

Agile Innovation: Company-University Collaborations



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Education

- PhD (EE): Software, CS, Physics
- University Governance & Management



Engineer & Architect

- BNR Computing Research Lab (CRL)
- Nortel Disruptive Technologies
- SEI Visiting Scientist (CMU)



Portfolio Manager

- Nortel Research Investments
- Qualcomm Technical Learning



Leadership & Programs

- Cisco Research Center
- HP Global University Programs
- Innovex – Innovation Consulting

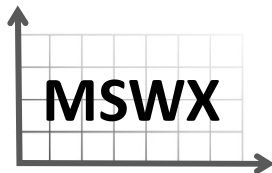


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Education

- PhD (CS): Software
- lifelong learning in large and small software organizations

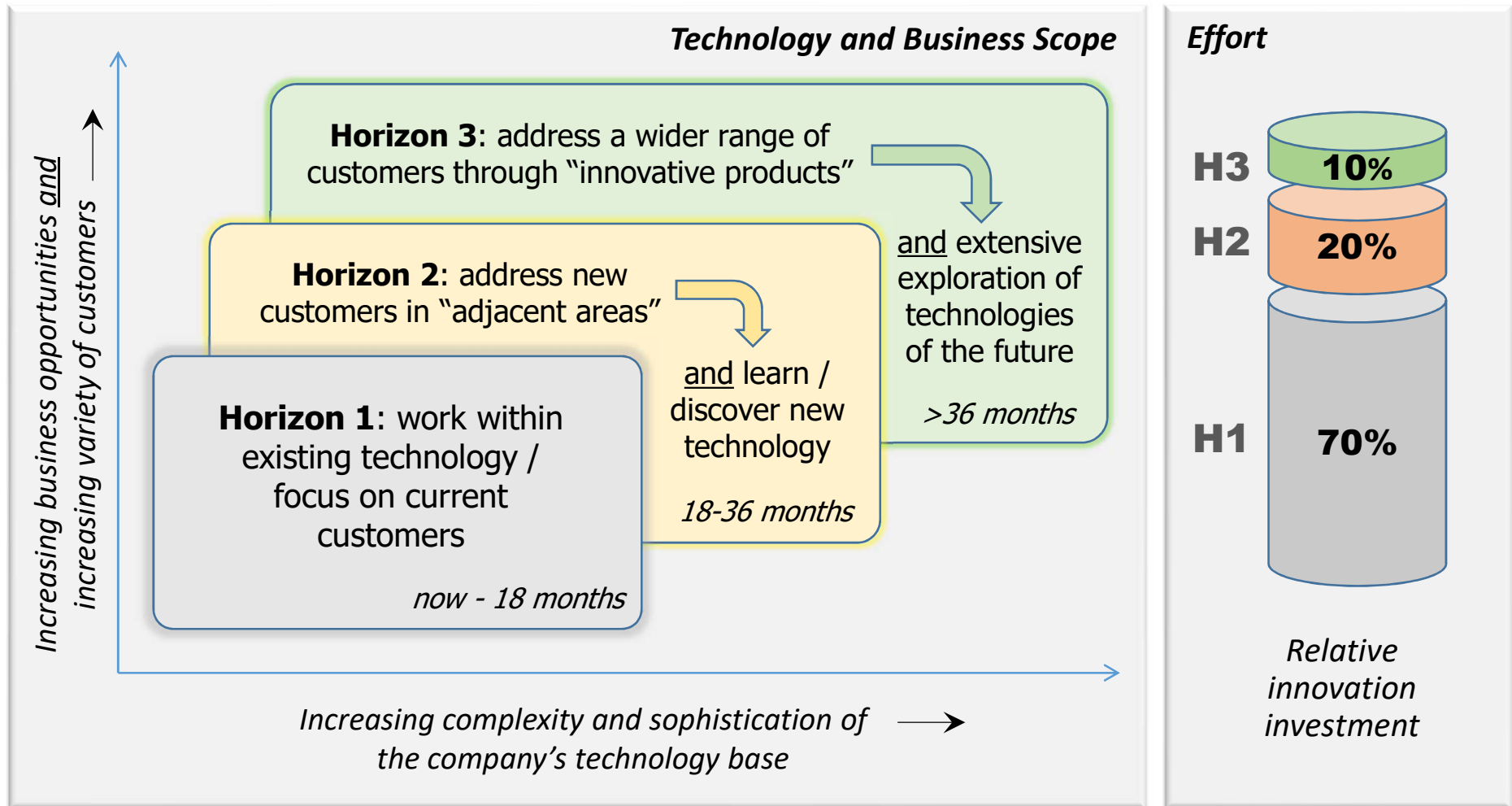
Technology Transfer experience

- Bell Labs – Software Technology Center
