

Building Capabilities for Alliance Portfolios

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This article analyses how firms build their capabilities for alliance portfolios. We investigate different solutions that are adopted across portfolio sizes, and whether the adoption of these solutions explains alliance portfolio performance. Our findings illustrate which solutions practitioners should consider implementing when expanding their alliance portfolio, and which can help enhance their portfolio performance. Our conclusions are based on a sample of 192 firms managing over 3,400 strategic alliances and seven expert interviews. We analyse the adoption of 14 distinct alliance practices in four solution categories. Our results reveal whether and when functional and staffing (e.g. alliance manager, alliance department), tool-based (e.g. intranet, codification of best practices), training (e.g. in-house, external training) and third party (e.g. consultant, mediators) solutions help firms transition successfully between small, medium, and large alliance portfolios, and to what extent they are associated with alliance success. Rules of engagement for successful alliance portfolio management are discussed.

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Introduction

In today's global environment, firms need a multitude of competences to achieve sustainable competitive advantage. Alliances represent a critical means of doing so, as they enable firms to overcome resource limitations, crack new markets and hedge against environmental uncertainties by creating options to expand.¹ The last two decades have witnessed an unprecedented growth in alliance activity,² including outsourcing relationships, R&D agreements, equity joint ventures and other forms of collaboration. Firms such as Cisco and Motorola have created extensive alliance portfolios, forming 50 to 100 new alliances each year, while the Dutch electronics and medical equipment firm Philips is currently engaged in over 1,000 alliances. However, evidence shows that alliance failure rates are generally high, ranging from 40 to 70%, thus displaying a 'mix of promise and peril'.³ More importantly, studies have also shown that firms managing large alliance portfolios do not necessarily perform better than those with smaller portfolios.⁴ As more firms develop complex alliance portfolios, executives' attention needs to shift from the design and management of individual deals to the broader question of how they can develop the necessary firm-wide capabilities for forming,

implementing and terminating collaborative ventures to get more out of their overall alliance portfolios.⁵

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Some preliminary work regarding the management of portfolios and the development of capabilities exists. However, so far the two concepts have not been systematically analysed and integrated. Moreover, only limited information is available for practitioners on ways to enhance alliance capabilities and on how to ensure success as the firm's alliance portfolio expands. Furthermore, to our knowledge, no study has analysed to what extent different solutions are adopted across portfolio sizes or across performance categories. Hoffman emphasized the importance of alliance portfolios and described how alliance portfolio managers' tasks comprise four critical activities: a) the establishment of a portfolio strategy, b) the monitoring of the portfolio, c) the coordination of the portfolio, and d) implementing supporting management systems. While he refers to solutions to enhance portfolio management, it is still unclear how practitioners should implement these solutions in order to stimulate or drive capability development.⁶ Other researchers have discussed some alliance management tools to enhance performance, but again provide no systematic analysis of all the different solutions that firms can employ.⁷ To date, prior studies have not addressed the recurring challenges of managing an alliance portfolio and of how to move successfully from a dyadic attitude to forming alliances to managing portfolios by building capabilities to enhance the performance of alliance portfolios as they grow in size.

So how can executives strengthen their organization's ability to manage alliances, while simultaneously acknowledging differences and leveraging similarities across the alliances in their portfolio? We have carefully examined firms renowned for their alliance capabilities to unravel the myriad of practices they deploy to equip their employees with improved alliance skills. Our analyses present unique findings from 192 firms worldwide, who between them manage over 3,400 strategic alliances, to detail when particular solutions are important for develop practitioners' alliance capabilities. (For further details of data and methodology, see the [Appendix](#)) We also test whether there are fundamental differences between more and less successful alliance portfolios in terms of their adoption of these solutions. By doing so, we analyse what solutions result in increased alliance portfolio performance, according to portfolio size. We also study how firms adopt these solutions differently as their portfolio size increases, allowing us to discover how they can help firms advance their alliance capabilities. We find significant dissimilarities between small, medium and large sized alliance portfolios in terms of the solutions they adopt. This article therefore provides important insights on how to build more successful alliance portfolios and highlights rules for when certain solutions are likely to be most effective in improving alliance portfolio performance.

Solutions for managing alliance portfolios

In order to enhance alliance portfolio performance, firms can adopt various solutions to enhance their alliance capability, which can be defined as a firm's ability to capture, share, disseminate and apply alliance management knowledge.⁸ An alliance capability is an organizational resource that is difficult to obtain or imitate and has the potential to positively affect the performance of alliances and other resources brought into these alliances. These resources are captured by alliance practices that increase a firm's ability to perform similar activities repeatedly (which can include identifying partners, initiating relationships or restructuring individual alliances or portfolios⁹). When a firm's alliance portfolio expands, the possession of an alliance capability enables the identification of

repeatable actions in terms of alliance management. Hence, an understanding of how alliance capabilities can be built is important to ensure firms continue to be successful as alliance portfolios expand.

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Firms that accumulate experience and adopt solutions that support the dissemination of experiences gained from building or managing their alliance portfolio perform better.¹⁰ For instance, Dow Chemical and Corning are legendary for cultivating alliance management capabilities through the informal accumulation of experience over the years. Although many firms have relied on learning-by-doing as their chief source of capability development, the formation of a large number of relationships in very short order cannot allow firms to develop alliance capabilities so patiently as those firms who have accumulated their experiences more gradually. Moreover, relying upon the trial-and-error learning approach is often fraught with problems in the alliance context: compared to production activities where learning-by-doing has been found to exist, alliances make this approach difficult for several reasons: a) they often have opaque performance metrics; b) the true underlying causes of good and poor performance are hard to discern; and c) alliances are heterogeneous with respect to partners' motives as well as management challenges. Hence, not all the lessons that are learned in one alliance will be appropriate for another collaborative agreement.

