# 1

---

# INTRODUCTION

## ABSTRACT

*This introductory chapter includes sections about best practices, myths, and risks, along with a checklist and a section with a definition of terms. It provides many entry points and references to other chapters of the book where specific issues are analyzed in more detail.*

## 1.1   MYTHS ABOUT OFFSHORE OUTSOURCING

*First-timers in offshore business have much to learn. This section lists some myths that are commonly believed by inexperienced buyers and that have even appeared in some published articles.*

**Myth**: Outsourcing leads to immediate cost savings.

**Reality**: The first offshore project carried through by an inexperienced buyer rarely leads to any cost savings at all; in most instances, it leads to higher cost instead. (See Chapter 3, in particular Section 3.2.)

**Myth**: The cost savings at the beginning of the contract are valid for the entire term.

**Reality**: Some vendors offer "back-loaded" contracts that lead to unrealistically high savings at the beginning of the contract. The savings are balanced by rather high costs towards the end of the term. This kind of financial engineering allows the responsible manager on the customer's side to report immediate high savings. The so-called cost savings are in fact a kind of hidden credit that does not appear as such in the accounting papers. (See Section 3.2.)

**Myth**: If the salaries in a developing country are 80 percent lower than in an industrialized country, one should expect cost savings of 80 percent.
**Reality**: Only a few case studies report cost reductions higher than about 15 to 30 percent. (See Chapter 3, in particular Section 3.1.)

**Myth**: "Best practices" are the best you can do in offshore projects.
**Reality**: More important than understanding the "how-to-do-it" is understanding the "what-can-go-wrong." (See Section 1.2 and Section 1.3.)

**Myth**: Following "best practices" leads to cost savings.
**Reality**: Most so-called best practices have been successfully applied in certain types of offshore scenarios but have failed in others. (See Section 1.2.)

**Myth**: The customer is the stronger party in an offshore scenario.
**Reality**: Large vendors have carried out hundreds of projects, and their experience includes tens of thousands of hours at the negotiation table. Many of their customers are first-timers in that field. Thus, the vendor usually has a much clearer vision of how the relationship will develop. (See Section 5.1.)

**Myth**: An offshore deal is a turn-key agreement.
**Reality**: Businesspeople who have been involved in successful offshore deals report that governing the ongoing offshore project entails more investments than starting the offshore scenario does. (See Section 5.4.)

**Myth**: Fixed-price projects have a fixed price.
**Reality**: Most projects require changes and extensions even before the first version is installed. These changes involve extra payment. The extensions often constitute a significant fraction of the initial price — in some cases even more. (See Section 9.2.)

**Myth**: Top-tier providers in India are the only options.
**Reality**: Local wages will increase as the country progresses. The provider might have a secret pricing strategy for the future; some of the most mature offshore vendors have already started asking why the prices in India have to be lower if the quality is higher. (See Section 3.2.)

**Myth**: The customer can easily end the outsourcing relationship — provided that the contract is well drafted.

**Reality**: It is very difficult to end a relationship with an outsourcer once the vendor is involved in projects of strategic importance for the buyer. This can be thought of as the "Golden Rule of Outsourcing." Some providers are aware of this fact and incorporate it into their pricing strategy: they start rather cheap — with "price-to-win." When the relationship reaches the point at which the buyer cannot get out easily, they increase the margins. That is why the rule is called "Golden." (See Chapter 11.)

**Myth:** Offshore outsourcing is a win–win situation.
**Reality:** In many respects buyer and vendor have conflicting interests, preventing the scenario from being a win–win game. (See Section 6.2.)

## 1.2  BEST PRACTICES

*Some best practices have been successful in a number of projects and according to the experience of the author. Notice, however, that best practices are guidelines — not a panacea. More important than understanding the "how-to-do-it" is understanding the "what-can-go-wrong" when dealing with best practices.*

### 1.2.1  Fixed-Price Contracts

Many customers prefer fixed-price contracts because the client knows in advance how much the project will cost. Fixed-price contracts need detailed specification of requirements before the implementation starts; otherwise, no reasonable cost estimation is possible. However, even if fixed-price contracts provide more control of the cost than other contract types do, the price is nowhere near as "fixed" as the customer would like it to be. (See Section 9.2.)

