

Using Codes of Conduct to Resolve Legal Disputes

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In the absence of other published standards of care, it is reasonable for contractual parties to rely on an applicable, widely available code of conduct to guide expectations.

When legal disputes arise, the primary focus of judges, juries, and arbitration panels is on interpreting facts. In cases of alleged underperformance, they must evaluate facts against contract language, which typically states that services will be provided in accordance with industry standards. Legal arbiters seek well-articulated “standards of care” against which to evaluate the behavior of contractual parties and, in the absence of other published standards, increasingly rely on codes of conduct (CoCs) to establish an objective context. In fact, they have successfully applied CoCs—including the ACM/IEEE-CS CoC—in instances where the parties were not even affiliated with the CoC-sponsoring organization.

We illustrate the current application of CoCs with a fictional enterprise resource planning (ERP) system implementation failure that is a compilation of real-life cases. Subject to binding panel arbitration, the plaintiff and defendant in the case presented conflicting interpretations of the same facts: From the plaintiff’s perspective, the defendant

failed to migrate the ERP system as promised; the defendant countered that defective and poor-quality data delayed the migration. Using the ACM/IEEE-CS CoC as a reference, expert testimony convinced the arbitration panel that the defendant’s position was untenable, and the panel accordingly awarded the plaintiff a multimillion-dollar judgment.

CASE STUDY

Acme Co. received a directive from its parent corporation mandating replacement of its legacy pay and personnel systems with a specific ERP software package designed to standardize payroll and personnel processing enterprise-wide. Upon the vendor’s “referred specialist” recommendation, Acme Co. contracted with ERP Systems Integrators to implement the new system and convert its legacy data for \$1 million.

The contracted timeline was six months, beginning in July and wrapping up with a “big bang” conversion at the end of December. The year-end conversion failed, allegedly due to ERP Systems Integrators’ poor data migration practices, and Acme Co. had to run the old and new sys-

ARBITRATION VERSUS CIVIL SUITS

In contrast to civil suits tried in a court of law, arbitration vests the functions of judge and jury in a panel of arbitrators, typically lawyers or industry professionals, whose time is paid for by the involved parties. Arbitration is private and frequently subject to confidentiality and nondisclosure agreements—because only the participants know the details, arbitration influences future litigation at a slower rate than do public court proceedings.

An arbitration panel does not issue an opinion; instead, it hands down a one-page decision to award damages (or not)—typically monetary—to one party or the other. The reasoning supporting any judgment thus must be inferred from the parties' arguments. Arbitration decisions are final and generally cannot be appealed.

Remaining rules of court are much like those in a trial. A preliminary phase is dedicated to evidence gathering, motion exchanges, depositions, and other discovery forms. Lawyers for each party try to convince the panel of the validity of their client's position.

tems in parallel—a complex and expensive situation that it had carefully planned to avoid and that ERP Systems Integrators had assured them would not occur. When the conversion was pushed into April of the following year, Acme Co. slowed and then ceased paying ERP Systems Integrators' invoices. In July, ERP Systems Integrators pulled its implementation team and Acme Co. initiated arbitration.

Most IT projects are governed by contracts that assign responsibilities to each party and provide specific remedies for delayed implementation or project failure. Such contracts require the parties to submit to private, binding arbitration to resolve disputes. As the "Arbitration versus Civil Suits" sidebar indicates, this process slightly differs from civil litigation in a court of law. However, the use of CoCs applies equally to both settings.

Almost a year passed before the arbitration hearing. Meanwhile, Acme Co. and ERP Systems Integrators deposed witnesses, and experts scrutinized sales materials, project artifacts (e-mails, status reports, project plans, and so on), contract documents, application software, migration tools, and contents of the shared-drive implementation environment.

THE "STANDARD OF CARE" DILEMMA

The arbitration panel had to resolve three key issues:

- *Who was responsible for project management?* Acme Co. produced paperwork indicating that responsibility rested with ERP Systems Integrators. The plaintiff claimed that it had no idea how to implement such a system and had hired the defendant to provide such expertise—including project management.
- *What standards applied to the programming used for data conversion?* Acme Co. attacked specific conversion software changes as harmful in that they

increased the amount of incorrect data within the converted database by an unnecessarily complicated order of magnitude. ERP Systems Integrators responded that the referenced software changes did not constitute "software engineering" and thus were not subject to CoC guidance.

