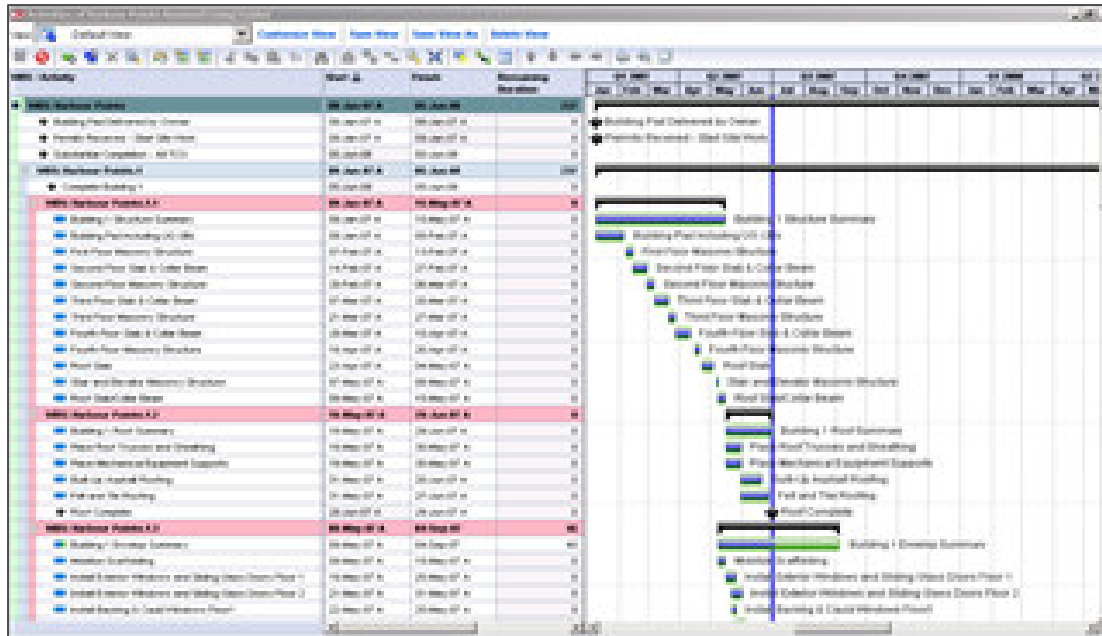
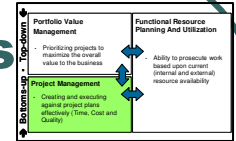
Risk-Reward Bubble Chart
Project Type Pie Chart:
Review to Ensure Balance



Roadmap: Review to Consider
Technology & Platform Relationships

- Individual product P&L's are aggregated using commercial portfolio management packages or proprietary Excel based tools
- Complex datasets are communicated to management decision makers through standard portfolio views e.g. Bubble charts, trend charts and productivity Indices.
- Successful portfolio management requires dynamic bi-directional information flow

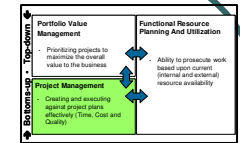
Project Management Is The Foundation That Supports Portfolio and Resource Management



- Detailed cross-functional project scheduling ensure alignment between the team, the functions and management
- Strong project managers are required to manage the critical path within a complex project extending for multiple years
- Project Management is pivotal to the success launch of a new drug candidate

Time....
 Cost....
 Quality....

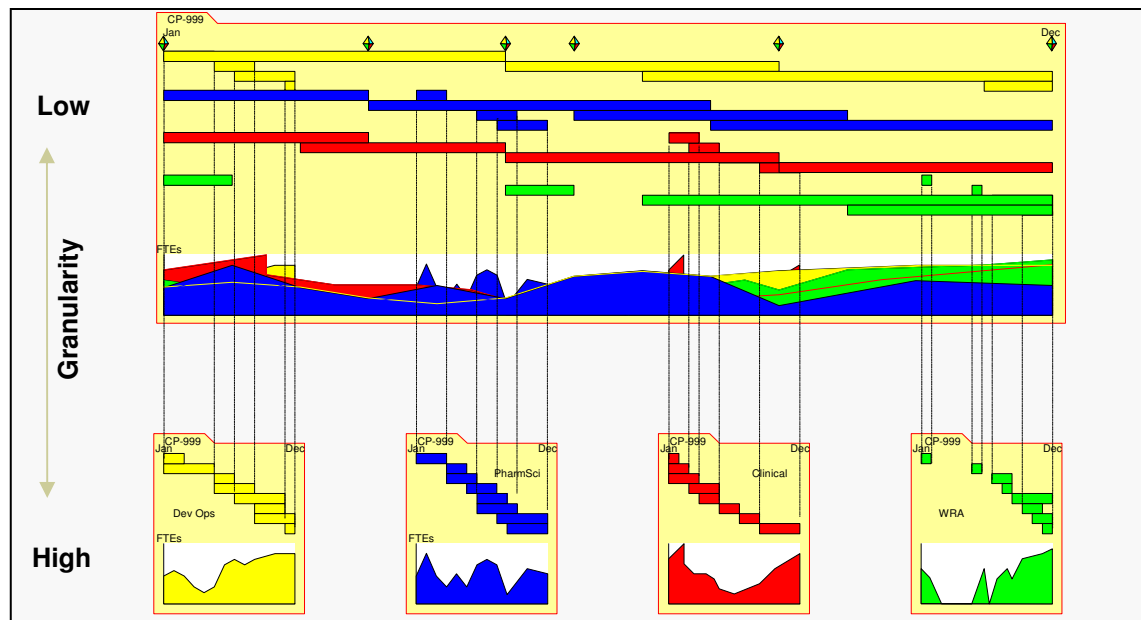
Project Management Aligns Project Team And Functional Activities With Management Milestones