### 1.2.2  Cost Estimation

Realistic estimation of cost includes cost for transferring the information technology (IT) offshore, cost for additional communication, risk reserve, and budget for terminating the contract with the vendor. Costs in offshore countries are changing over time. Salaries have been steadily increasing in recent years, and further growth can be expected. (See Chapter 3 and Chapter 11.)

### 1.2.3  Communication Costs

Carefully consider communication costs, and look for ideas meant to minimize these costs. Exchange team members; use straddlers, liaisons,

and envoys. Outsource entire entities for their entire lifespan. (See Section 3.3.)

### 1.2.4 Changed Business Requirements

Changed business requirements may demand much decreased or radically changed IT services. In this case another vendor might offer more advantages. For this reason savvy buyers take into consideration that the relationship might end one day. (See Chapter 11.)

### 1.2.5 Plan for Divorce

It is difficult to terminate a relationship with an outsourcer once the provider is involved in projects of strategic importance for the customer. Prepare for a plan of terminating the offshore scenario if necessary and how business continuity will be provided for after the relationship has been terminated. (See Chapter 11.)

### 1.2.6 Assess Your Demand for Information

First-time customers have a great deal to learn about offshore business. Find out what you know, what you do not know, and what you ought to know. Find out whether what you know is correct or incorrect. (See Chapter 4 and Section 1.4, Section 5.1, and Section 5.2.)

### 1.2.7 Start an Offshore Scenario Slowly and Be Risk Sensitive

Use pilot projects. If it is not necessary to make a decision then it is necessary to make no decision.

### 1.2.8 Governance Is More Important than Vendor Selection

Implement a steering committee that oversees the work of the vendor. Provide enough resources for governance. The size of the in-house steering committee should be about 10 percent of the outsourced project size. (See Section 5.4.)

### 1.2.9 Internal Communication and Backlash

Think carefully about forwarding the offshore plans to the existing in-house team — particularly to those persons who should be kept as part of the team even after the offshore scenario has been installed. This type

of communication is convincing only if it is combined with realistic career paths. (See Section 6.5.)

### 1.2.10 Outsource Entire Projects for Their Entire Life Cycle and Make the Offshore Site Accountable for the Overall Result

Outsourcing only parts of a project (e.g., some modules or only specific phases) causes much higher communication costs. (See Section 8.3 and Section 8.4.)

### 1.2.11 Look for Ways to Keep the Vendor Honest in the Long Run

One of the strongest management instruments in the hands of the buyer is a well-drafted "termination on convenience" clause — if it is connected with a reasonable early termination fee. (Section 11.1.) However, this provision is not usually included in fixed-price contracts, so the customer has to find another way to keep the vendor honest.

### 1.2.12 Carefully Select an Offshore Adviser

An offshore adviser can save the customer a lot of money, time, and sleepless nights. Especially for first-time buyers and for companies that want to start an offshore subsidiary (not just buying from an independent vendor), the fees for the consultant may turn out to be a great investment.

Not all consultants are equally suited for this task, however. Some advisers are closely related to a certain offshore provider. They are in fact marketing departments, and their main purpose is to find customers and provide for a steady ingress of orders. These "offshore advisers" are not suitable if the customer is still undecided about the choice of vendor, the best business model, or whether to go offshore at all because the consultant's advice is biased towards a specific vendor and its business model. And the decision "offshore — yes or no" should be beyond discussion in any event. Discussing this decision with an offshore adviser is like going to a TV shop and trying to discuss with the salesclerk whether it is good for a family to have a TV in the home.

Offshore consultancy is a good business to be in right now, and it attracts many would-be experts who do not have adequate experience. For this reason buyers are well advised to carefully assess their consultancy needs and whether these needs match the offshore consultant's experience and credentials. Many offshore consultants have very limited first-hand experience in the offshore country's software industry. Most of their knowledge comes from published sources and from discussions with their

customers. Others have experience only in relation to specific roles — e.g., as consultants; they participate at the beginning of the project for a couple of weeks, hold discussions with top executives, write a document titled "business plan," and then leave the project. Perhaps they come back after a year or two asking for a questionnaire to be filled in about how things turned out.