- *How significant were project communication failures?* During discovery, numerous intracompany e-mails from ERP Systems Integrators described the project in a markedly more pessimistic tone than the communications delivered to Acme Co. in compliance with contract provisions.

These issues collectively fell under the "standard of care" portion of the contract. The dilemma Acme Co. faced—one common to companies in the same position—was detailing the standard of care it expected from ERP Systems Integrators. The contract language specified that ERP Systems Integrators "warrants that the services it provides hereunder will be performed in a professional and workmanlike manner in accordance with industry standards."

As the following exchange shows, ERP Systems Integrators could not provide more detail regarding the warranty statement:

Question: What are the industry standards that you are referring to?

Defense: There is nothing written or codified, but they are the standards recognized by the consulting firms in our industry.

Question: I understand that the industry standards that you are referring to here are not written down anywhere; is that correct?

Defense: That is my understanding.

Question: Have you made an effort to locate these industry standards and have simply not been able to do so?

Defense: I would not know where to begin to look.

For its part, Acme Co. argued that suitable Internet-based CoCs were available to guide various behaviors. The "Online Codes of Conduct" sidebar describes one useful resource, the Online Ethics Center, that aggregates numerous CoCs. In particular, the plaintiff referenced the ACM/IEEE-CS Software Engineering Code of Ethics and Professional Practice. The "SECEPP" sidebar provides a brief history of this CoC.

Acme Co. successfully argued to the arbitration panel that, when faced with obscure or publicly available standards, contracting parties should expect the accessible standards to apply. The plaintiff then cited objective, concrete portions of SECEPP that directly supported its positions on the three disputed issues.

PROJECT MANAGEMENT RESPONSIBILITY

In pre-arbitration depositions, ERP Systems Integrators asserted that it was not the project manager and that the contract specified its performance solely at the direction of Acme Co. The plaintiff contended that, while contract language did exist, overall project management lay with the defendant because it assumed that role in spite of its denials. In its defense, Acme Co. cited Section 2.7 of SECEPP, which states that “computing professionals have a responsibility to share technical knowledge with the public by encouraging understanding of computing, including the impacts of computer systems and their limitations.”

The panel members understood SECEPP to be analogous to a building code and that, because of its broad wording, applied to the project in general and not specifically to its software engineering aspects.

Expert testimony supported Acme Co.’s claims. Referencing widely published and accepted principles¹ that supplemented SECEPP, the plaintiff prepared a framework of project management behaviors as shown in Table 1. Specific evidence included a timesheet signed weekly by ERP Systems Integrators charging approximately 2,000 hours against the job category “Project Manager” and the task “Project Management.”

It was obvious from the evidence that ERP Systems Integrators was hired in a specialist capacity and that Acme Co. had no ability to provide oversight. The arbitration panel determined that the defendant acted as, and clearly was, the project manager.

RELEVANT PROGRAMMING STANDARDS

ERP Systems Integrators blamed the conversion failure on “bad data.” However, Acme Co. provided evidence of

ONLINE CODES OF CONDUCT

The Online Ethics Center for Engineering and Research (<http://onlineethics.org>) is a joint project of the Center for Ethics, Engineering, and Society at the National Academy of Engineering and the Ethics Education Library at the Center for the Study of Ethics in the Professions at the Illinois Institute of Technology. Funded by a grant from the National Science Foundation, the website brings together more than 50 CoCs from organizations including:

Institute of Electrical and Electronics Engineers (IEEE)	Association for Computing Machinery (ACM)	Institute for Certification of Computing Professionals (ICCP)	Data Management Association (DAMA)
<ul style="list-style-type: none"> • 365,000 members • 150 countries, 40 percent outside the US • 128 transactions and journals/magazines • 300 conferences annually • ACM/IEEE-CS Software Engineering Code of Ethics and Professional Practice (SECEPP) 	<ul style="list-style-type: none"> • 52,000+ members • 100 conferences annually • Code of Conduct and SECEPP 	<ul style="list-style-type: none"> • 50,000+ members • Code of Conduct • Code of Good Practice 	<ul style="list-style-type: none"> • 3,500+ members • largest data/meta-data conference • Code of Ethics

While not unified, the collection exhibits a striking cohesiveness.