Faced with these challenges, many firms attempt to pursue a more formalized process to manage their alliance portfolio by developing their alliance capabilities. Firms adopt various solutions to speed up their alliance capability development: for instance, firms such as Hewlett-Packard and Eli Lilly have organizational units dedicated to alliances. Other firms devise knowledge management practices to capture and leverage best practices in a more disciplined manner by using databases or company intranets, and still others opt for a variety of formal training programs to develop alliance professionals or are turning to external experts for support.¹¹ We classified these alliance practices for capability development for alliance portfolios into four categories: (1) functional and staffing solutions, (2) tool-based solutions, (3) management processes and training solutions; and (4) third party solutions. Table 1 provides an overview of the four solutions.

Table 1. Four types of alliance management solutions

Solution category	Descriptions
I. Functional and staffing solutions	Units or functions within units which are mandated with responsibility for managing and coordinating alliance activities within the firm e.g. alliance manager, Vice-President of alliances, alliance department.
II. Tool based solutions	Instruments containing guidelines on alliance management issues within different stages of the alliance life-cycle. E.g. partner selection protocol, joint business planning, codified best practices.
III. Training solutions	Programs organized internally or externally to nurture understanding of and accountability for critical issues in alliance management for the employees involved. E.g. in-house company courses, intercultural training programs, courses by external experts.
IV. Third-party solutions	Outside experts who provide specialized content related, for instance, to conflict mediation, legal issues, financing, and alliance management. E.g. consultants, financial experts, mediators, legal experts.

Functional and staffing solutions

Some firms mandate individuals or entire staff units to hold responsibility for and coordinate the firm's alliance activities. For example, at the end of 1990s, management of a leading British pharmaceutical company observed that all their alliances were managed independently from one another, which meant the company was unable to leverage upon its previous experiences or standardize its policies and procedures for these relationships. In order to share knowledge internally more effectively, steps were taken to consolidate skills that were available in the firm. Although alliance managers began to share knowledge informally, the pharmaceutical company subsequently decided to create an alliance function to disseminate experiences and stimulate the adoption of standard processes by managers throughout the firm. The Vice-President of Alliances heading the corporate group explained:

Initially, alliances were managed individually. At that point, we primarily relied on exchanging best practices. However, as we reckoned alliances were a major contributor to the business development of our firm, we started building alliance competences by consolidating our knowledge. This way, we were able to anticipate and we could develop a discipline which we termed alliance management. ... We established an alliance department through which institutional learning could take shape, in which knowledge could be developed and processes could be adopted more easily.

The use of these 'dedicated alliance functions' can enhance the management of alliance portfolios in a number of different ways. First, such functions can aid in accumulating experiences gathered from a variety of alliances in the portfolio so that they are more easily transferable to new situations, a method sometimes referred to as 'assimilation'.¹² In this case, such functions can be responsible for the storage of knowledge.¹³ Second, an alliance function can help to coordinate alliance knowledge in the firm. This means knowledge is shared on a structured basis, allowing individuals to communicate in a more effective manner.¹⁴ For instance, whereas alliance training events can stimulate knowledge transfer over a restricted time period, an alliance department provides an institutionalised instrument to leverage knowledge gathered from a firm's various alliances. Alliance functions act as a central coordination mechanism to institutionalise alliance knowledge.¹⁵ Third, the creation of a dedicated alliance function increases external visibility and also provides a firm-wide signal that alliances are deemed important. In this way the firm can mitigate the 'not-invented here' syndrome, and convey management's commitment to both internal and external knowledge exchange.¹⁶

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Tool-based solutions

Many firms also use a variety of practices that provide guidelines which encourage learning about alliances, improving their alliance know-how for dealing with day-to-day management issues. Tool-based solutions can include partner selection protocols or codification of best practices that help firms store knowledge in a central place where it can be easily accessible for other managers. Specifically, they are instruments that often contain codified knowledge on issues on different alliance life-cycle stages,¹⁷ which means that the executive who manages the alliance is not left alone in handling the business relationship as it evolves. An alliance expert working in large U.S. chemical firm, whose portfolio includes over 800 alliances enacted by eight different business units, noted the importance of such tool-based solutions:

We organically developed our alliance capabilities by distilling best practices from individual alliances and use this input to feed network-sharing sessions and our intranet.

Thus, in order to capture and disseminate their experiences more systematically, it has started sharing best practices among the eight different business units. In particular, it uses the company's intranet to make best practices accessible and update them so that employees can leverage and share insights from other alliances. This eliminates the need for members in an alliance team to develop their skills from scratch.

Adopting these alliance practices can support alliance portfolio management in various ways. First, adopting a more formal and standardized approach to partner selection can help the firm consolidate its knowledge from prior experiences, contributing to a more efficient process and reducing the likelihood of selecting inappropriate partners. Second, they can stimulate sharing of individual experiences and knowledge from different alliances across the firm's portfolio, which in the end fosters the collective competence of the firm. The use of codified best practices can aid the dispersal of information on alliance progress throughout the firm, and can stimulate managers to document their alliance related knowledge.¹⁸ Third, the management of the alliances themselves can be supported by using tool based solutions. The adoption of joint business planning sessions can aid in defining alliance objectives at an early stage, which can ease alliance execution. These sessions can also support alliance management through their potential to reduce conflicts and aid in joint problem-solving activities.¹⁹ By sharing their knowledge and expectations in joint business planning sessions, partners become more aware of the future direction of the alliance.²⁰