Even certain book authors have never worked in an offshore project. Instead they read mailing lists, articles, and other books; compile this information; and rewrite it using a pleasant and convincing writing style. That is how myths can come into existence. (See Section 1.1.) Such journalistic activity is not necessarily undesirable. On the contrary, it is important work that helps the reader get an overview of the general issues. However, the customer has to decide whether these individuals are the ideal consultants when starting an offshore scenario. (See also Section 6.9 and Section 6.10.)

### 1.2.13  Before You Start Applying "Best Practices"

There is no shortage of advice and "best practices" in offshore business. Notice, however, that best practices are anything but similar to Pythagoras' Formula — something that can be applied with or without understanding it because it will always deliver a correct result. "Best practices" are different: most suggestions have been successfully applied in some projects but have failed in others. Only a few "best practices" can be applied to all kinds of offshore scenarios. Some "best practices" even contradict others.

Thus, it is necessary to validate so-called best practices by using reliable sources that testify that the suggested practice has been applied in projects of similar size and profile. The reliability of the sources is particularly important in cases where the inventor of the best practice has an economic interest in its actual implementation.

Understanding the background of the best practice is very important: why is this practice expected to work? Even more important is to understand what can go wrong.

## 1.3  RISKS AND HAZARDS

*Many hazards exist in offshore outsourcing. That is what the entire book is about: making responsible managers aware of what can go wrong and what steps could be considered to mitigate these risks. This section highlights some particularly frequent challenges and references the reader to the chapters and sections where the issues are analyzed in more detail.*

The sequence of the listed items does not imply any priority: in some projects one of these risks may constitute the dominant problem, although the same risk is completely insignificant in other offshore scenarios.

### 1.3.1 Underestimation of Communication Costs

The long distance and higher expenses for communication when working with offshore vendors require a completely new set of management techniques. (See Section 3.3 and Section 7.4.)

### 1.3.2 Inadequate Governance

The buyer needs an in-house steering committee to oversee the work of the vendor. The size of the steering committee should be about 4 to 10 percent of the entire project team, and its members require specific qualifications. (See Section 5.4.)

### 1.3.3 Loss of Control over Key Information, Crucial Knowledge, and Technical Staff

The technical staff, their know-how, and the documentation they produce are controlled by an independent vendor that has its own balance sheet and its own interest — which might be different than the buyer's interests. (See Section 2.1 and Section 11.2.)

### 1.3.4 Loss of Leadership in Business Relations

Outsourcing relations have the tendency to expand. The vendor might take over leadership in the buyer's business relations; in time some of these relations may be managed by the vendor, and the communication will pass its desk. (See Section 11.3.)

### 1.3.5 Buyer's Business Continuity

The buyer's dependency on the vendor might grow in time. How will the buyer continue its business — in particular after switching to another vendor or bringing the services back in house? (See Chapter 11.)

### 1.3.6 Underestimating Backlash and Resistance of the Existing In-House Team

The existing in-house team has an important say when know-how has to be transferred to the vendor's staff. In this way they have a great deal of

influence on the success or failure of the envisioned outsourcing scenario. However, they are very aware that many of them will lose their jobs after the offshore relationship is established. (See Section 6.5.)

### 1.3.7 Dynamic of Costs

Salaries in developing countries have been growing steadily, and further increases can be anticipated. In addition, the vendor might change its pricing strategy. (See Section 3.2.)

### 1.3.8 International Litigation May Turn Challenging

Litigation with developing countries can be challenging. If something goes wrong, it might be difficult to obtain adequate compensation.

### 1.3.9 Outsourcing of Unsuitable Projects

Some kinds of projects can be outsourced much more easily than other kinds can. (See Section 8.5.)