- C++ language, tools, and applications
- OO Design and Patterns, Requirements Models
- Legacy Software techniques
- Coaching agile development

Portfolio

- OO Design Heuristics
- Agile practices for large companies
- Architecture in an Agile World

Company H1, H2, & H3 Innovation



Who is Involved in Collaboration?

- Most of the people involved in the collaboration are “researchers”
 - university staff (research professors, teaching professors)
 - company R&D staff
- But there are many roles in the collaboration process:

University people:

- Students
- Post-docs
- Tech Transfer office
- Alumni office
- Administrators (department heads, deans, university administration)
- Infrastructure (IT, procurement, legal)

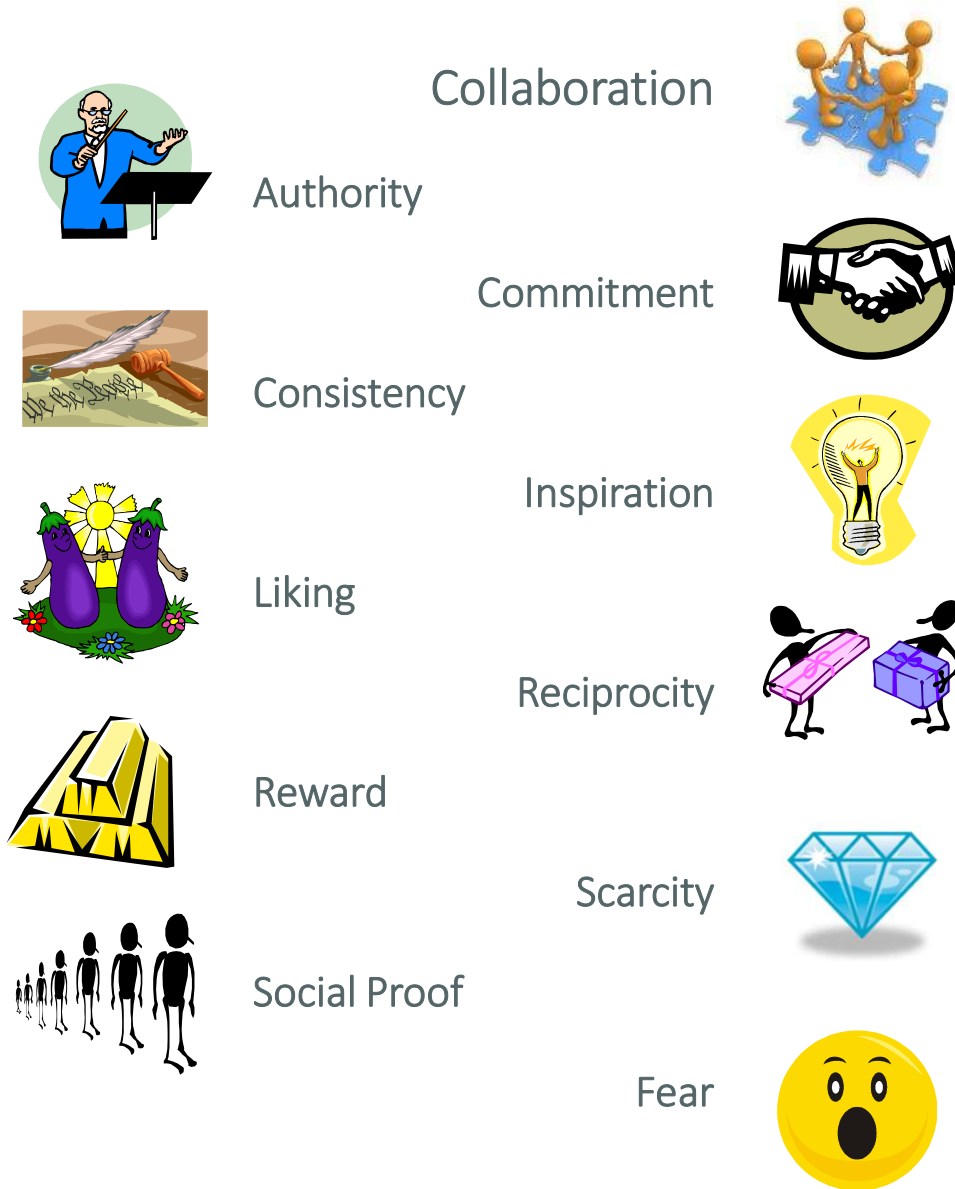
Industry people:

