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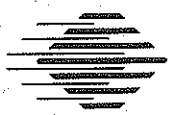

Carnegie-Mellon University
Software Engineering Institute

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by
Pamela Samuelson
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Anne C. Martin

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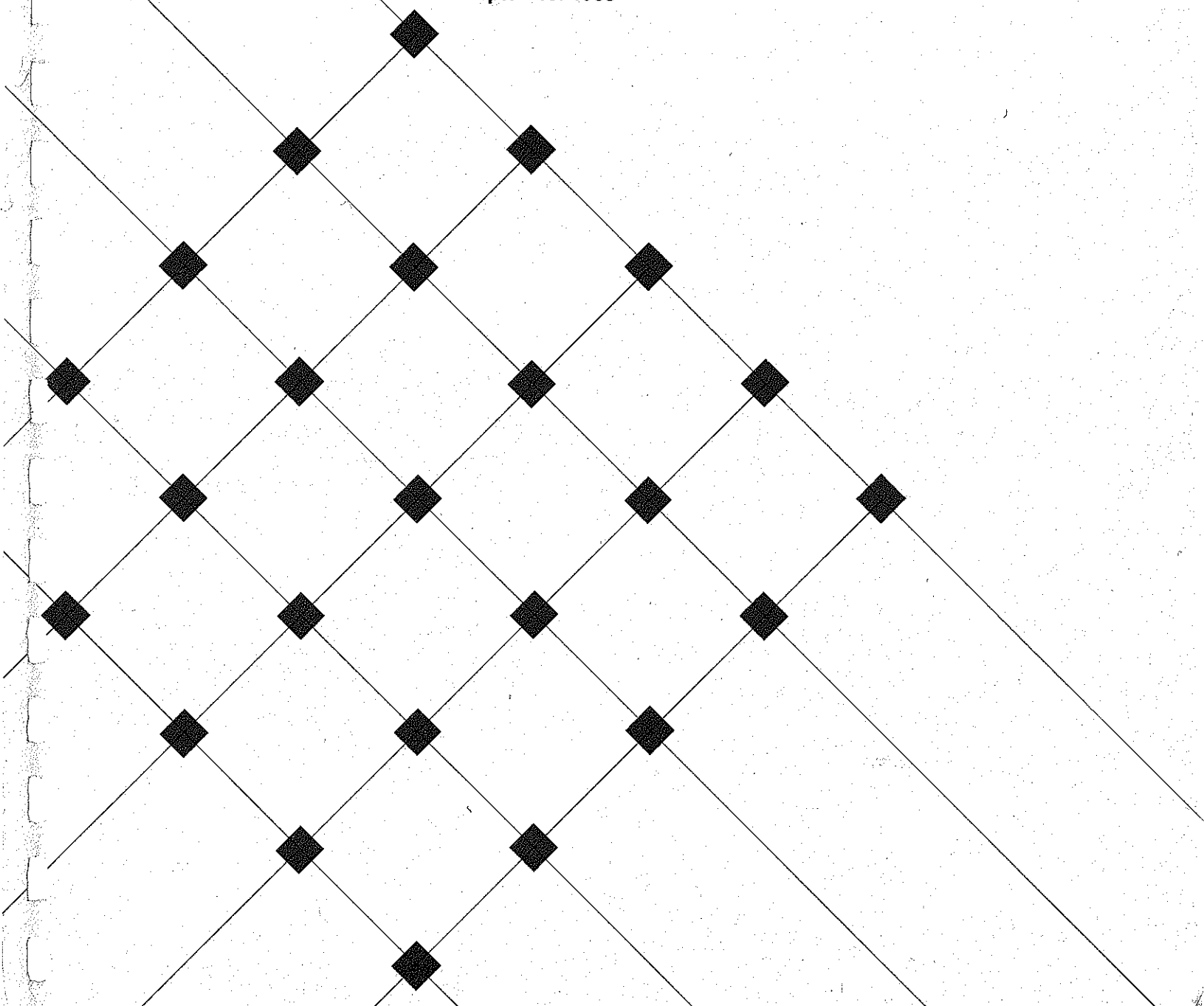

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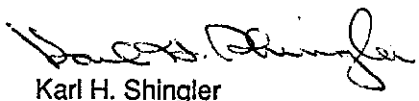
Review and Approval

This report has been reviewed and is approved for publication.