### 1.3.10 Sly and Unfair Providers

The provider might turn out to be unexpectedly clever and sly and could abuse its superior experience in outsourcing projects to the disadvantage of the customer. Thus, the cooperation might end in a very unpleasant way that could be surprising for the inexperienced buyer. (See Section 6.2.)

### 1.3.11 Vendors Working for Competitors

In time the vendor might work also for competitors of the customer. In this way business know-how that has been trustfully transferred to the vendor at the onset of the relationship might be used competitively against the customer who provided the know-how. (See Section 5.2 and Section 10.2.)

### 1.3.12 How to Prevent the Vendor from Becoming a Competitor

The customer has to transfer the business know-how to the vendor at the beginning of the relationship. The vendor controls the technical staff and in this way the technological know-how. The vendor's employees have lower salaries — i.e., an excellent cost structure. What should stop them from being successful as competitors in a few years? Perhaps during these years the vendor has accumulated some capital and might think, "Let's

headhunt a few of the customer's best staff and start a little business over there." (See Section 5.2 and Section 10.2.)

### 1.3.13 Risk of Failed Projects

The customer might suffer high consequential damages when a project fails or is not delivered on time. This makes the customer vulnerable. In extreme cases unfair developers on the vendor's side could exploit this vulnerability and blackmail the project by saying that either they get much more money or they will quit immediately. (Section 6.3 includes such an anecdote.)

### 1.3.14 Distribution of Risks between Buyer and Vendor

The vendor is required to deliver according the outsourcing contract. Discontented customers can resort to litigation, which may or may not be successful. This is one side of the coin. The other is that if the customer does not get the needed IT services, the fate of its entire business might be at stake.

### 1.3.15 Management of Distributed Projects Might Turn out More Challenging than Expected

Given the long distances between buyer and vendor and between development team and domain experts, management of distributed projects may turn out to be more difficult than anticipated. (See Chapter 7.)

## 1.4 CHECKLIST FOR STRATEGIC SUCCESSFUL OFFSHORE OUTSOURCING

*The following checklist provides a number of questions that can help a customer evaluate the maturity of its offshore outsourcing plans and assess the chances of success.*

**Objectives (Chapter 2)**
- Are the customer's objectives explicitly stated?
- What are the success criteria? Are these goals realistic?
- Most IT projects have a strong impact on business processes. Is the interaction between the IT project and the business processes understood?

**Cost savings (Chapter 3)**
- What level of cost savings is expected?

- Are these expectations realistic? Do these prospective savings match published numbers for similar scenarios? How will costs evolve in the future? What costs should customers expect in a few years' time?

**Support for offshore plans (Chapter 6)**
- Are the offshore plans fully supported by top management and marketing and sales departments?
- What are customers and end-users thinking about these plans?
- Does the offshore scenario need support from in-house IT staff? How will such support be achieved?

**Contract (see Chapter 9)**
- Does the customer have access to truly qualified consultancy regarding software projects, outsourcing contracts, and legal problems in an international context?
- Has the customer clearly set out the negotiable and nonnegotiable parts of the agreement (e.g., terms of contract, pricing model, control rights)?

**Protection of commercial secrecy (Chapter 10)**
- How important is commercial secrecy?
- Does the cost advantage justify the loss of control over staff?
- How will business know-how be protected in the long run?

**Offshore relationships (Chapter 5)**
- How is the power in the offshore relationship distributed? Who makes the decisions *de facto*?
- How will power be distributed in a few years' time?
- What is the conflict resolution strategy?
- What importance does litigation have in the conflict resolution strategy? Note that litigation has rarely been very beneficial for the customer in offshore scenarios to date. How much experience does the customer have with international litigation and how efficient are courts in the context of international business, including business with developing countries?

**Remote project management**
- What processes will be used to control, manage, and oversee the work of the development team? (See Section 5.4.)
- Where have these processes been successfully applied before? Are the scenarios where the processes have been applied sufficiently similar to the scenario where it is planned that they will be applied? (See Section 5.4 to Section 5.6.)

