

Allocating Risks And Rewards In Collaborative Agreements Using The Financial Structure

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Introduction

Open Innovation (“OI”) is a well-accepted methodology that allows two or more firms to combine technical and other resources to achieve their marketplace objectives. The OI relationship is called an “alliance.” The firms are often referred to as “partners,” although use of that term does not imply a partnership in a legal sense.

The purpose of this paper is to provide background in the principles of risk allocation, as guidance to those who must plan and negotiate these complex relationships. As we will show, alliances carry risks beyond those found in in-house programs. In our experience, a major portion of the energy devoted to alliance negotiations is developing a mutually acceptable allocation of those risks. Reaching a satisfactory solution is essential to completing any alliance negotiation. However, we will not discuss specific solutions to allocation problems. Solutions are situation dependent. Over many years of planning and negotiating alliance terms, we have developed many solutions to risk allocation issues starting with the principles in this paper. Those solutions would fill a good-sized volume, and we can’t address them here. Rather, planners and negotiators can use the principles discussed here as a starting point in developing solutions as they plan and negotiate specific alliances.

This paper begins with a summary of the risks inherent in an alliance. In order to keep this paper to a manageable length, we have limited our discussion of risk allocation to the financial structure. Other aspects of the alliance agreement such as intellectual property provisions also involve risk allocation; and must be considered as the alliance is planned and negotiated.

To help clarify the principles, we will use two terms to distinguish between the partners in an OI technology-based alliance:

The “market-facing partner” is the entity selling a product or service based on the work of the alliance into the next step of the relevant value-added chain. The “technology source” is the entity whose existing technology will be incorporated into one or more of the market-facing partner’s products under the alliance work program. As an example, consider an alliance between a large manufacturer of toothpaste and a smaller biotech that carry out a joint development program to incorporate the proprietary ingredient of

the biotech into toothpaste. Using these definitions, the toothpaste manufacturer is the “market-facing partner” and the biotech firm is the “technology source.”

These two definitions are somewhat over-simplified. Usually the technology in the developed product comes from both parties. Not only do both bring pre-existing technology, but both may contribute to new intellectual property created during work under the alliance. In spite of this over-simplification, the definitions are useful in understanding risks and their allocation.

We will use the word “product” to describe the output of a joint development program. The principles also apply when the partners combine resources to develop a new service.

Rewards and Risks Seen by Alliance Partners and Risk Allocation Fundamentals

A new product development program intended for marketplace rewards, carried out entirely in-house, involves well understood risks. Some of the rewards and risks in an OI alliance are the same as in an in-house development, but there are other rewards and risks unique to a relationship between two independent entities. In this section, we will discuss the rewards and risks most commonly encountered in an OI alliance. This sets the stage for the following sections, which will address the ways that both parties agree to allocate those risks through provisions in the OI agreement.

Let us first look at risks and rewards from the perspective of the market-facing partner. This is the firm that will bring the newly developed product to the next step in the value added chain.

This firm typically sees potential for two rewards from an OI alliance:

1. Revenue and profit growth beyond that expected with its present product portfolio or its straightforward extensions; and

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2. A persistent commercial advantage over competitors who will have no or limited access to the intellectual property of the technology source.

What Risks Does the Market-Facing Partner Face?

- The cooperative R&D program aimed at combining the resources of both parties to create a new product can fail, for technical shortfalls or failing to meet financial targets during development. While this risk is present regardless of the maturity of the new technology at the start of the OI alliance, the risk is greater for early stage technology. In addition, joint development requires the dedicated application of R&D resources by both parties. The technology source may not adequately carry out its development responsibilities. Especially if the source is a small firm, its key technology capability may be limited to a handful of people; who may be spread thin across several projects or may become unavailable because of resignation or illness.
- A successfully launched product may encounter disappointing customer acceptance. Revenues may be slower to grow or plateau at a lower level than anticipated.
- A superior alternate technology may emerge from a third party technology source. In entering into the OI alliance, the market-facing partner selected the technology source as its partner after deciding that source can bring the best available technology. Subsequently the technology landscape may change, and superior competing technologies may emerge from one or more third parties. A competitor of the market-facing partner may establish an alliance with such a third party to develop and market a better product, leaving the market-facing partner with products based on the second-best technology.
- The technology of the source may not prove to be adequately robust to achieve the market-facing partner's competitive strategy. In this context, we use the word "robust" to qualitatively characterize the extent to which competitors of the market-facing partner will, or will not, have access to the source's technology. A technology protected by valid, enforceable, and long-lived patent claims is robust, as is a technology characterized by non-patent proprietary technical information (*i.e.* trade secrets) that requires lengthy, difficult, and high-risk independent development by a competitor. While a competent market-facing partner will assess "robustness" prior to selecting the technology source and negotiating alliance terms, this assessment is difficult and imprecise. This risk is exacerbated by the potential for competitors to

