Innovation Portfolio Management

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May 21, 2009
Agenda

- Background & Problem Statement
- General Structure of “Portfolio of Portfolios”
- Project Focus and Data Gathering
- Early Findings
  - Previous Work and Existing Software Tools
- Major Findings
  - Summary of September Roundtable
- Hypotheses (“Rules and Tools”)
  - Review
  - Conclusions
Background & Problem Statement

History of project:
- 2007 RoR: Challenges in R&D Portfolio Management
- **Mindmap**: Tools, Metrics, External Resources, & Allocations Among Multiple Portfolios
- Discussion & Iteration with RoR Chairs – narrow the focus

Problem statement: Portfolio of Portfolios practices less well developed than for a single portfolio

Focus: Determine best practices in Portfolio of Portfolios
General Structure of “Portfolio of Portfolios”

… One or more semi-independent portfolios funded with some degree of shared resources
Structure of a “Portfolio of Portfolios”

NPD Portfolio
• Project NPD 1
• Project NPD 2
• Project NPD 3

Central R&D or New Product Dvmt

Corporation
• Project Corp 1
• Project Corp 2
• Project Corp 3

Business Unit 1
• BU1 Portfolio
  • Project 1-1
  • Project 1-2
  • Project 1-3

Business Unit 2
• BU2 Portfolio
  • Project 2-1
  • Project 2-2
  • Project 2-3

Business Unit 3
• BU3 Portfolio
  • Project 3-1
  • Project 3-2
  • Project 3-3

IRI Annual Meeting
Boston, MA
Portfolio of Portfolios

The Management Challenge:

- Multiple portfolios have different:
  - Objectives
  - Time horizons
  - Stakeholders

- Typical of large corporations with several autonomous business units

- Applicable to short vs. long term portfolios!
Project Focus and Data Gathering
Project Focus and Data Gathering

- Collection of examples of Multiple Portfolios
- Literature Search
- Review of Software Tools
- Management Framework for Portfolio of Portfolios (PoP)
  - Governance of portfolio of portfolios
- Practitioners Roundtable in St. Louis on 9/18/08
Early Findings
Early Findings

### Literature

- **R&D Portfolio Management (PM) borrows from financial PM concepts**
- Large existing literature on Portfolio Management. Lots of theory.
- Divided into two classes of portfolios:
  - **R&D and product line portfolios** – purpose is investment allocation.
  - **Project portfolios** – IT project bias; purpose is resource balancing.
- Less journal literature on:
  - Experience using portfolios in R&D companies.
  - Managing multiple portfolios and layers of portfolios within the firm.
- Sources:
  - IRI online bibliography is extensive, but dated. 
    - Focus on R&D with surveys of company usage in mid-90s.
    - Surveys and vignettes from IRI ROR studies.
    - Most findings first published in IRI RTM articles.

### Software

- **Working group originally had interest in Portfolio Management software tools.**
  - Sought to catalog, describe and categorize all tools, and possibly make the catalog accessible and interactive on the IRI web site.
  - Considered an IRI online tool allowing practitioners to post problems and challenges and navigate to a recommended tool list.
  - However, considering IRI practitioners’ problems and challenges, the working group did not find enough established and validated tools.
- **Future work: On-line navigation from “problem to management solutions (tools)” experiences, practices and utility of companies using portfolio management for R&D.**
  - An online catalog of portfolio management problems and navigation to recommended solutions (including tools) remains a good idea.
  - Possible future ROR working group topic.
Major Findings
- Conceptual Framework
- Summary of Roundtable
## PoP Conceptual Framework

**Maturity Model is the “Z” Dimension (Immature, Intermediate, Mature)**

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<thead>
<tr>
<th>Attributes</th>
<th>Governance</th>
<th>Autonomous (Governance Model 1)</th>
<th>Hybrid (Governance Model 2)</th>
<th>Centralized (Governance Model 3)</th>
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<tbody>
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<td>Financial Valuation of PoP</td>
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<td>Transparency (Leverage &amp; Duplication Avoidance)</td>
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<td>Line Organization Appreciation / Ownership</td>
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ROR Roundtable Outline – Sept., 2008