- Is the information about other application of these processes reliable? Have the processes been successfully applied without university staff, without research and development funding, and outside of the scope of influence of the inventors of these processes? (See Section 5.4 to Section 5.6.)
- How are requirements defined? (See Section 9.1.)
- Who will engineer the requirements documents? Do these people have enough experience? Do they have experience in writing requirements documents in the context of international projects? (See Section 9.1.)

**Exit plan (Chapter 11)**

- Is there an exit plan that shows a way in which the offshore scenario can be discontinued? Does this plan include a strategy for how the business will be continued after the collaboration ends? Does this exit plan include contractual provisions as well as commercial strategies and tactical day-by-day business decisions?
- Is the exit plan realistic? What is the evidence that this exit plan will work? Has this strategy ever been tried (e.g., in another scenario)?

## 1.5 OPINIONS AND HARD NUMBERS ABOUT GLOBAL SOURCING

*At the time when this book was written, widely accepted hard numbers were difficult to find. Many organizations that submitted such numbers had vested interests to influence the public opinion about global sourcing in one or the other direction. This might explain why even numbers submitted by governmental statistical institutions exhibited huge differences, depending on which government controlled the respective institution.*

*Another reason for not including extensive surveys and studies in this book is that the numbers from these studies become outdated rather quickly. In particular, "expert prognoses" that refer to the future are prone to require "corrections" soon after they are published. Thus, only a few selected numbers and expert opinions that are currently under discussion are presented here.*

In August 2005, Forrester Research expected that 3.4 million positions will move overseas by 2015 — equivalent to $136 billion in wages. The short-term prognosis is that a total of 830,000 jobs will have gone offshore by 2005. (See Figure 1.1.)

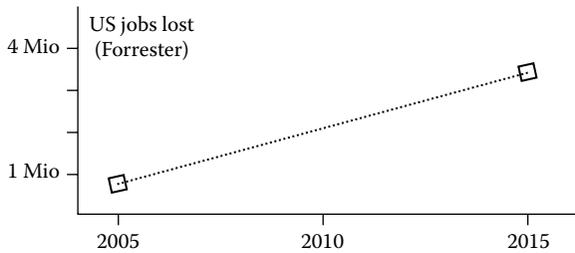**Figure 1.1 Expected loss of jobs due to outsourcing. (*Source*: Forrester Research, August 2005.)**
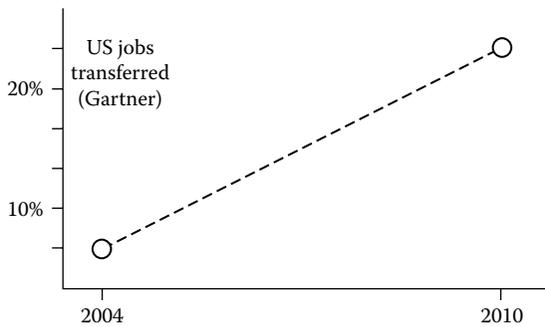


**Figure 1.2 Expected number of jobs transferred abroad. (*Source*: Gartner, 2004.)**

The number 3.4 million sounds dramatic. Forrester, however, emphasized that it represents less than seven percent of jobs in the categories covered by the study, which include "management," "computer," and "legal." Ironically, Forrester concluded that the heated discussion of offshore outsourcing in the media has accelerated the process by making executives aware of the trend. In another study in April 2005, Forrester reported that 58 percent of the surveyed 139 North American firms are not using or planning to use IT offshore service providers.

According to Gartner's report, in 2004 about five percent of jobs have been moved to foreign soil. However, researchers expect 25 percent by 2010. (See Figure 1.2.)

Gartner vice president Ian Marriott told the attendees of an IT conference in Barcelona, Spain that not only the United States but many developed counties are affected. According to Marriott, "Global sourcing is becoming a mainstream delivery model. The potential cost advantages are so persuasive that companies that don't consider it seriously risk doing their shareholders a disservice. Businesses will also be put at risk due to

loss of competitive advantage and inability to focus on growth through innovation."

Deloitte Research announced a prediction that 275,000 jobs in the telecom industry will have been shifted abroad by 2008. These are about five percent of the total 5.5 million employees in that industry. Telecom companies that are already using global sourcing models — or planning to do so — expect 20 to 30 percent reduced costs within four years.