- R&D managers
- Business development
- Legal (contracts, compliance)
- Sales
- Marketing (brand promotion)
- Human Resources (recruiting, education & training)
- Executives, C-level leadership
- Alumni

Company View and University View

- Company benefits
 - Networking and innovation
 - Inspiration leading to growth in company IPR
 - Leverage talent and government funding
 - Partnerships and talent acquisition
- Company risks
 - Contamination of company intellectual property
 - Exposing company trade secrets
 - Investments do not translate to ROI
- University benefits
 - Networking and innovation
 - Opportunity to validate research in the real world
 - Access to industry resources and staff
 - Connections for future employment
- University risks
 - Intellectual property issues due to potential conflicts with academic values
 - Possible restrictions on publication and work with other companies (for contract research)
 - Not getting the best deal possible

Influence Strategies



- Authority (power relationship)
- Commitment (agreement)
- Consistency (go with the flow)
- Inspiration (go with a good idea)
- Liking (follow a friend)
- Reciprocity (give a gift back)
- Reward (promise a “payoff”)
- Scarcity (we like to be unique)
- Social Proof (follow the crowd)
- Fear (do it or you’ll be sorry!)

Cialdini, *Influence: Science and Practice* (2001).

Manns & Rising, *Fearless Change* (2004).

Terms of Engagement

	Consortia	Contracts	Gifts	Chairs/Fellows
Governance	Mix – Company, Pls, University Guidelines	Subject to Terms and University Guidelines	Arm's length; University Guidelines	Arm's length; University Guidelines
Project Selection	Center Selects from PI Proposals	Company Negotiates with PI/University	Company Selects from PI Proposals	PI/Student, Department, Dean, Company Proposal
Payments	Annual Fees	Payment Schedule Specified in Contract	Determined by Company	Agreed between Company & University
Term	Flexible – Often Self-Renewing	Specified in Contract	Generally Fixed term (~1 Year)	Varies: Fellow ~ 1 yr, Chair – depends on University
Strengths	Critical Mass, Tech Sensing, IPR Sharing, Publicity, Goodwill, Tax Benefit*	Tangible IPR Deliverables, Tax Benefit*	Exploration, Goodwill, Publicity, Overheads, Tax Benefit*	Talent Development, Goodwill, Tax Benefit*
Weaknesses	Expense, Lack of Influence on Project	Overhead costs, Negotiation time	Arm's Length Nature of Relationship	Lack of Tangible Results, Expense
Risks	Company IPR Contamination	Indemnification Issues, 3rd Party Rights	Ethics, Tax Issues, Compliance + Overhead Issues	Contractual Issues