SECEPP

Originally adopted in 1972 by the ACM and the IEEE Computer Society, the Software Engineering Code of Ethics and Professional Practice principally served as a method of “self-regulation,” listing violations and accompanying sanctions. In 1993, SECEPP was revised to “clarify and formally state” the consensus of professional ethical requirements for which “the profession (is) accountable to the public.” The more comprehensive code was also designed to serve “as an aid to individual decision making.”¹ In the years since adoption, SECEPP (www.computer.org/computer/code-of-ethics.pdf) has provided the foundation for numerous subsequent guidelines. Knowledgeable persons are aware of the code’s positive impact on professionalism within the IT industry.²

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flawed programming practices, missing analysis data, and measurably lower-quality converted data.

Failure to test for other values

The plaintiff alleged that the defendant failed to follow generally accepted testing standards. Evidence consisted of instances involving poorly implemented conversion software.

For example, the conversion software was supposed to check a specific field value for one of two possible values—say, “1” and “2” corresponding to the values “male” and “female,” respectively. The software executed by ERP Systems Integrators checked to see if the source field value was “1” and, if so, assigned the value “male” to the converted field; if the source field value was not “1,” it assigned

Table 1. Summary evidence of project management behaviors.

Process area	Defendant lead		Plaintiff lead
	Methodology	Demonstrated	
Scope planning	✓	✓	
Scope definition	✓	✓	
Activity definition	✓	✓	
Activity sequencing	✓	✓	
Activity duration estimation	✓	✓	
Schedule development	✓	✓	
Resource planning	✓	✓	
Cost estimating	✓	✓	
Cost budgeting	✓	✓	
Project plan development	✓	✓	
Quality planning	✓	✓	?
Communication planning	✓	✓	
Risk identification	✓	✓	✓
Risk quantification	✓	✓	
Risk response development	✓	✓	?
Organizational planning	✓	✓	
Staff acquisition	✓	✓	

the value “female” to the converted field without determining and reporting possible nonconforming values.

Section 1.2 of SECEPP states that “to minimize the possibility of indirectly harming others, computing professionals must minimize malfunctions by following generally accepted standards for system design and testing.” Accepted software engineering programming standards would call for testing for positive confirmation of “2” before setting the converted value to “female” and for reporting incoming values and numbers of values not “1” or “2.” The defendant’s failure to follow these standards permits “3” in the source data to be assigned the value “female” after conversion, resulting in demonstrably lower-quality converted data.

Failure to prevent duplicate record insertion

Acme Co. demonstrated that ERP Systems Integrators’ software produced other structure-related conversion errors.¹ The defendant’s e-mail traffic revealed an urgent need to get records in the system “even if they weren’t the correct ones.” Instead of attempting to determine why the conversion programs would not successfully complete, ERP Systems Integrators identified the lines of code prohibiting the insertion of duplicate records and “commented them out,” thereby inactivating the software functionality.

Consequently, there were 63,131 customers instead of approximately 6,000 and 100,236 employee records instead of approximately 10,000 in the system after con-

version. This in turn increased the data clean-up cost. Due to the inherent complexities of working in a multilayered environment,² the cost to clean up 10 times more data is often much greater than 10 times the cost of cleaning up the original data.

Section 6.08 of SECEPP states that software engineers should “take responsibility for detecting, correcting and reporting errors in software and associated documents.” The arbitration panel agreed with the plaintiff that the code provided an objective measure to assess responsibility for minimizing software malfunctions and correcting errors, and as such could reasonably guide Acme Co.’s expectations.

COMMUNICATION FAILURE RESPONSIBILITY

Acme Co. alleged that ERP Systems Integrators withheld important information from the on-site consulting team. The plaintiff presented e-mails of defendant personnel exchanging dire predictions about the project’s fate. One message warned it could become “our biggest mess!” These starkly contrasted with the rosy reports presented by ERP Systems Integrators during status meetings.

On the subject of a client’s obligation to communicate project failure indicators, SECEPP is unambiguous: According to Section 2.06, “any signs of danger from systems must be reported to those who have opportunity and/or responsibility to resolve them.” The evidence clearly showed a pattern by the defendant of communicating one message internally (project failure) and a second message to plaintiff (everything okay).