Interestingly enough, the numbers published by U.S. government institutions are much less spectacular and alarming. According to a report from the Bureau of Labor Statistics (BLS), 4633 jobs were lost to overseas relocations during the first quarter of 2004. Given that nearly 240,000 jobs were lost in that time, offshore outsourcing accounted only for the moderate contribution of less than two percent.

Notice, however, that this report is only taken from companies that laid off 50 or more employees. Thus, this statistic covers only a small fraction of the real job turnover at that time.

These differences make it obvious that reading such data requires a good deal of experience, as well as knowledge of where the numbers came from and how they came into existence.

The World Trade Organization (WTO) analyzed, in their World Trade Report, the gap between the numbers in surveys from research institutes such as McKinsey, EITO, and Gartner compared to other numbers derived from national Balance of Payment (BOP) data. The report analyzed the 2003 data on bilateral trade between the United States and India. Based on the country's IT services association, the National Association of Software and Service Companies (NASSCOM), India exported $6.8 billion of IT services to the United States. The U.S. BOP data, however, is different; according to this source, only $0.9 billion of computer and information services (CIS) have been imported from India. (See Figure 1.3.)

A radically different opinion comes from the Information Technology Association of America; their analysis showed that offshore outsourcing not only boosts the U.S. gross domestic product but also helps *generate* jobs in the United States.

According a Deloitte study (conducted in late autumn 2004), the organizations participating in the study spend about $50 billion on outsourcing. The U.S.-focused study reveals "that 70 percent of participants have had negative experiences with outsourcing projects and are now exercising greater caution in approaching outsourcing. One in four participants has brought functions back in house after realizing that they could be addressed more successfully or at a lower cost internally, while 44 percent did not see cost savings materializing as a result of outsourcing."

Richard Punt, strategy partner at Deloitte, summarizes: "In the short-term, outsourcing may become less appealing for large companies because
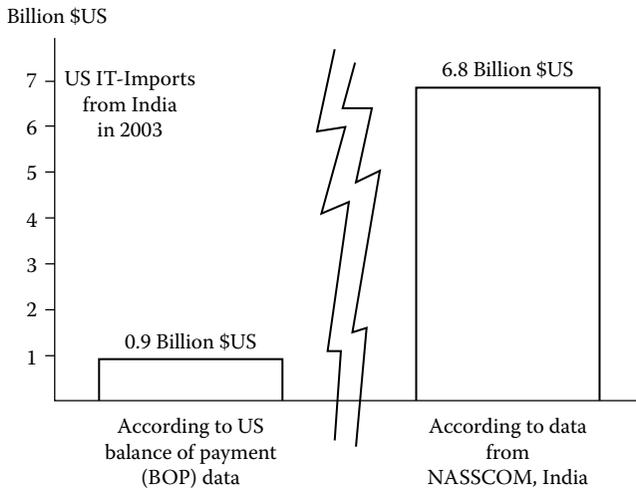
Billion $US



**Figure 1.3    Differing estimates of U.S. IT imports from India-based providers.**

it is not delivering the value as promised, and its appeal as a cost-savings strategy will also diminish as the economy recovers from recession and companies look for differentiated solutions to support their growth."

A report from India's NASSCOM estimated the total value of outsourcing to India at $17.2 billion, or 44 percent of the worldwide total. In 2004 about 80 percent of the Fortune 500™ companies outsourced at least one operation to India (an increase from 60 percent in 2003). These numbers include companies that have their own centers in India as well as companies that are working with Indian technology providers.

The situation in Western Europe requires a separate analysis because salaries are lower than in the United States and the employment laws and business culture are different.

In summer 2004 the institute IDC surveyed 500 medium-sized and large organizations in Western Europe. Eighty percent of them do not have plans regarding offshoring IT services. Only 10 percent are currently using offshore outsourcing. This study included areas, such as application development, where offshore providers are traditionally strong.