Training solutions

There are a variety of training solutions that can help practitioners improve their alliance portfolio performance, such as in-house training, external training and training specifically geared for international alliances. Training helps provide insights into specific aspects of alliance management, and enables learning from different alliances to occur at firm, alliance and individual levels. At the firm level, training stimulates knowledge exchange and allows different people inside the firm to benefit from the knowledge of others. At the alliance level, sharing critical alliance management skills equips the managers involved with the insights to ensure their alliance performs well. Similarly, having employees share experiences first-hand helps them to remember the lessons learned so as to avoid the same mistakes in future projects. At the individual level, people inside the organization will be more motivated to learn if they know that successes are captured in lessons learned, potentially leading to more conscious behaviour by the manager in charge of the alliance. It is important to understand that a systematic exchange of lessons drawn from different alliances in the portfolio only occurs when some formal structures (such as an intranet or codification of best practices) are in place. Perhaps the most effective manner to exchange knowledge is in peer to peer situations.²¹ Practitioners involved in alliance portfolios thus need to adopt practices - such as communities of practice or training sessions - where alliance managers meet to overcome the incidental nature of informal knowledge exchanges and increase firm-wide awareness of the importance of consistent knowledge exchange between them.

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There are multiple examples of firms using training to nurture alliance capability development. For instance, a leading U.S. pharmaceutical firm decided in 1998 to start a firm-wide program aimed at establishing itself as the preferred partner in its industry. Under intensive competitive

pressure, and facing the need to fill gaps in its drug pipeline, it defined a specific alliance management process and established a dedicated alliance management office to systematize its alliance management approach. Under the auspices of this office, the company trained over 500 employees in one year. These training sessions also involved members outside the firm, with managers from partner firms being invited to join in its alliance training programs (as was also the case with the U.S. chemical firm mentioned above).²² Not only did this lead to extensive learning within the company itself, it also helped to build trust with its partners.

Third party solutions

Third party solutions make up a fourth set of alliance practices that can be used to build a successful alliance portfolio. Management can use different third parties - such as consultants, lawyers, mediators or financial experts - to complement their own knowledge. Such third parties can substitute in part for a firm's lack of specific knowledge regarding contractual agreements, in the case of lawyers, or due diligence and valuation, in the case of financial experts. Companies that are initiating co-operation, and who have not yet built up their alliance portfolios, may find it especially useful to tap into the assistance of external parties such as consultants, financial experts etc. However, larger firms also consult external parties to tap in to their specialized expertise. For instance, a large European airline operator made use of external consultants to improve its employees' alliance management skills. This consultancy also helped it derive key lessons from one particular alliance, and the lessons learned in this case were then implemented via in-house training sessions organized by the consultancy. One of the responsible corporate alliance managers explained:

A leading management consultancy consulted us with our work and organized workshops for line managers involved in the alliances, but also two-day seminars were organized to share implementation and management issues.

External parties can be beneficial for a number of reasons. First, the potential value that a third party can contribute resides not only in practical problem solving or in developing alliance specific know-how, but it can also assist in conflict resolution by acting as an independent mediator.²³ Second, because an external party tends to be more objective and can bring rigor to the planning process, involving them can underscore the partner's commitment to the alliance. Third, an external party can help ensure the goals set are realistic and induce partners to the realization of easy gains to promote mutuality.

The four solutions described above have varying cost implications, and obviously require effort in terms of both time and financial resources. Also, it is possible that specific solutions will be more appropriate at specific stages of alliance portfolio growth, and it is therefore interesting to analyse how many firms adopt different solutions as their portfolios grow. In order to do this, we have categorized firms as having small, medium and large alliance portfolios. In order to identify the emphasis practitioners place on implementing specific solutions depending on their portfolio size, we look at adoption rates of fourteen alliance practices, categorized into these four solutions (in percentages). This also makes it possible to distil important recommendations for alliance practitioners about what solutions improve alliance portfolio performance at specific alliance portfolio sizes.

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Solutions and alliance capability development

We first analysed the total number of alliance practices adopted by firms by summing up the total number of practices used across all four solution categories. To see whether solutions are important in general to alliance portfolio performance, we compared the use of fourteen practices against portfolios with low (0–40%), medium (41–60%) and high success rates (61–100%). Table 2 shows the average number of solutions practitioners have implemented in the three different performance groups. The results show that, while adoption levels vary greatly, firms with higher portfolio performance implement more alliance practices to a greater extent. (The last column in the table represents the F-value of the one-way ANOVA, a statistical test used to verify differences between the performance groups concerning the adoption of the solutions.)

Although these results are interesting as they suggest that the solutions adopted, and the associated underlying alliance practices, play an important role in the firm's ability to manage alliance portfolios successfully, questions remain as to which solutions should be implemented at which portfolio growth stage, as well as which specific alliance practices enhance the performance of the alliance portfolio as a whole. The results of our analyses are illustrated in Tables 3 and 4: the first analyses the solutions adopted by the firms in managing different sized alliance portfolios - where portfolio size is categorized as small (1–15 alliances), medium (16–25) or large (26 or more alliances) - while the second illustrates the adoption rates of the solutions in low, medium and high performing alliance portfolios.

To analyse the relevance of the solutions for different portfolio sizes and their performance effects, we performed chi-square tests to determine the probability of obtaining the observed results by chance. (A significant chi-square value means a low probability that the differences in adoption of solutions occur by chance.) This enabled us to compare the extent to which solutions are used in portfolios of different sizes and the likelihood of them being implemented in low, medium or high performing portfolios.

In both tables, the importance of certain solutions is illustrated: alliance practices that are significant in size or performance categories are marked in bold type. Boxes indicate the precise effect of specific practices: a boxed figure indicates where a specific practice significantly influences a firm's ability to move from one 'stage' to the next, in terms of size or of performance. Thus, firms have a greater chance of successfully managing a growing alliance portfolio when they pay attention to that respective practice. A box covering more than one category means that there is a significant overall difference for the three categories, but no specific significant difference between the two categories within the box. By distinguishing between practices that have performance implications for successful portfolio management independent of portfolio size and practices that have implications for alliance portfolios of specific sizes, we can more clearly delineate which practice is relevant during which specific transitions. Looking at the results in these two tables together, we can derive a number of insights as to which solutions are particularly beneficial in managing the transitions as alliance portfolios grow in size, and how firms with different alliance portfolios sizes can increase their alliance portfolio performance.