A second communication failure occurred at a more systematically significant level. All project management guidelines stress the importance of treating project planning diagrams as living documents, and most are managed via specialized software that permits determination of planned versus actual. Drawing on the Project Management Body of Knowledge (PMBOK), Acme Co. demonstrated that by never updating the project plan shown in Figure 1, developed using a simple spreadsheet, ERP Systems Integrators was unable to report fact-based measures of progress and thus failed to meet expected standards.

Project statistic metadata lets stakeholders and implementers respond to challenges with all parties speaking the same vocabulary. Static project plans are out of date as soon as any task deviates from the plan and, as a result, management cannot determine the status of and impact on subsequent tasks.

Additional evidence indicating a vastly overbooked resource pointed to a project that was out of control. Figure 2 indicates a “plan” for one individual to accomplish the work of 18 others. This kind of error occurs in projects

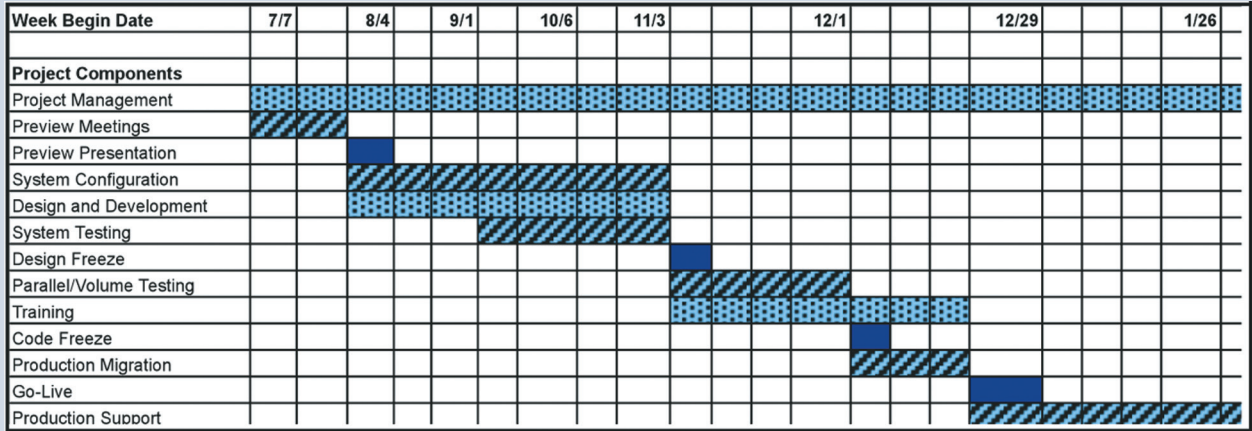


Figure 1. Project plan maintained as a read-only spreadsheet.

where the existing environment has not been understood well enough to properly plan.

Acme Co. proved that ERP Systems Integrators had not performed legacy system analysis³ and that it failed to adequately manage project risk. These activities are subsumed under Section 2.5 of SECEPP: “Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.”

The arbitration panel concluded that ERP Systems Integrators’ failure to update project plans, communicate responsibly, and manage risk appropriately constituted an inadequate standard of care. The defendant had obviously foreseen failure and hid from the plaintiff information indicating that the project had no possibility of succeeding.

RESOLUTION AND DISCUSSION

Days after the arbitration hearing concluded, the panel issued a one-page decision awarding \$5 million to Acme Co.: five times the project’s worth. The decision was particularly hard-hitting because ERP Systems Integrators’ insurance carrier denied coverage for the incident based on the evidence of its “failure to perform in a workman-like manner.”

The ruling favorable to the plaintiff indicated overwhelming support for its CoC-based case. The arguments Acme Co. presented are deciding factors in a growing number of real-life judicial disputes. In technology contexts where key issues revolve around competing