The data suggests that offshore outsourcing has not yet led to deep-rooted changes in Western Europe as dramatic as those described by analysts in the United States. One observation, however, might be important when reading these numbers: Many European customers prefer working with their long-tried outsourcer. Instead of directly contacting an offshore vendor, they renegotiate the contract terms with their existing provider, putting indirect pressure on the outsourcer to use offshore options.

This rather relaxed picture of only 10 percent of companies outsourcing seems to contradict the numbers of Forrester Research; according to their study about 1.2 million jobs will be lost in Western Europe due to offshoring by 2015.

## 1.6   DEFINITIONS OF TERMS

*Offshore outsourcing has developed its own vocabulary. This section provides a concise overview of the terms used and includes references to the chapters where these concepts are explained in more detail.*

The term *outsourcing* is used if services and business functions are provided by an external organization. The organization that receives the services is called *client, buyer, customer,* or *project owner*, and the external organization is called *outsourcer, vendor,* or (*service*) *provider.* Frequently, the buyer is located in a leading industrial nation (such as the United States or one of the countries of Western Europe), and the vendor is based in an emerging country (e.g., India or China) — so-called *offshore outsourcing* or *offshoring*. One of the most important motivations for offshore outsourcing is that the salaries in the emerging country are much lower.

The term *offshore* usually implies that buyer and vendor are on separate continents, i.e., for a customer in the United States a provider in Eastern Europe is "offshore." However, if the buyer is located in France, an Eastern European vendor would be considered *near-shore*. The present book does not usually make this strict distinction. If there is no danger of confusion, a vendor in an emerging country is called "offshore" irrespective of where the customer is located. In some industrialized countries, the term offshore outsourcing carries the connotation of "losing jobs." To avoid resentment, some authors use the term *global sourcing* instead.

Before the offshore cooperation can start, the partners have to collect the necessary information about each other — so called *due diligence* (Section 5.2). Some prospective buyers submit a questionnaire to various vendors before they decide on their provider. This *Request for Proposal* (*RFP*) outlines the project that is to be outsourced (Section 5.1). The invited vendors answer such requests with offers and proposals.

The top-level architecture of the cooperation, the day-by-day practices and the contracts involved, is called the *offshore scenario* or *business architecture* (Chapter 7). An offshore scenario includes at least two organizations (buyer and vendor) but can facilitate more stages. If the capital of the two organizations is merged (e.g., buyer owns the vendor's organization) it is called a *foreign subsidiary*; otherwise, there are two *legally independent companies* (Section 7.2). A *bridgehead* is an office (usually

small), in the industrialized country, that is owned by the offshore vendor and facilitates communication with the customer (Section 7.4). *Liaisons* (also known as *straddlers*) are employees of the vendor who visit the customer for a certain time or periodically, e.g., to install intermediate work-results and discuss new requirements (Section 7.4). An *envoy* is an employee of the customer who visits the vendor (Section 7.4). A *customer's representative* is similar to an envoy; he or she is a person trusted by the customer who oversees the work of the offshore team and makes decisions on the customer's behalf (Section 7.4). The difference is that the customer's representative lives permanently in the emerging country, but the envoy visits the vendor only temporarily. When the envoy comes to the developing country, the envoy is usually embedded into the vendor's team during the visit. The customer's representative might be part of the vendor's team as well; however, there are also customer's representatives who run an independent office geographically close to the vendor, visiting the vendor's site only occasionally.

The buyer may decide to work with a single, exclusive provider — so-called *single sourcing* or *sole sourcing*. The *multi-sourcing* model, in contrast, includes two or more providers (Section 7.5).

In *on-site offshoring* the vendor sends workers to the buyer's site — so called *loan workers* (Section 7.2). They work under surveillance of the customer's management. For the time of their stay the vendor is only responsible for some basic discipline — e.g., that the workers come at a certain time to the office. The onshore management guides the efforts, oversees the work of the loan workers, and is accountable for the final success of the project. A related model is the *body leasing agency* (Section 7.2). These agencies are usually based in the industrialized country. They take on staff in offshore or onshore countries and send these loan workers to the customer's site where they work under surveillance of the customer's management.