PI = Principal Investigator; IPR = Intellectual Property Rights

** Possible Government Research or Philanthropic Tax Benefit*

	Research Consortia	Research Contracts	Expert Consulting	Gift Contracts	“Equipment” Donations	Chairs + Fellowships
Governance	Mix – Company; PIs; University Guidelines	Subject to Contract Terms; University Guidelines	PI Employment + University Guidelines	Arm’s length; University Guidelines	Arm’s length; University Guidelines	Arm’s length; University Guidelines
Project Selection	Center Selects from PI Proposals	Company Negotiates with PI/University	Company has close relationship with PI	Company Selects from PI Proposals	Company Initiatives + University Proposals	PI/Student; Department; Dean; Company Proposal
Payments	Annual Fees	Specified by Payment Schedule	Specified by contract (hourly; or project based)	Determined by Company	Determined by Company	Fee generally set by Department or University
Term	Flexible – Often Self-Renewing	Specified in Contract Terms	Specified in contract terms	Fixed term best (~1 Year)	Perpetuity or “loan”	Fellow ~ 1 yr; Chair – depends on University
Strengths	Critical Mass; Tech Sensing; IPR Access; Publicity; Goodwill; Tax Benefit	Tangible IPR Deliverables; Tax Benefit	PI/Consultant signs “employee agreement” for access and NDA	Exploration; Goodwill; Publicity; Overheads; Tax Benefit	Goodwill; Publicity; Benchmarking; Tax Benefit	Talent Development; Goodwill; Tax Benefit
Weaknesses	Expense; Lack of Influence on Project	Overhead costs; Negotiation time	Depends on University context; NDA issues	Arm’s Length Nature of Relationship	Arm’s Length Nature of Relationship	Lack of Tangible Results; Expense
Risks	Company IPR Contamination	Indemnification Issues; 3rd Party Rights	Indemnification Issues; 3rd Party Rights	Ethics; Tax Issues; Compliance + Overhead Issues	Ethics; Tax Issues; Compliance	Contractual Issues

Gift Agreements

Essential data:

- Purpose
- Start/end date
- Professor X, Department Y, University Z

Financial controls:

- Contacts (finance/contracts office)
- Usage of unspent funds

Compliance Issues:

- Reciprocity, discrimination, terrorists, etc.
- Reference company ethics
- Conditions for press releases/publicity
- No influence/reciprocity, etc.



Contract research

Statement of Work (SoW):

- What/When: Outline of deliverables, schedule, payments
- Who: Researchers (names, bios), conferences, travel, anticipated outcomes, budget, invoicing process, etc.

Leadership

- PI (Principal Investigator) is the primary technical contact (different from administrative contact and university designated signatory)

Handling contract problems

- Non-Exclusive research on a best-effort basis
- Term/termination details (mutual conditions)

• Ownership/Commercialization rules

- Intellectual Property – who owns what? (before, during, and after – discourage joint ownership)
 - Non-exclusive royalty free (NERF)
 - Exclusive royalty free (ERF)
- Commercialization process – patent filing, publications
- Important to note license by company subsidiaries
- World-wide nature of licenses

• University's rights

- University has a right to a NERF license of university and joint IP for research/educational use.

Contract research

Publication and publicity rules

- Publication – prepublication info to company for review a month in advance – with possible publication delays due to patenting processes
- Company may require all references to company and company proprietary info to be removed from proposed publications
- Press release conditions

Legal liability rules, privacy rules

- Warranties, Indemnification, Notices, NDAs, etc.

Things to Consider

Negotiate Payment Schedule

- Split payments by fiscal quarter
- Payments at beginning of quarter
- Confirm company funding
- Possible government matching funds
- Possible company tax benefits

Be aware of...

- Contamination of Company IPR
- NDAs have limited remedies
- Negative consequences of legal action

Contract issues

- IPR ownership/licensing/subsidiaries/etc.
- SoW/milestones/payment schedule
- Termination issues; NDA; ERF/NERF; ...
- Compliance (FCPA; SOX; IRS; ITAR; etc.)
- 3rd party ownership issues
- Appropriate authorization (University)

Gift issues

- Gift funds must be used for designated purposes
- No expectation of reciprocity
- Conflict-of-interest issues (e.g. company is both a Vendor and a Research Partner)
- Compliance (FCPA; SOX; IRS; ITAR; etc.)
- Appropriate authorization (University)

Agility

- Consider an “agile work plan”
- Adjust the planned deliverables after each research cycle
- IPR agreements must be executed prior to initiating collaboration

Company Preparations for Campus Visits



Set pre-visit objectives and plan to report and assess visit “results”



Prior to interactions – be aware of existing agreements and constraints



When planning campus visits – be aware of University “cycles”: reading weeks, exams, summer breaks, faculty retreats, etc.