Table 2. Average adoption by absolute number of alliance practices per performance category (ANOVA)

	Low performance (0–40%)	Medium performance (41–60%)	High performance (61–100%)	F-value
Number of alliance practices adopted *	4.15 (2.87)	5.11 (2.67)	6.09 (2.65)	2.795 **
N	52	37	87	

* There are 14 alliance practices in total; $N = 176$; Cells provide means (in absolute numbers) and standard deviations for the number of alliance practices adopted. Sig. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3. Implemented solutions across portfolio size (in percentages)

SOLUTION CATEGORY	Small portfolio (1–15 alliances)	Medium portfolio (16–25 alliances)	Large portfolio (>26 alliances)	χ^2_{s-m-1} (Sig.)	χ^2_{s-m} (Sig.)	χ^2_{m-1} (Sig.)
I. FUNCTIONAL & STAFFING						
1. Alliance department (a)	27.3	42.6	64.5	25.02 ***	9.70 **	3.72 *
2. Vice president of alliances (a)	22.7	48.7	71.0	13.87 ***	3.26 †	3.61 †
3. Alliance manager (a)	33.0	51.1	83.9	24.15 ***	4.21 *	8.74 ***
II. TOOL-BASED						
4. Partner selection protocol (b)	34.1	63.8	71.0	17.94 ***	10.97 ***	0.43 (n.s.)
5. Joint business planning sessions (b)	39.8	61.7	64.5	8.82 *	5.91 *	0.06 (n.s.)
6. Codified best practices (b)	25.0	42.6	54.8	10.32 **	4.40 *	1.13 (n.s.)
7. Intranet for alliance resources (c)	33.0	52.4	71.0	16.18 ***	1.54 (n.s.)	1.46 (n.s.)
III. TRAINING						
8. In-house company courses (a)	11.4	19.1	45.2	16.46 ***	7.57 **	6.08 **
9. Intercultural training programs	11.4	12.8	3.2	2.11 (n.s.)	0.06 (n.s.)	2.08 (n.s.)
10. Courses by external experts	30.7	40.4	35.5	1.31 (n.s.)	1.30 (n.s.)	0.19 (n.s.)
IV. THIRD PARTY						
11. Consultants	37.5	38.3	29.0	.84 (n.s.)	0.01 (n.s.)	0.71 (n.s.)
12. Legal experts	38.6	38.3	38.7	.002 (n.s.)	0.01 (n.s.)	0.01 (n.s.)
13. Mediators	8.0	2.1	0.0	4.20 (n.s.)	1.87 (n.s.)	1.67 (n.s.)
14. Financial experts	33.0	38.3	22.6	2.12 (n.s.)	0.39 (n.s.)	2.12 (n.s.)
N	88	47	31	166	135	78

Sig. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$;

(a) Alliance practice adoption demonstrates discrete increase for each portfolio size category;

(b) Alliance practice adoption increases with portfolio size and in particular from small to medium-sized portfolios;

(c) Alliance practice adoption increases with portfolio size in general but not for any specific transition for one category to the next.

Table 4. Implemented solutions across portfolio performance (in percentages)

SOLUTION CATEGORY	Low performing portfolios (0–40%)	Medium performing portfolios (41–60%)	High performing portfolios (61–100%)	χ^2_{l-m-h} (Sig.)	χ^2_{l-m} (Sig.)	χ^2_{m-h} (Sig.)
I. FUNCTIONAL & STAFFING						
1. Alliance department (a)	34.6	43.2	55.2	5.74 †	0.68 (n.s.)	1.48 (n.s.)
2. Vice president of alliances (a)	26.9	43.2	54.0	9.72 **	2.58 (n.s.)	1.21 (n.s.)
3. Alliance manager (b)	38.5	59.5	62.1	7.72 *	3.83 *	0.08 (n.s.)
II. TOOL-BASED						
4. Partner selection protocol (a)	40.4	51.4	63.2	6.96 *	1.05 (n.s.)	1.52 (n.s.)
5. Joint business planning sessions	48.1	59.5	50.6	1.21 (n.s.)	1.12 (n.s.)	.82 (n.s.)
6. Codified best practices (c)	28.8	27.0	44.8	5.36 †	0.04 (n.s.)	3.44 †
7. Intranet for alliance resources (b)	32.7	62.2	58.6	10.81 **	7.59 **	0.14 (n.s.)
III. TRAINING						
8. In-house company courses	21.2	27.0	28.7	0.99 (n.s.)	0.41 (n.s.)	0.04 (n.s.)
9. Intercultural training programs (c)	11.5	2.7	19.5	6.53 *	2.33 (n.s.)	5.93 *
10. Courses by external experts	26.9	29.7	42.5	4.09 (n.s.)	0.08 (n.s.)	1.79 (n.s.)
IV. THIRD PARTY						
11. Consultants	32.7	35.1	44.8	2.34 (n.s.)	0.06 (n.s.)	1.00 (n.s.)
12. Legal experts	40.4	37.8	36.8	0.18 (n.s.)	0.06 (n.s.)	0.01 (n.s.)
13. Mediators (a)	0.0	2.7	6.9	6.50 *	1.42 (n.s.)	0.86 (n.s.)
14. Financial experts	30.8	29.7	40.2	1.90 (n.s.)	0.01 (n.s.)	1.23 (n.s.)
N	52	37	87	176	89	124

Sig. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$;

(a) Alliance practice has performance implications;

(b) Alliance practice helps raise performance to medium level;

(c) Alliance practice helps to raise performance to high level.