aggressively try to invent around patent claims or independently develop trade secrets, after competitors become aware of the source's technology after the market-facing partner's successful introduction of new products.

- In some industries, regulatory or other legal barriers may emerge to delay or otherwise constrain the plans of the market-facing partner.

What Rewards Does the Technology Source Anticipate?

The technology source expects to monetize the results of its creative work through the marketplace success of the market-facing partner. The source has selected that partner because of the assets brought by the partner; development resources, manufacturing capability, channels, brands, and the financial resources to support development and commercialization. Monetization will be achieved through an agreed combination of the cash flows to be discussed in the next section.

Separately from the monetization of rewards, the technology source often expects the market-facing partner to reimburse the source for its costs incurred during joint development. This recognizes the common situation where the financial resources of the market-facing partner are greater than that of the technology source.

Another reward is the technology source's use of intellectual property developed during the alliance for products outside the business interests of the market-facing partner.

What Risks Does the Technology Source Perceive?

Several risks are similar to risks seen by the market-facing partner. The R&D program may fail, or the new product may be disappointing in the marketplace.

Just as the market-facing partner risks that the technology source will not perform R&D tasks as expected, the market-facing partner may not perform as expected in R&D or in commercialization. This can happen for several reasons. The technology source may have overestimated the R&D and commercialization abilities of the market-facing partner. In a distinctly different scenario, the market-facing partner may deliberately decide to move slowly or not at all in its development or marketing obligations; because of a shift in marketplace priorities or concern over competition with existing offerings ("cannibalization"). In some cases, the market-facing partner may favor the development of an alternative in-house technology. Where the market-facing partner has some level of exclusivity, this behavior isolates the source's technology from the marketplace. We refer to this situation as "parking," as the market-facing partner "parks" the source's technology

off the marketplace “highway.” While there may be legal remedies available to the technology source, these remedies are difficult and uncertain of success.

The technology source also risks the emergence of better technology from a third party. But this risk has an especially damaging implication for the technology source. The market-facing partner may have entered the market and established a favorable market position with initial products or services based on the technology of the source. Upon emergence of a better technology from a third party, the market-facing partner may switch to the newly emergent technology and abandon its license to the source’s technology; depriving the technology source of some or all of its anticipated financial rewards.

Finally, the technology source incurs an opportunity cost in selecting the market-facing partner. That cost may result from foregoing opportunities to forming alliances with other market-facing firms, if the selected market-facing partner has some level of exclusivity. Another cost is the delay if the alliance with the market-facing partner proves unsuccessful. Even if the technology source has the intellectual property rights required to begin again with another market-facing partner; time will have passed, the marketplace has evolved, and opportunities may have been foreclosed.

The risks for both parties inherent in an OI alliance may be allocated through appropriate provisions in the financial structure, intellectual property provisions, and termination provisions. Risk can never be eliminated for either party. Rather, risk allocation provisions mitigate the damage to both by sharing those risks. As we will see, risk allocation provisions have important nuances. A provision to reduce a party’s risk in case of certain marketplace events may increase that party’s risk in other marketplace events. Finally, parties must accept that a risk that seems to be eliminated by a strongly worded provision in the agreement may still exist in the real world; where litigation is expensive and uncertain.