The vendor may *subcontract* part or all of the work to third parties — i.e., the *subcontractor* does the work on behalf of the vendor. If the subcontractor is running another network of sub-subcontractors, the business architecture is called a *daisy chain* (Section 7.2). Frequently these sub-subcontractors and freelancers are smaller, cheaper, and less reliable than the initial vendor; sometimes, the owner of the project is not aware of this chain of subcontracting relations and would not have agreed to it if informed.

In a *joint venture* both partners delegate staff and invest other resources into a common project (Section 7.2). Even if the joint venture is not an independent company in a narrow legal sense, it is frequently handled like "a company within the company." The *strategic alliance* is designed for a longer term, unlike a joint venture, which is usually limited to a

certain project (Section 7.2). A strategic alliance can include one or more joint ventures.

Even after the offshore scenario is established many buyers keep some IT experts in house, although the number is much smaller than before. This *steering committee* oversees the work of the offshore team and facilitates communication (Section 5.4). Another important task of the steering committee is governance of the relationship. In the course of the cooperation some disputes might arise. Litigation is almost always the worst solution to such disputes. Thus, the outsourcing contract might include a clause which applies *Alternative Dispute Resolution* (*ADR*) — e.g., *mediation* and *arbitration* (Section 5.5). *Arbitration* is similar to a court trial that leads to a final decision in favor of a plaintiff or defendant. The procedure is usually shorter, easier, and less expensive than a trial at an official court. In addition, the parties can choose a specific arbitrator — e.g., an expert in that field. During *mediation,* a trained mediator helps the parties to find a mutually acceptable solution; one can think of mediation as kind of marriage counseling for companies. Mediation does not lead to a decision by the mediator; the parties have to find their own, mutually accepted solution.

If the price for the outsourced project is agreed on in advance, the contract is called a *fixed-price contract* (Section 9.2). An alternative is the *unit price contract,* which is based on a payment per working hour (or working day), as discussed in Section 9.3. Some buyers decide to outsource a part or all of their IT services for a certain time (e.g., five years); this leads to a *service agreement* (Section 9.6). A service agreement usually specifies the monthly fees, the *term* of cooperation (e.g., five years), the *services* that will be provided by the outsourcer, and some so-called *service levels* (e.g., network availability or the average response time when problems have been reported). These items are discussed in Section 9.6.

Many service agreements include a *benchmark* clause (Section 5.6). The *benchmark audit* is conducted by an independent third party — the *benchmark provider.* During this audit the performance of the vendor is measured and the fees are compared to other outsourcing contracts in the benchmark provider's database. The conclusion of the benchmark audit might be that the vendor has to resolve identified problems within a certain time or that the fees will be adapted.

A software project includes a number of important files. The engineers are developing a set of text-files — the so-called *source code* (e.g., in BASIC, C++, or Java). This source-code does not usually arrive in the hands of the end user. Instead it is used as input for another computer program, called a *compiler,* which translates the source code into an *executable file* in an automatic way. Only this executable can be "executed"

on a computer; the source code cannot be. Nevertheless, the source code is of crucial importance for the project because it is needed whenever any changes are to be made.

When a certain team is responsible for source code, it is said that they "*own*" the code. This "*ownership*" does not mean that they own the code in a legal sense of copyright law; it is just an expression indicating that they have the last word about which changes and extensions they consider necessary.

When the first version of the program is finished, it usually still contains some errors. The incorrect behavior that can be observed by the user is called a *defect*. Defects are found during testing. The reason for a defect — e.g., the wrong line in the source code — is called a *fault*. In jargon the process of finding and fixing faults ("bugs") is called *debugging*.

The term "debugging" stems from an old anecdote.

> The circuits of a certain telephone center had a nasty error that turned out to be difficult to find. The engineers had strong suspicion that a certain switch was responsible for the wrong connections. Tests, however, showed that the device seemed to be all right. The engineers even changed the entire unit. Surprisingly enough, the problem persisted.
>
> Finally, they found the reason: a small bug was occasionally sitting between the contacts of the (mechanical at that time) switch, preventing electrical contact. Tracing the problem to that switch was difficult because the bug would leave its place and come back another time.