Solutions and size transition implications

Table 3 shows the percentage of implemented solutions across the different portfolio sizes. The results show a number of distinct differences in adoption rates for the different solutions across alliance portfolios of different sizes. Overall, from the four solution categories, eight of the fourteen alliance practices facilitate transition to larger alliance portfolio sizes. More particularly, there are a number of specific insights related to the different solution categories. First of all, there is a marked increase in adoption of all functional and staffing solutions at each alliance portfolio size. This means that — independent of the size of the portfolio — the firms that we have analysed place more emphasis on using the different functional and staffing solutions when their alliance portfolios expand. Our results indicate that there are discrete changes from both small to medium portfolios and medium to large. This confirms the generic notion that it is important to appoint dedicated personnel or departments to manage expanding alliance portfolios, and that more emphasis should be placed on such departments or staff as firms establish more alliances.

Second, with respect to tool-based solutions, all practices classified in this category exhibit higher adoption rates as portfolio size expands. With the exception of an intranet, all alliance practices in the tool based solution category are adopted to a greater extent when firms move from small to medium-sized portfolios, as the boxes indicate. However, as the non-significant chi-square values demonstrate, there is much less difference in the adoption of tool based solutions between medium and large-sized portfolios. Partner selection protocols, joint business planning sessions as well as codified best practices are adopted more often when firms move from small to medium-sized portfolios. While firms with medium-sized alliance portfolios more frequently install an intranet than firms with small portfolios, there is no significant difference for any of the size categories. This suggests that firms adopt an intranet more frequently as the portfolio size increases, but that the adoption of this practice does not appear to be specific to any one size category. The other alliance practices in this solution category, however, are adopted significantly more often in medium-sized than in small portfolios. Hence, alliance practitioners should focus on standardizing protocols and joint business planning sessions when they transition from a small to a medium-sized alliance portfolio.

Third, in the case of training solutions, the results show that firms in our dataset tend to develop an in-house company course as their alliance portfolio expands. However, the other two practices in the training solutions category were not implemented more often as firms' portfolio sizes changed. This is interesting, because it could be expected that the use of external experts or attendances at external training events would be higher among firms with small alliance portfolios than among firms with large portfolios, as smaller firms may lack knowledge or resources. The insignificance of the other training solutions implies that firms generally tend to rely on these practices independent of the size of the portfolio they manage, yet for two of the three practices in the training category adoption rates are lower than most functional and staffing solutions.

Last, comparing the adoption of third party solutions, the results show there are no significant differences for different portfolio size categories. Firms in our dataset do not appear to resort to external sources for alliance management to any greater or lesser degree as their alliance portfolio expands.

Solutions and performance implications

In order to understand which solutions help improve the firm's ability to perform successfully, we analysed which alliance practices in the four solution categories differed across the various performance categories. Again we used the same performance categories for low (0–40%), medium (41–60%) and high performing firms (61–100%). Eight out of the fourteen adopted alliance practices proved to differ significantly in usage across these portfolio performance categories. First, our results indicate that functional and staffing solutions have performance implications. Interestingly, appointing alliance managers is considerably more important in helping firms move from a low to a medium performing portfolio than in helping them achieve high performing portfolios.

Second, in the tool based solution category all practices except joint business planning sessions have performance effects. This means that partner selection protocols, codified best practices and intranet are all solutions that can raise a firm's alliance portfolio performance. There are, however,

a number of more specific insights that flow from the differences across the portfolio performance categories for the tool based solutions. First, an intranet is particularly helpful for organizations to move from low to medium performing alliance portfolios. With respect to high portfolio performance, the results of our analyses suggest that firms can attain this level by focusing more on the implementation of the codified best practices. These findings clearly point to a learning effect: firms that codify their best practices will stimulate intra-organizational learning, because lessons learned from other alliances are documented and can be easily accessed by other managers. These lessons learned will prevent alliance managers from being repeatedly trapped in similar pitfalls and thus improve alliance portfolio performance as a whole.

Third, in the training category, we find that intercultural training programs are important. While it is the only alliance practice for training solutions that significantly differs in terms of performance, it suggests that, by sharing important insights learned about differences between partner countries, intercultural trainings programs help avoid pitfalls specific to certain circumstances. This way, besides the other practices mentioned in the other categories, specific training solutions can help firms move from medium to high performing alliance portfolios.

Last, in the third party solution category, only the figures for the use of mediators differ between performance categories. This is interesting, because the use of mediators (as well as intercultural training programs) appears to be linked with portfolio performance transitions, but not with portfolio size transitions. This suggests that both solutions may be being neglected by practitioners despite the fact that both have important portfolio performance implications. Interestingly, the opposite holds true for joint business planning sessions and in-house training solutions: we observe significant differences between the adoption of these solutions as the portfolio size changes, but their adoption tends not to have significant performance implications. This indicates that joint business planning and in-house training solutions are so called ‘hygiene-factors’ – they can help the portfolio expand, but do not exhibit higher performance effects.