One of the most challenging aspects of creating an OI alliance is to settle on a financial structure that reflects the values brought by both and that the parties will accept as fair. In the OI context, “accept as fair” is not simply an idealistic objective. Since the parties must work together to create added value in the marketplace, a financial structure that is viewed as unbalanced by one side or the other will lead to inter-party dissension and alliance failure. For OI success, there is no such thing as “putting one over on the partner.”

The negotiated financial structure allocates the prospective rewards between the parties. Financial structures may range from a straightforward royalty stream for in-licensing technology to a complex system of cost and revenue sharing in an alliance involving co-

operative R&D, manufacturing, and marketing across multiple product lines. People on both sides have their own ideas about what is fair, and there is a natural bias to more highly value the assets brought by one’s own firm. When coupled with the complexity of financial structures and the stakes involved, the human aspects can make the negotiations contentious even when the parties agree on the overall value of combining resources toward a common objective.

The share of the financial rewards allocated to each party is always based on a balance of past and future values brought by the parties, as agreed in the alliance negotiation. The negotiation addresses two questions:

1. What past values does each party bring to the OI alliance before cooperative work starts? Examples include existing intellectual property, technical skills, brands, channels to market, and manufacturing capability.
2. What will each contribute to the cooperative effort, such as newly developed intellectual property, capital investment, and marketplace development?

Methods of moving from these broad principles to a mutually acceptable balance of values and to agreement on cash flow metrics are beyond the scope of this paper. Here we will focus on the structure of those cash flows and how the structure allocates rewards and risks. By “structure,” we refer to the conditions, timing, and sizes of the cash flows during the lifetime of the OI alliance.

The best way to describe how risks and rewards are allocated through the financial model is to give examples of the extreme ends of a continuum. At one end, all the risk is allocated to the market-facing partner. At the other end, all the risk is allocated to the technology source. We will then describe the “middle road options” firms can use to more appropriately share risks and rewards.

Let’s start with an example that allocates all the risk to the market-facing partner. In this case, a market-facing partner might agree to provide a single payment to the technology source at the start of the alliance. That payment represents the entire NPV share the source should earn during the lifetime of the alliance. In return, the market-facing partner receives a license to both pre-existing intellectual property of the technology source; prospective new intellectual property developed by the technology source during the alliance lifetime and all of the sources other contributions during alliance implementation. In this case, the technology source is paid in full for its share of the alliance rewards. All the risk is placed on the market-facing partner’s shoulders. Payments made very early in the development process are referred to as “front-end loaded.”

Let's look at the opposite end of the spectrum (all the risk is placed on the technology source's shoulders). In this case, the market-facing partner makes payments to the technology source at a fixed percentage royalty, based on sales by the market-facing partner using the technology source's intellectual property. The technology source will work with the market-facing partner to conduct all the development needed to bring the product to market. If the product does not sell or is never commercialized, the technology source gets nothing. Payments delayed too late in the development process are referred to as "back-end loaded."

These simple examples anchor the extremes of a risk continuum. However, more complex structures allow the partners to allocate risk in more equitable ways.

Common Types of Cash Flows and Risk Allocation Effects

We will consider the types of cash flows that the parties may include in a financial structure, since the selection of cash flow types and their levels and timing has a major impact on risk allocation. In a given OI alliance, the partners will agree upon a subset of these flows.

Flows from the market-facing partner to the technology source:

Expense Reimbursement

The market-facing partner may reimburse the technology source for R&D and other expenses incurred during the course of cooperative work. This often occurs when the technology source has limited cash and does not wish to use those limited financial resources for alliance work.

Upfront and Progress Payments

The market-facing partner may make upfront and progress payments to the technology source. "Upfront" refers to a payment made upon the effective date of the alliance agreement. "Progress" refers to payments made at specific times or events during the alliance term. For clarity, we will use the term "progress" to refer to payments made prior to the start of new product sales by the market-facing partner. These payments are made for one or more of four reasons.