Set up company-specific visits to universities.



Plan to attend Review Meetings – a chance to meet staff through mini-lectures, demos, and student poster sessions.

Consortia agreements and research contracts may have IP/NDA constraints

Pre-existing company-university agreements may enable discounts, etc.

Be aware of company IPR contamination and on-campus WiFi/resource usage issues.

While company-specific visits can be organized by departments or university “Tech Transfer Offices” – participants will often “self-select” their participation based on presumed company interests. Specialized events may represent a significant coordination overhead for university participants.

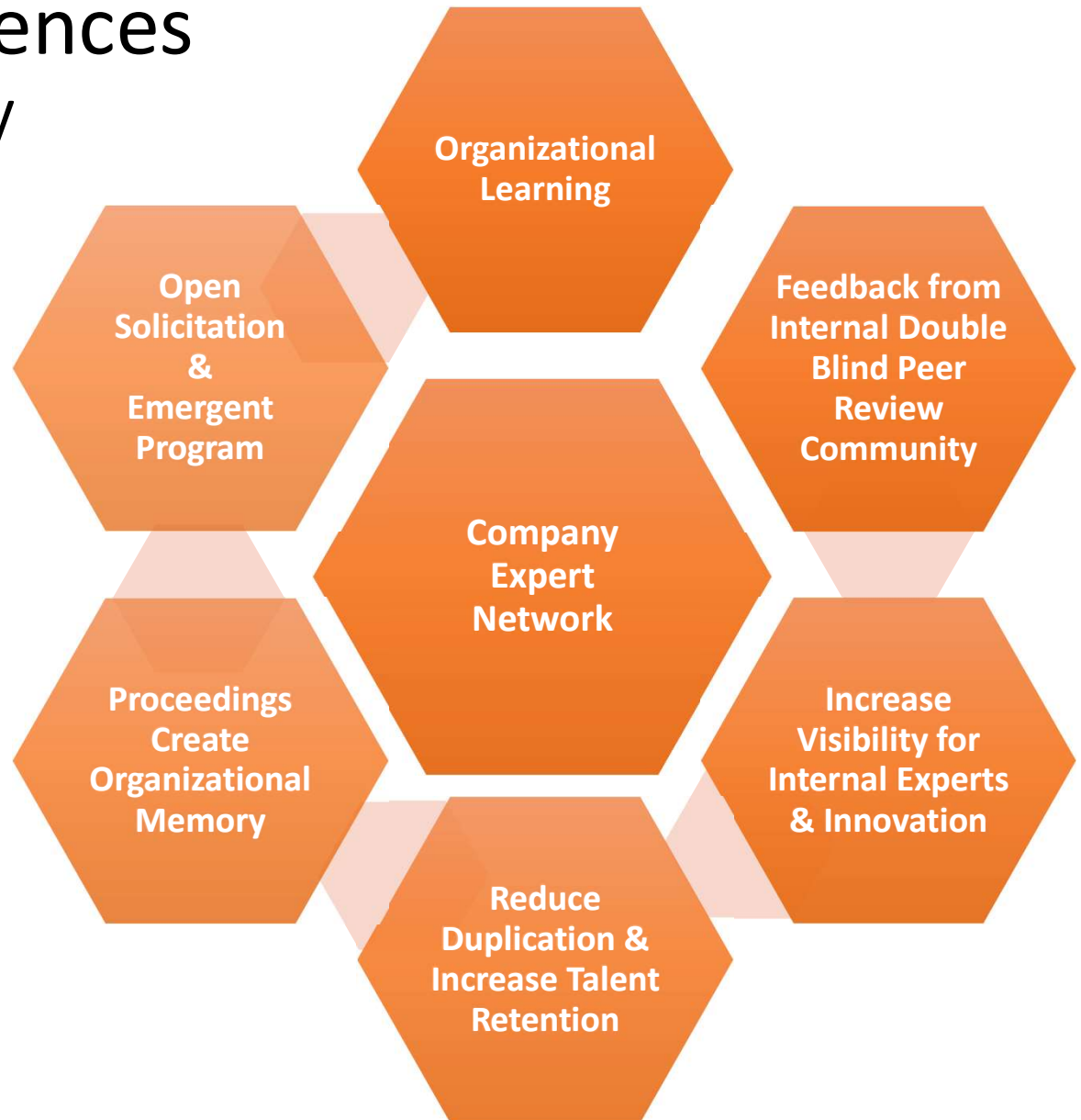
Review Meetings are organized by universities and consortia to showcase innovation and talent.