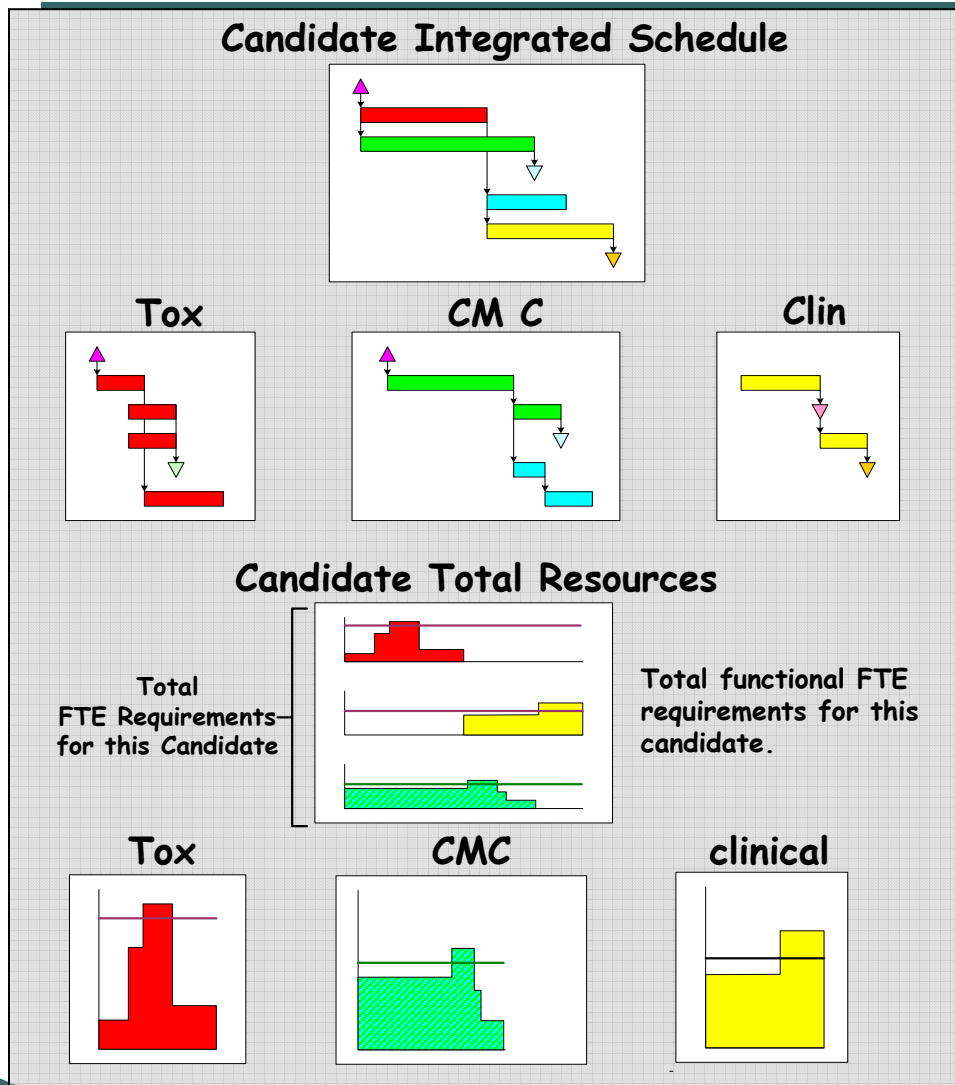
Effective project management produces high quality project plans which in turn enable effective project & resource monitoring and timely project control in order to enhance the organization's ability to deliver projects.

Activities from all functions are aligned with each other and management vision, milestones & budgets

Dynamic resource management delivers significant time and cost savings to a mature portfolio management organization



Resource Management Requires Alignment Of Functional Effort With Individual Candidate Project Plans



- The candidate project schedule is dynamically linked to functional plans
- The functional plans are resourced to deliver against the agreed schedule
- Functional capacity constraints are identified and resolved through various resource-leveling and prioritization efforts
- Multi-year planning facilitates effective budget management and forecasting

Summary

- Drug development and diagnostics projects are highly complex requiring sophisticated interactions of specialized resources over a long period of time
- Drug development portfolio management requires the simultaneous execution of three interdependent capability sets
 - Portfolio Value Management
 - Project Management
 - Functional Resource Planning And Utilization
- Continuous improvement in portfolio management practices is essential to drive the significant productivity gains required to bring new medical advances to market in a cost effective manner

Final Thought

- There is no greater reward than to know that the work you do every day is improving the quality of human health and disease survival

The patient is waiting....

What will be your role ?