1. Like upfront payments, early progress payments provide near term cash to the technology source.
2. They provide some assurance to the technology source that the market-facing partner will be diligent in carrying out its alliance responsibilities. As one of our client executives remarked, there is nothing like the requirement to write a periodic check to focus top management's attention on the alliance.
3. Upfront and progress payments may provide, in whole or in part, compensation from the market-facing partner to the technology source for use of the technology source's intellectual property.

A single fully paid license payment at a specified point in the alliance time line is an example.

4. Upfront and progress payments and their relative size to royalty payments during commercialization reflect agreement on risk allocation.

These payments shift part of the risk of development failure from the technology source to the market-facing partner. If the new product never reaches the market, the technology source has benefited from these payments while the market-facing partner never achieves marketplace rewards. We have already pointed out a benefit to the technology source through the discipline that these payments impose on the market-facing partner. In the negotiation, the market-facing partner often tries to minimize these payments and delay them until late in the development process when the risk of development failure is lower.

There is another important aspect of upfront and progress payments. Where the parties agree that cash flows to the technology source should come through some combination of upfront and progress payments and royalties, the negotiation dynamics normally lead to lower royalty rates as the upfront and progress payments are increased. This results in the technology source losing some of its potential rewards if the financial success of the new product exceeds agreed projections. This principle becomes clear if we consider the limiting case of a single upfront payment from the market-facing partner for a perpetual license to the technology source's intellectual property. The size of that payment is negotiated based on an agreed projection of likely revenues, and in this case the technology source agrees to forego royalties on sales. With greater marketplace success than projected, the foregone royalties would have been more rewarding to the technology source than the upfront payment actually made. The same principle applies with a more common mix of upfront and progress payments and royalties. As the upfront and progress payments increase, the return from royalties diminishes. We refer to this effect as the "upside risk" incurred by the technology source when demanding upfront or progress payments.

The risks to the market-facing partner are opposite to the risks to the technology source. By paying upfront and progress payments to the technology source, the market-facing partner is accepting "downside risk" if the new products never reach the marketplace or are financially less successful than projected. But if the product revenues exceed expectations, by paying lower royalties the market-facing partner will get a larger share of the financial benefits than the parties had assumed when negotiating the agreement.

Royalties on Sales

The market-facing partner may pay royalties to the

technology source, based on sales by the market-facing partner of products or services using the technology source's intellectual property. These may have minimum annual requirements and maximum total payments ("caps"). Royalties are normally paid based on the use of valid patent claims of the technology source. Where the parties agree that the technology source provides values beyond that captured in valid patent claims, royalties may also include a component tied to these non-patent values. These values may include non-patent proprietary technical information of the technology source ("know-how") or technical assistance by staff of the technology source. The term during which such payments must be made can be either more or less than the term in which royalties based on patents must be paid. From a risk allocation perspective, such payments behave like royalties based on patent claims. Note: non-patent related payments may use a term other than "royalties" to conform to legal requirements. Please consult IP counsel on this matter.

Minimum Royalties

The technology source often expects the market-facing partner to pay minimum royalties on a periodic basis, usually annually. Minimums are intended to protect the technology source from revenue shortfalls by the market-facing partner after product launch. Shortfalls may result from one or more problems. Some are controllable by the market-facing partner, such as applying inadequate resources to marketing or sales. Some are uncontrollable, such as introduction of competing products by others. By incorporating a minimum royalty requirement, the alliance agreement shifts some of the risk of revenue failure or delay onto the market-facing partner.

Minimum royalties allow the market-facing partner to avoid the consequences of revenue shortfall by paying the minimum royalty even if the royalty calculated based on revenues is less than the minimum. For example, the market-facing partner might conclude that the revenue shortfall problem is likely to be remedied in a subsequent period. In that case, paying the minimum might be preferable to incurring the consequences of missing the payment.

Because of the options available to the parties connected with minimum royalties (For the market-facing partner: Pay or not? For the technology source: Invoke the consequences of a missed payment?), the conditions associated with minimum royalties are important. For example, at what point after initial product launch do minimums begin to apply? That affects the risk allocation for an unexpected delay in launch or slower than expected revenue growth. Are actual royalties paid in excess of minimums in a given period credited against minimums due in a later period? That helps the mar-

ket-facing partner if revenues dip from a higher level.