Internal Conferences

Building Community

An internal technology conference is a good way to build a community within a company...

- *Presentations on state of the art products or development techniques*
- *Panel discussions and tutorials*
- *Opportunities for informal exchange of information... decide where everyone needs help*



Cisco's PhD/Post-Doc Hiring Approaches

Role-Centric Recruiting

- Business has planned “*must fill*” role
 - Can be challenging to identify “right” candidate
 - Multiple candidates considered for one role
- Business identifies multiple candidates
 - Through referrals
 - PhD/Post-Doc candidate pool
 - Recruiter sourcing
- Business interviews candidates
 - Internal Tech Lecture
- Business selects candidate for offer

Talent-Centric Recruiting

- Candidates opportunistically identified by:
 - Company funded research
 - Referrals by professors, etc.
 - Conferences, campus visits, etc.
- “Research Center” screens interviewees, matches to 3 roles (selected from Business role pool)
- Business Managers vet candidate matches
- Candidates visit Company
 - Tech Lecture Interview with 3 teams (about 5 interviews/team)
- Candidates/Managers “match” – results in an offer to candidate

Company Champion Guidelines I

	Funding Source	
	Gift Research	Contract Research
Funding implications	For Community Good No Quid Pro Quo	Takes time to negotiate between Company and University
Company funding participation	100% “Research Center” + Business Match	50-50 “Research Center” + Business Match
Attend meetings with PI and research team	No Quid Pro Quo	Described in Contract
Set Research Direction	No	Described in Contract
Leveraging Results	If Published	Described in Contract

Company Champion Guidelines II

	Funding Source	
	Gift Research	Contract Research
Assist research, provide internal tools and/or internal data	Prohibited if early access to results or NDA required	Determined in contract
Company Sponsor is a co-author	Generally Prohibited	Determined in contract
Provide hospitality to PI and/or research team	Remain within Company guidelines AND ensure such hospitality is permitted by researcher's organization. Researchers from public universities (and other public organizations) are often subject to stricter hospitality rules.	
Overhead payments to university	~5% of award	Subject to negotiation with University (may approach 60%)
Acknowledgement in publications	Gift Acknowledged by University	Determined in contract (provides confidentiality guidelines)

Success Measures

	Gifts	Contracts/Consortia
Staff Performance Objectives	Oversight + Liaison	Close collaboration
Joint Publications	Discouraged	Encouraged
Intellectual Property Rights	None	ERF/NERF rights?
Access to Data/Technology	Depends on nature of gift	Discussions/Presentations
Product Design	Indirect impact	Direct impact
Time-to-Market	Assess indirect impact	Assess direct impact
Benchmarking/Testing	Discouraged	Encouraged
Brand/Market Impact	Depends on gift agreement	PR + Brand Visibility
Talent Acquisition	Possible	Encouraged
Tax Benefit (Gift/Research)	Gift benefit	Research credit
Tech Talks @ Company	Pre-Gift + once results public	Encouraged
Overall Company Impact	Renew – or no renewal of gift	Expand? Extend? Cut?

ERF – Exclusive Rights Royalty Free

NERF – Non-Exclusive Rights Royalty Free

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