FOR THE COMMANDER



Karl H. Shingler
SEI Joint Program Office
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Proposal for a New "Rights in Software" Clause for Software Acquisitions by the Department of Defense

Pamela Samuelson, Kevin Deasy, Anne C. Martin

ABSTRACT. This report recommends three distinct regulatory strategies for addressing difficulties the Department of Defense (DoD) has been experiencing with respect to legal issues related to software acquisitions. First, the report reiterates the Software Licensing Project's earlier recommendation that the DoD adopt the proposed Federal Acquisition Regulation (FAR) data rights provisions instead of the proposed revisions to the DoD supplement to the FAR (DoD FAR SUPP).

Secondly, in the event that the Defense Department chooses to adopt a data rights procurement policy different from that found in the data rights provisions of the proposed FAR, this report recommends that the DoD adopt a separate "Rights in Software" clause for software acquisitions, rather than continuing the present practice of handling software procurements under the "Rights in Technical Data" clause. Reasons in support of a separate software acquisition policy, as well as a beginning model "Rights in Software" clause are offered.

Finally, in the event that the DoD elects to retain the procurement format presently found in the DoD FAR SUPP provisions governing software and technical data acquisitions, this report offers several concrete recommendations for changes to those regulations which should result in a procurement policy which more effectively meets the mission needs of the Defense Department.

1. Background

The Software Licensing Project (SLP) of the Software Engineering Institute (SEI) has written two previous reports on the Department of Defense's (DoD) software acquisition policy. The first of these reports was "Toward a Reform of the Defense Department Software Acquisition Policy," CMU/SEI-86-TR1 [Reform 86] (hereinafter referred to the "First Report"). It surveyed a range of problems that DoD personnel had identified as software licensing problems currently being experienced by DoD. One chapter of the First Report was devoted to an analysis of the data rights regulations that govern acquisitions of software by DoD. The First Report concluded that a substantial revision of DoD's standard data rights clause would be desirable.

The second SLP report was "Comments on the Proposed Federal and Defense Acquisition Regulations," SEI-86-TM2 [Comments 86] (hereinafter referred to as the "Second Report"). It recommended that the Department of Defense adopt the proposed Federal Acquisition Regulation (FAR) data rights provisions instead of its proposed revisions to its supplement to the FAR data rights regulations. The Second Report made this recommendation for four reasons: (1) The proposed FAR data rights regulations present a more concise and comprehensible regulatory scheme than either the current or proposed DoD regulations. (2) The proposed FAR

2. Issues

2.1 Should DoD Adopt a "Standard Rights in Software Clause" and Take Software Out of the Technical Data Rights Clause?

For well over a decade, DoD has acquired rights in software by means of the same standard clause as that used to acquire rights in technical data (DoD FAR SUPP sec. 52.227-7013, also known as the standard data rights clause, referred to hereinafter as "SDRC"). We understand that the Department is currently considering adopting a separate clause for its acquisitions of rights in software, that is, breaking software out of the technical data rights provisions of the SDRC. Although we believe that the Department can have a substantially improved software acquisition policy without such radical surgery to the SDRC (after all, we have recommended adoption of the FAR data rights policy which retains a unified technical data and software policy), we believe that, on the whole, the Department would be well served by making the change to a separate rights in software policy for the reasons discussed below.

2.1.1 Reasons that Support a Separate "Rights in Software" Policy

2.1.1.1 The current DoD policy already partially differentiates software from technical data.

Although DoD has long had a policy of acquiring rights in software under the same SDRC that is used in acquisitions of rights in technical data, software has for some time been partially differentiated from technical data within the body of the SDRC. The most obvious difference is in the rights the government takes as a matter of course in privately developed software, as compared with privately developed technical data. Software's "restricted rights" are very restrictive (e.g., to particular computers) as compared with technical data's "limited rights" which permits use or copying throughout the government. This reflects that the Department has already recognized that software and technical data <u>are</u> different. The SDRC also recognizes that the rights that the government needs in software, and the limitations that are reasonable for industry to impose on the government's rights in software <u>are</u> different from those that pertain to technical data.

The question we have been raising is whether software is differentiated enough in the SDRC and differentiated in the right ways. For various reasons discussed in our First Report, we believe that DoD has not yet adequately differentiated between technical data and software. This is why, we believe, derivative works rights which are critically important as to software, have been omitted from the technical data oriented SDRC, which defines unlimited rights without reference to a right to make derivative works. A separate software clause would facilitate appropriate differentiation between software and technical data.