The consequences of missing minimum payments impact on risk and are important. As an example, assume that the market-facing partner has an exclusive right to use the technology source's intellectual property within a defined scope, subject to payment of minimum royalties. Usually the market-facing partner wants the impact of missing minimums to be loss of exclusivity, allowing the market-facing partner to retain non-exclusive rights and continue its marketplace presence. This lowers the risk to the market-facing partner, who has devoted resources to development and to introduce the product into the marketplace. But continuing non-exclusive rights for the initial market-facing partner creates a risk for the technology source. If the technology source attempts to find a new market-facing partner, the non-exclusive rights of the initial market-facing partner encumber the source's intellectual property. The technology source may find that the value of its intellectual property has been significantly diminished as seen by potential new partners. Therefore the technology source usually wants an option to terminate all rights of the initial market-facing partner in the event of a minimum royalty shortfall. That option puts the technology source in control in the event of a minimum royalty shortfall. Depending on the situation, the technology source could choose to allow the initial partner to continue to market the product; or not. Because of its importance, this matter is often highly contentious during negotiations.

As a separate matter, the technology source may expect the market-facing partner to achieve minimum revenues as well as paying minimum royalties. At first glance, these two requirements may seem to be equivalent. But they are different. When this requirement is part of the agreement, the minimum revenue requirement is greater than the revenue associated to the minimum royalty.

What is the purpose of a minimum revenue requirement, especially if minimum royalties are already included? The reason is that the technology source may expect better than "minimum royalty" performance from the market-facing partner, over the long run. Therefore we occasionally find minimum revenue requirements associated with the terms for renewal of limited term exclusive licenses from the technology source to the market-facing partner. Since a grant of an exclusive license has an opportunity cost to the technology source, that party wants to be able to periodically re-visit its choice of market-facing partner; when the limited term license is up for renewal. This requirement is often found when the source provides a right to use a trademark on the product, either alone or in combination with the market-facing partner's trademark.

Volume Independent Payments After Product Launch

The market-facing partner may make volume-independent payments to the technology source in parallel with royalties, after sales of new products or services begin. These are conceptually similar to pre-launch progress payments, except they are paid after initial product launch. While progress payments reduce development failure risk for the technology source, volume independent payments reduce the risk of revenue shortfalls. They differ from minimum royalties in that they add to the technology source's income stream from royalties. Like progress payments, volume independent payments tend to reduce royalty rates negotiated between the parties compared to the absence of volume independent payments. The upside/downside risk allocation effect is similar.

Termination Payments

The market-facing partner may agree to make a termination payment if the market-facing partner decides to stop work on the products or services contemplated in the alliance. That might apply during development (before the first product is launched), after the launch of the first product, or in both situations. Such a payment reflects the opportunity cost incurred by the technology source because of the alliance. The level of termination payments are strongly influenced by the exclusivity level enjoyed by the market-facing partner. To the extent that the market-facing partner is only one of many licensees, the risk of termination by any one market-facing partner is lower, and large termination payments are not justifiable. The level of payments is strongly influenced by intellectual property rights granted to the technology source upon termination. In a subsequent article, we will address risks associated with intellectual property rights upon termination.

In the negotiation, termination payments are usually considered as a separate matter from the allocation of rewards between the parties. Such payments do not involve the "upside/downside" risks involved in other payment types discussed above. Here, the financial risk appears to be borne by the market-facing partner, since it involves a payment to the technology source that is not connected to other flows. But in fact, termination by the market-facing partner inevitably has a financial downside to the technology source. Even with a highly favorable intellectual property provision upon termination, the technology source incurs a delay in getting its intellectual property incorporated into marketable products. While the alliance has been underway, the marketplace may have changed, with competing products introduced by others. This opportunity cost to the technology source may be only partially offset by a termination payment.