Cisco’s solutions and alliance portfolio management

An example of a successful organization that has developed its alliance capabilities as its portfolio has become more extensive is Cisco Systems Inc.. The company significantly expanded its alliance portfolio after 2000, and by 2006, Cisco’s partnerships accounted for more than 13 percent of its total business activity. In an interview at the American Management Association, Greg Fox, Cisco’s OEM Commodity Manager, said: *‘We now actively go and seek new alliances, manage existing alliances and coordinate alliance activities companywide.’* In order to do this *‘Cisco really brought a more formalized alliance management program together.’*²⁴ Besides establishing a dedicated alliance department, Cisco also used the tactic of involving senior level management to support collaborations. *‘When the CEO is involved, you can get a lot of senior-level support for a relationship. John [Chambers, CEO of Cisco] has helped incubate some alliances and asked us to go off and look at new alliances... he sometimes takes a leading role and that has helped break down the barriers within Cisco.’*

One of the critical aspects of alliance management that Cisco does well is maintaining a balance between centralization and decentralization. On the one hand it centralizes specific activities, such as developing the overall alliance framework, global governance, new partner selection, training, and technology development, but on the other, customer-contact matters such as field sales, support, and regional marketing are decentralized. This balance creates benefits: the centralized activities have helped Cisco develop standard protocols, such as the six-step process that helped them to enhance their alliance portfolio - *‘We have a series of best practices that we have created around the alliance life cycle – from new alliance evaluation to formation, incubation, operations, transitioning the alliance and alliance retirement.’* – while the decentralized elements ensure that clients feel that Cisco is very involved in the deal.

In summary, Cisco has incorporated many of the tools noted in Table 1. During the transition phase when Cisco decided to enlarge its alliance portfolio, one of the key messages was the commitment from top management. However, the formalization of best practices and the training solutions offered to alliance managers and staff was also important - as Greg Fox noted: *'We have a curriculum for training. We are really high on strategic alliances as a self-developing organization, meaning that we are investing in our people to try to give them the skills and the tools needed to be a successful alliance professional.'*

Rules of engagement

The outcomes of this study lead to a number of important insights into the ways companies can build capabilities for alliance portfolios. First of all, it is interesting to note that many firms we studied followed a similar path in developing their alliance capabilities. One of the managers summarized this path thus:

Initially, we primarily gained experience and learned our lessons managing one major alliance. However, as more alliances were formed and alliances gained in importance in terms of sales revenues and positioning, the knowledge accumulated was spread around to other managers using alliance trainings. The contents of these trainings was put together with the use of a leading management consultancy, which helped us distil and structure the knowledge to be shared in these trainings. ... At this point in time, various functions have been installed which ensure that knowledge remains deeply routed inside the organization's system. ... We continue to share specific experiences and insights in meetings.

As this remark illustrates, building alliance capabilities for expanding alliance portfolios requires additional efforts beyond simply accumulating alliance experience. Indeed, the results of our analyses of 192 firms worldwide help differentiate which solutions are more frequently adopted when alliance portfolios expand, and which actually help raise the performance of the portfolio. Our findings point to a number of general insights that are relevant for managers overseeing expanding alliance portfolios. For instance, it is important for firms to rely on functional and staffing solutions as their portfolios expand. We also find that the use of in-house knowledge is generally preferable to the use of outside experts. From our findings, we can derive a number of specific 'rules of engagement' for professionals involved in alliance portfolio transitions. Beyond being relevant to managing growing portfolios, some solutions carry specific performance implications for small, medium or large alliance portfolios. These rules of engagements pertain to insights on (1) how to avoid underperformance in expanding portfolios and (2) how to achieve high performance in expanding portfolios. We summarize these rules of engagement below.

the use of in-house knowledge is generally preferable to the use of outside experts

Rules on how to avoid consistent underperformance in expanding portfolios

Besides a number of more generic rules that are important when facing an expanding alliance portfolio, there are a number of important rules for firms to avoid consistent underperformance during alliance portfolio transitions. First, firms should assign alliance managers to oversee the portfolio. Although all the functional and staffing solution category practices are relevant as the portfolio expands, installing an alliance manager avoids the high fixed costs involved in setting up an alliance

department, which makes an alliance manager particularly appropriate for firms with small but expanding alliance portfolios. Although the results suggest such an appointment does not guarantee sustained superior performance, adopting this alliance practice is particularly advantageous at an early stage as it allows the alliance manager to be present during the initial portfolio transitions. The alliance manager can also share experiences about management of alliances formed subsequently, and this early presence is likely not only to foster the firm's absorptive capacity at later stages, but also to increase external visibility and provide a sign that alliances are deemed important to the firm's future.

Second, firms can avoid under-performing alliance portfolios by enhancing access to important alliance-related knowledge via an intranet. Rather than investing scarce resources in specific practices for specific tasks, such as partner selection programs, a firm can use its intranet to outline alliance backgrounds and coordinate alliance activities. Instead of gathering general information about how to initiate, coordinate, govern and achieve success in strategic alliances in general, the execution of the alliance at hand is given priority and a number of lessons can be shared. Where resources to develop alliance capabilities are likely to be limited - as in the case of small firms with growing alliance portfolios - it is particularly important that such information be made available widely within the organization. This can enable top management to delegate daily management of alliance operations to others and focus more on strategic issues related to the alliance portfolio.

Rules on how to excel in expanding portfolios

The outcomes of this study point to two specific rules for firms that seek to consistently achieve superior outcomes from their alliance portfolio. First, to truly excel in managing alliance portfolios, it is essential for firms to share, update and implement codified best practices throughout the organization. Our findings clearly indicate that codified best practices are implemented significantly more often in the highest performing alliance portfolios and when the size of the portfolio is expanding. Codified best practices help leverage the knowledge which typically resides in the minds of a small number of specialists responsible for the firm's portfolio management to make it available to a greater number of people. This way, critical knowledge is disseminated to employees who need it. Being committed to deriving which lessons are vital, the implementation of this solution will disperse critical knowledge and practices among employees, thereby increasing the overall efficiency of those responsible for alliance management. In other words, to truly excel in managing alliance portfolios, it is important for managers to carefully rethink how solutions can help leverage the interdependencies between the alliances in its portfolio. It is imperative here that firms move beyond mere learning-by-doing and adopt a more structured and deliberate approach to accumulating and passing on alliance-related knowledge.²⁵ For firms with alliance portfolios of substantial size, or which are expanding, the advantages of sharing and adopting codified lessons learned greatly reduces the likelihood of repeating mistakes. Treating alliances as single cases, which many medium performing firms continue to do, leaves unexploited the opportunity to consistently share and learn from important organizational know-how derived from existing alliances.