- Each participant provides an overview of their company’s approach to R&D portfolio of portfolios management.
- Each company should use the following outline to degree possible
  1. Define the Set of R&D Portfolios That Are Relevant - What Are The Characteristics of Each
  2. Share the Goals for the Portfolio of Portfolios and Individual Portfolios
  3. Define the Rules for Making Portfolio Resource and Selection Choices, i.e. What is to be Achieved and with what constraints and trade-offs - and what variation over time?
  4. Define the Annual Process of Funding, Associated Schedules and Frequency of Reviews
  5. Define the Key Roles of Managers and Executives (individually or in groups), Metrics and Purpose/Frequency of Involvement
ROR Roundtable Agenda – Sept. 18 2008

- Overview of Project-Statement of Problem, Intent of Roundtable and Introductions (30 min)
- Individual Presentations (30 min each)
  1. Unilever
  2. IBM
  3. Boeing
  4. Weyerhaeuser
  5. SABIC
  6. Argonne National Labs
  Break
  7. Shell Global Solutions
  8. ADM Research
  9. ConocoPhillips

- Synthesis of Views, Hypotheses, Best Practices/Rationales (1-2 hours)

- Adjourn by 3 pm

8:00 am Central
8:30 am
10:00 am
10:15 am
11:45 am
12:00 pm
1:30 pm
Significant Participant Comments

- Biggest opportunity is in tradeoffs between portfolios
- Annual planning with mid-year interdivision reallocation. Monthly allocations within division
- Mixed metrics – coverage, 5 year returns, productivity, gates on time, pass ratio
- XYZ appears to have a good transparency system
- Platforms and New Product Introductions have differing measures
- Emphasis on resource allocation to themes / strategic allocation
Hypotheses - “Rules and Tools”
Overview of Hypotheses

- **Common Denominators**
  - Transparency and taxonomies
  - Characterization

- **Trade-Offs Are Complex**
  - Executive judgment
  - Optimization
  - Interdependencies

- **Uncertainties and Risk**
  - Update frequency
  - Funding
PoP Hypotheses

- Transparency is paramount; taxonomies help
  - PoP Management starts with sharing information
  - Common terms/structures ease comparisons
- Characterization is critical in key areas of risk, benefit, costs, and timing; metrics important
  - PoP Mgt is about maximization & trade-offs described in key areas above
  - Summary metrics (portfolio level) assist comparisons
PoP Hypotheses

- Blending of quantitative and qualitative trade-offs is best implemented through executive judgment
  - Trade-off analyses exceed pure quantitative inputs
  - Some critical data are judgmental
  - Blending all factors is best done by executive debate

- ‘Step-wise’ optimization is best general process
  - Maximization of benefits subject to constraints
  - Iterative pattern of PoP optimization/executive review
PoP Hypotheses

- Interdependence ‘trumps’ unit ‘sub-optimums’
  - Synergy strengthens PoPs
  - May be exceptions identified in iterations

- Uncertainties require multiple updates per year
  - Re-balancing driven by natural cycles of knowledge development
  - Re-balancing driven by new externalities

- Discretionary funding sources offset risk aversion
  - Groups avoid risk – multiples multiply \((.9)\times(.9)\)…
  - Only individual ‘pools’ with discretion offset risk aversion
    - Venture capital model
Thank you

- What questions may we answer?
07-2 Innovation Portfolio Management
The Original Mindmap – Feb 2007

Mind Map – Portfolio Management Tools

- Mgmt. Tools for Execs vs. Project Leaders?
- “Normal” vs. High-Risk, High-Return
- External Resources and Existing Literature
- Metrics: Retrospective and Prospective; Process and Results
- Software Tools; IT Support and Application Development
- Culture of Innovation; Support Organizational Goals; Define “Ideal” Organization
- ID Best-in-Class Companies Efficiently Managing Project Portfolios