"Getting Started Payments"

A "getting started" payment may be made by the market-facing partner if that partner decides to use an alternative technology in the contemplated products, after starting to work with the technology source. A market-facing partner often insists on the right to use alternative technology even after selection of the technology source and the start of the alliance, based on the argument that marketplace success requires the use of the "best" technology. This expectation creates several risks for the technology source. The technology source incurs an opportunity cost in working with the market-facing partner, and usually relies on anticipated royalties or other payments during commercialization to offset those opportunity costs. If commercialization payments are truncated before or after launch because of a decision by the market-facing partner to use an alternate technology from a different technology source, the technology source is left stranded. Another risk is leakage of the original technology source's intellectual property from the market-facing partner to the new technology source. While the alliance agreement will have protections against that, in practice the intellectual property risk is real and violations may be hard and expensive to prove.

In this situation, the technology source argues that the market-facing partner would not have been able to begin in the relevant market (or establish a marketplace advantage) except for the intellectual property contributed by the technology source. The technology source demands a payment from the market-facing partner if that partner abandons the initial source in favor of a "better" technology. The intent is to shift some of the risk of loss of commercialization rewards from the technology source to the market-facing partner. Can the technology source extract such a commitment from the market-facing partner, and will its size be some reasonable fraction of the technology source's potential loss of commercialization rewards? Like all other negotiations of risk allocation matters, that depends on circumstances including the relative strength of the parties.

Payments for Goods

The market-facing partner may pay for goods supplied by the technology source. An example would be a specialized, proprietary ingredient intended for incorporation into a product of the market-facing partner. Unlike reimbursement for R&D and other costs incurred by the technology source, these payments for goods include a margin over costs. These payments are included in the negotiation of the share of the financial rewards received by the technology source. The margin enjoyed by the technology source is added to the upfront and progress payments and the royalties

paid by the market-facing partner to calculate the rewards for the technology source. To the extent that the technology source's business strategy includes being a manufacturer as well as a source of novel technology, the rewards from supply can be an important part of the overall reward structure expected by the technology source. Since the margin from sales of goods is tied to commercialization success, this cash flow resembles royalties in the reward structure.

Negotiation of payments for goods becomes more complicated when the market-facing partner expects the right to use alternate sources during commercialization, to offset the risks of relying solely on the technology source. To the extent that the market-facing partner actually develops and uses alternate sources, two distinct risks are incurred by the technology source. First, the technology source is deprived of some of its financial rewards anticipated from its sales to the market-facing partner. Secondly, the technology source's intellectual property may be misused by the alternate source, even if the alliance agreement specifies that such intellectual property may be used by the alternate source only to supply the market-facing partner. Solutions may involve such provisions as minimum fractions to be supplied by the technology source and volume levels that must be met before the alternate source right applies.

Flows From the Technology Source to the Market-Facing Partner

While less common, cash can flow from the technology source to the market-facing partner. The most common situation is one in which the technology source agrees to pay royalties to the market-facing partner, usually for use of alliance intellectual property in commercial activities of the technology source outside the scope of the alliance. "Scope" is defined through parameters such as product and customer types or market regions. Typically, the scope coincides with the business interests of the market-facing partner. Some-

times this matter is handled through a reduction in royalty rates paid to the technology source, in anticipation of the technology source's "outside scope" use of intellectual property.

Flows From Either Party to a Third Party

Third party vendors usually provide goods and services to further the objectives of the alliance. OI alliance operations incur a variety of administrative expenses, including patent application and maintenance fees, regulatory fees, and audit costs. The parties must agree on the party will incur these costs and bear the associated risks. Such payments are included in the analysis of all alliance costs and influence inter-party cash flows.

Third parties may control intellectual property required to implement the new products developed under the alliance. When royalties to third parties must be paid, in addition to royalties paid to the technology source, this situation is called "royalty stacking." The fundamental issue is how the risk of royalty stacking will be allocated between the parties. The market-facing partner will expect the technology source to accept some of the risk through a reduction in royalties paid to the technology source. The problem to be negotiated is how much of the risk each shall bear.

Summary

In conclusion, firms select the type and timing of the cash flows above to allocate risks and rewards in the alliance. There is no "one-best-way" to use these techniques. Rather, they select the techniques and negotiate the agreement to allocate risks and rewards acceptable to both partners.

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