outstanding firms do not over-standardize their activities and [thus] avoid applying lessons from one alliance to another inappropriately

Second, beyond codifying best practices, it is important that firms which seek to excel in their alliance portfolio outcomes provide their professionals with an intercultural training program. Such a training program helps leverage specific knowledge on country differences for the different alliances in the firm's alliance portfolio. Our results indicate that firms that consistently outperform their peers are not only aware of general pitfalls, but are able to combine these with specific

knowledge gathered in different alliances such as in their international deals. Outstanding firms do not over-standardize their activities and are aware of the danger of falling victim to negative 'self-reinforcing cycles'. They avoid applying lessons from one alliance to another inappropriately, even where the underlying aims or management challenges of the collaborations appear similar. This means that although lessons are shared across different alliances in the portfolio, alliance professionals are careful in not haphazardly replicating unsuitable practices. Rather they resort to specific solutions, such as intercultural training programs, which can curb this problem by helping managers appreciate that different alliances may need to be managed differently. It is important that managers not only adjust alliance practices to best fit the alliance at hand, but also that new insights and experiences are shared so that best practices are frequently updated.²⁶ The results show that firms are less likely to fall victim to self-reinforcing cycles if novel lessons are frequently updated by codifying knowledge, thereby giving other managers greater opportunity to solve specific alliance related issues.

Conclusion

Given firms' mixed track records in succeeding with alliances, the need for organizations to enhance their alliance capabilities has become clear, the more so as firms' alliance portfolios become more extensive. One path to develop alliance capabilities is simply by accumulating experience ('learning-by-doing'), but not only can this approach be time consuming, but there are also many pitfalls and limitations associated with relying on experience as a source of capability development: performance metrics are often ambiguous, the causes of superior performance can be difficult to discern, the heterogeneity of alliances limits comparability, and firms may apply inappropriate lessons from prior collaborative agreements to apparently similar deals. As firms shift their focus from individual dyadic partnerships to alliance portfolios, they therefore need to put in place more deliberate means of learning. It is well known that leading firms have adopted dedicated alliance functions in order to enhance their alliance capabilities, yet there is a broad range of other deliberate learning mechanisms available to firms. For instance, managers can also consider tool-based solutions (e.g., partner selection protocols, use of an intranet, codification of best practices, etc.), training solutions (e.g. in-house courses, intercultural training, and courses by external experts), and third party solutions (e.g. consultants, mediators, etc.).

leading firms adopt dedicated alliance functions to enhance their alliance capabilities, yet there is a broad range of other deliberate learning mechanisms available to firms

We analyse firms' adoption of fourteen different alliance management practices, representing the four distinct categories detailed above. While not examined explicitly, deliberate attention to learning is also likely to improve dyadic processes. For instance, by being committed to transferring lessons internally, better decisions can be made regarding such issues as partner selection. Similarly, trust is likely to be built up more easily if joint business planning sessions are used to organize initial decision-making about the alliance at hand.²⁷ While the mechanisms studied can help firms manage alliances better, it is also evident that there is no single or simple way of enhancing the odds of alliance success; firms have considerable latitude in adopting various practices, and the suitability of particular practices is likely to hinge on the specifics of firms' aspirations, strategies and other factors. At the same time, we find that certain practices are more likely to contribute to alliance portfolio growth and success than others, thereby helping firms set their priorities in making

investments in developing their alliance capability. Our inventory of alliance management practices can help firms to move from dyads to portfolios of collaborative agreements, and to judge the appropriateness of different solutions in helping them enhance their alliance capabilities.

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Appendix

Methodology

Survey

In order to understand how firms build capabilities to manage alliance portfolios, we analysed 192 firms whose alliance portfolios included over 3,400 strategic alliances over the period 1997–2001. We used a two-pronged research methodology enabling us to compare successful and less successful alliance portfolios to help us discover how certain solutions that help develop alliance capabilities are being adopted according to both the size and the success of alliance portfolios. A questionnaire was developed in cooperation with a number of practitioners and distributed to 650 managers worldwide who were responsible for managing their firm's alliance portfolio. The members' databases of the Internet Society (ISOC) and the Association of Strategic Alliance Professionals (ASAP) were used to direct our survey questionnaires to the right person. The survey was used to collect data on managerial assessments of a firm's alliance portfolio performance as well as to capture the adoption of solutions to manage alliance portfolios.

After following the necessary procedures regarding questionnaire construction and distribution, we received a total of 192 replies, a response rate of 29.5%. There is an emerging consensus that using key informants for managerial assessments is a sound way to measure alliance performance. The sample of firms covered a variety of industries: chemicals (3%); ICT (17%); ICT services (26%); financial services (5%); other services (e.g. consultancy - 30%); pharmaceuticals and biotechnology (3%); other manufacturing (10%) and public sector (e.g. education and non-profit organizations - 4%), with missing data accounting for the remaining 2%. Firm size of the responding companies varied - 42.2% of the organizations were small (i.e. between 1–500 employees), while 52.6% employed more than 1,000 employees. With respect to sales revenues, 24% of the respondents had sales revenues below \$1 million, 22.9% between \$1 million–\$100 million, 12.5% between \$100 million–\$1 billion, 35.4% between \$1 billion and \$50 billion, while 4.7% of the respondents' revenues exceeded \$50 billion.