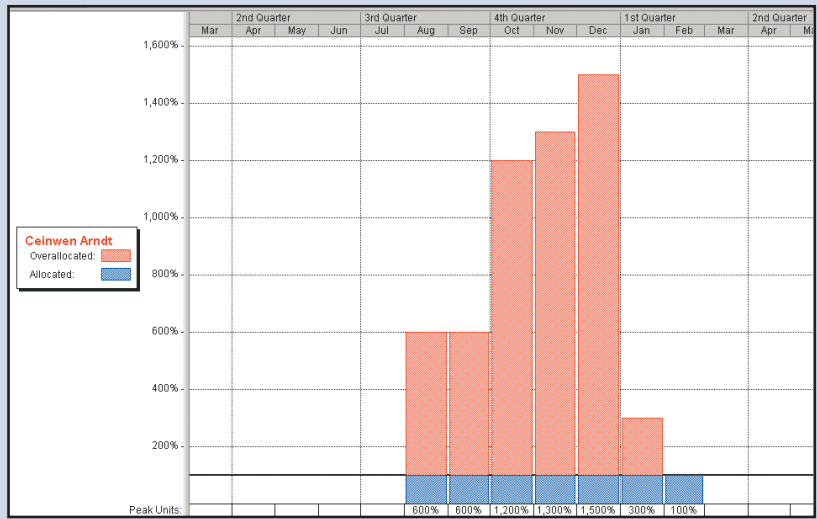


Figure 2. Indicator of project failure: a “plan” for one individual to accomplish the work of 18 others.

interpretations of behaviors, CoCs are influencing various contracting parties as well as the IT, business, and consulting communities.

Because arbitration results are private, word-of-mouth has been the chief means of propagating the success of comparing litigant behavior against CoCs. Moving from arbitration into case law, CoCs will be increasingly applied. In spite of limited current awareness, SECEPP is well on its way to becoming a de facto standard as it enjoys growing awareness throughout the legal community and increasing compliance in the IT profession.⁴

More extensive application of publicly available standards—and growing awareness of them—will positively impact the IT industry. Five initial benefits accrue to organizations capitalizing on CoC knowledge:

- *Increasing use and broader applicability.* As awareness of CoCs grows, so also will their popularity. Moreover, as the legal community becomes more familiar with CoC-based arguments, they will be applied more broadly. CoC expertise could become ubiquitous and perhaps as branded as the PMP designation from the Program Management Institute (www.pmi.org/CareerDevelopment/Pages/Obtaining-Credential.aspx). CoCs are not only easy to use, they are unambiguous about specific, holistic IT professional responsibilities—to the project, stakeholders, our profession, and society.
- *Public codification of conduct standards by IT professionals.* Evidence is mounting that public CoCs serve as standards for evaluating the performance and determining the responsibilities not only of IEEE members, but IT professionals in general. Organizations and professionals are using CoCs to determine specific attributes of compliance and noncompliance.
- *Preventing and resolving disputes.* Guidance to first prevent and subsequently settle disputes is generally welcome. CoCs provide objective particulars that litigants can use in a proactive manner. Following a CoC is one way to promote a successful project environment and insulate contracting parties from potential legal liability. In doing so, it is possible to identify critical prelitigation and other decision points that allow parties to better deal with or entirely avoid disputes.
- *Better understanding of IT project implementation.* The current dispute resolution process favors contractors. Understanding CoC utility enables organizations to rethink their relationships with clients. This could impact how organizations evaluate, select, and interact with IT professionals.
- *Organization-wide CoC applicability.* SECEPP is guided by the philosophy that CoCs generally apply to organizations—including those that do not have members belonging to the ACM or IEEE Computer Society—as well as to their leaders. The potential implications for organizations and leadership are staggering.

Seeking a legal resolution to a dispute over contracted IT services is a growing trend. This is not surprising given the alarming statistic that up to 70 percent of IT projects fail (www.it-cortex.com/stat_failure_rate.htm). Litigation of software-intensive endeavors has been called a “major growth industry,” with forecasted legal costs rising “faster than any other aspect of software development.”⁵

As companies increasingly rely on IT systems to drive their business, failures and delayed implementations can cause costly ripples throughout their organization. Many are unwilling to absorb these costs and, consequently, expect IT professionals and especially their vendor partners to share responsibility.

The evidence speaks for itself. Courts, juries, and arbitration panels are finding that failure to follow generally accepted public standards for design and testing of software are grounds for seeking damages. A wider understanding of the existence and usefulness of existing ethical and professional standards will represent added value to in-house IT managers and enhance the stature of IT professionals. An organization's ability to evaluate conduct and, when appropriate, consider potential legal matters more knowledgeably is paramount to imposing accountability on all participants. **■**

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