The 192 firms were analysed to identify which solutions were adopted by firms with low, medium and high-performing portfolios. Alliance portfolio performance was defined as the percentage of the firm's alliances judged by respondents as being successful (in terms of its original goals being realized). Of the 192 responses, 52 respondents judged their firm's alliance success rate to be the 0–40% category, 37 in the 41–60% category and 87 in the 61–100% category (the remaining 16 cases involved missing data). In total, these 192 firms in our dataset reported on 3,477 alliances. To calculate the total number of strategic alliances reported on, we took the average of each category and multiplied this figure by the number of respondents; for the largest portfolio category, we set the average at 50 strategic alliances per portfolio. Different (sub-) samples were used for the different analyses depending on the categories included and the number of missing observations.

Through this survey, we were able to confirm the four distinct categories of solutions that firms used to build their alliance capabilities, and thus compare companies' alliance practices. In order to find out how firms can enhance their capabilities to manage their portfolios and to increase overall

performance, we performed Chi-square tests to examine the differences in the solutions adopted by firms with small, medium and large portfolios, as well as when these portfolios fell into the low, medium or high performance categories.

Expert interviews

In addition to the survey, we conducted interviews with 7 experts selected on the basis of their established reputation, experience and knowledge in the field of alliance portfolio management. These practitioners held corporate positions at alliance-active firms such as Cisco, Dow Chemical, Royal Philips Electronics, GlaxoSmithKline and Oracle. The interviews consisted of two separate semi-structured sections, each of which lasted between 60 and 90 minutes. A panel of interviewees was also used to pre-test the questionnaire. All the interviews were recorded and transcribed to allow analysis, and the responses were also summarized during the interview to ensure that answers were correctly interpreted.

The interviews helped us in a number of ways. First, they helped us to verify our interpretation of the empirical findings. Second, the interviews helped us to understand the different stages firms went through in developing their alliance capabilities. Although the expert interviews were not undertaken to engage in inductive research, the outcomes are useful to understand the relevance of the solutions better, and served to illustrate their importance for different alliance portfolio sizes.

Robustness checks

To ensure that our data were not biased as a consequence of non-response or respondent background, we performed a number of additional analyses. To verify whether our data were influenced by non-response, we compared early and late respondents, a technique used frequently to assess the likelihood of response bias in survey data. Chi-square tests for three key measures (χ^2 -value of 2.386, $p > .05$ for number of employees; χ^2 -value of 1.947, $p > .05$ for sales revenues; and χ^2 -value of 3.133, $p > 0.05$ for alliance performance) showed that there was no difference between early and late response categories, indicating no significant non-response bias in the dataset.²⁸

To examine whether respondents' backgrounds influenced our findings, we performed two analyses. First, we ran a formal test to verify whether respondent position influenced the outcomes of our study, and included a separate variable ('title') which captured whether or not the respondent held a position as alliance manager or Vice-President of Alliances. Regressing this variable on the main dependent variable (alliance portfolio performance) did not render significant results ($B = .363$, $p > .05$), nor did the interaction effect with alliance experience prove significant ($B = -.382$, $p > .05$). Second, we ran a separate model which included an additional measure for firm size, to test whether large firms were more likely to perform well. The results show that the hypothesis that firm size impacts alliance portfolio performance can be rejected ($B = -.007$, $p > .05$). Hence, the results suggest our findings are not skewed as a consequence of firm size or any overestimations of performance or success by the respondents.

Limitations

Despite the fact that its findings extend the current understanding of how firms develop capabilities to manage alliance portfolios by adopting different solutions, this study presents a number of limitations. First, having certain mechanisms in place does not guarantee dissemination of knowledge. Although we use the sum of the practices in place, and one can argue that that represents the firm's potential for learning, it would be interesting for future research to examine to what extent certain mechanisms are used more often or differently. Second, the categorization of alliance portfolio size is specific to this study. While the average number of strategic alliances for firms in our dataset was 18 (thus nicely fitting in to our 'medium-sized' group), the results might be sensitive to changes in the definition of the categories. Nonetheless, using a subsample to verify the consistency of our findings did not alter the outcomes of this study. Lastly, our performance measure reflects

Table 5. Key alliance variables

Key variables	Definition and measurement
Alliance portfolio performance	The percentage of strategic alliances in which original goals were realized during the period 1997–2001. It was measured at an ordinal level and is based on a five-point scale (0–20%, 21–40%, ... 81–100%).
Alliance portfolio size	The number of strategic alliances a firm has established during the period 1997–2001. It was measured using a categorical variable (1–5, 6–15, 16–25, 26–40, >40).
Alliance practices	All fourteen practices making up the four solutions were measured using a binary (0–1) measure, indicating whether or not a firm made use of that alliance practice in the management of their alliance portfolio during the period 1997–2001.

the success rate of alliance portfolios, but does not consider the costs or risks of implementing particular alliance practices.

Measurement of key variables

Table 5 shows the definition and measurement of the key variables. The variable used in this study to assess alliance portfolio performance was the percentage of alliances in which the original goals were realized. Key informants answered the question ‘*what is your company’s overall success rate (percentage of alliances where the initial goals were realized) over the past 5 years?*’ on a 5-point scale (0–20%, 21–40%, ... 81–100%).²⁹ To obtain a proxy for the size of the firm’s alliance portfolio, we measured the number of strategic alliances a responding firm had formed over the period 1997–2001, using a five-point scale (1–5, 6–15, 16–25, 26–40, >40). After taking into account the distribution among the different categories, and the fact that the firms in our dataset on average reported on 18 alliances, we redefined this variable as small (1–15), medium (16–25) and large size portfolios (≥ 26). The second explanatory variable, alliance practices, was constructed from a list of fourteen practices based on the input of an expert panel and measured as binary variables to determine whether a firm used certain practices or not. Hence, all variables were measured individually to determine which of the fourteen alliance practices were used by the responding firm. Finally, we performed some supplemental analysis to check on the interpretations reported in the article, including control variables such as firm size (annual sales revenue) and sector effects (e.g. ICT and service industries) were in multivariate models (results available from the authors).

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