2.1.1.2 Economic reasons why software documentation should be treated differently from technical data.

The function and purpose of software is different from that of technical data. Software performs

2.1.1.4 The educational value of a separate software clause.

A new clause to govern software acquisitions could accomplish a break with the past, and engender a move away from the quasi-data rights orientation which has pervaded software acquisitions. A new clause could pave the way to a new "mind set" for those who work in the area of software and data rights acquisitions. Such a clause would provide a point of departure for re-educating procurement personnel regarding the nature of software. In this way, it could create a fresh way of viewing software acquisitions, one more in line with the economic and technological realities of the software industry.

2.1.1.5 Improving relations with industry.

It is unfortunate that relations between the software industry and the Department of Defense are at present somewhat strained over software data rights issues. Many industry representatives seem to feel that DoD software procurement policy is confiscatory. The adoption of a separate clause to govern software acquisitions, which would break such acquisitions out from the policies with which industry has been unhappy, could go far to improve government-industry relations. At the very least, the perception that DoD is making some effort to alleviate the areas of conflict with industry could be valuable in this regard.

2.1.2 Reasons not to Adopt a Separate Software Acquisition Clause

2.1.2.1 The overlap between software and technical data.

A separate software clause is not necessary to significantly improve the DoD's software acquisition policy. Even we conclude that the FAR data rights policy, which retains a unified approach, would be an excellent policy for DoD. This is one reason not to break software out of the technical data clause. There are others as well.

There is, for instance, some artifice in the distinction between software and technical data. Technical data can be incorporated into a computer data base, for example, which would seem to transform it into software. In fact, virtually anything that can be written on paper can be transformed into a machine readable form. The DoD would need to sort out the computerized technical data problem which its present regulations also fail to do but apart from this, software and technical data are sufficiently distinct that a separate policy is appropriate, as DoD's present SDRC already demonstrates.

2.1.2.2 Would DoD seem to be "caving in" to industry if it adopted a separate software clause?

Since software resembles technical data and has long been treated within the technical data policy, and since the software industry has been lobbying for a special software policy, one problem that DoD may see with a separate software clause is that it may appear to some that the DoD would be too generous to industry, especially if the Department allows industry to retain

2.1.3 Conclusion

On the balance, we believe that the advantages presented by a separate software acquisition clause outweigh the potential disadvantages. We would recommend, therefore, that the DoD adopt a software acquisition clause as part of its procurement regulations. A suggested model clause is included in this report. It should be noted that the clause, while offering a fresh approach to software acquisition, only touches briefly on software maintenance and enhancement. In recognition of the critical importance of these issues, the next phase of this project's research will focus specifically on these issues. A more in-depth treatment of maintenance and enhancement will be forthcoming with the project's next report.

2.2 What Might a Standard Rights in Software Clause Look Like?

2.2.1 The Model Standard Rights in Software Clause

(a) Definitions

As used in this clause, the following terms have the following meanings:

government purpose

> the fulfillment of a legitimate federal government function, including uses or disclosures for competitive reprocurements and maintenance and enhancement purposes; the term includes disclosure to and use by other contractors and any state, local or foreign government where such disclosure or use will fulfill a legitimate federal government purpose; the term does not include a general distribution of the software to defense contractors or other more limited distributions of the software that may have a significant negative effect on the commercial market for such software. Nor does it include a disclosure that permits the recipient to disseminate the software without restriction or to develop software for non-governmental sales in competition with the owner of intellectual property rights in it.

government purpose license

> a license to the federal government that grants the government rights to use, duplicate, disclose, distribute, prepare derivative works, and publicly display software for government purposes, and to authorize others to exercise such rights when doing so will fulfill a legitimate federal governmental function. When software provided to the government by one contractor is distributed or disclosed by the government to a subsequent contractor for a government purpose, the subsequent contractor shall be bound by the terms of the government purpose license.

restricted rights license

> a license to the federal government that at a minimum grants the government rights
>
> (1) to use software in the computer for which the software was acquired;
>
> (2) to use software in a backup computer if the computer for which it was acquired becomes inoperable;

(c) Rights of Contractors and Subcontractors

(1) Ownership: Unless the special works clause has been invoked, whoever develops software deliverable under this contract shall be considered the owner of all intellectual property rights in it, subject to a restricted rights or government purpose license to the government as provided in Section (b).

(2) Restrictive Markings: The contractor or subcontractor who owns intellectual property rights in software may attach appropriate restrictive markings to the software in accordance with this clause.

(3) Direct Delivery to the Government: Subcontractors under this contract may deliver restricted rights software directly to the government rather than to the prime contractor unless the software is needed by the prime contractor for installation in the system that the contractor is required to deliver to the government.

(4) No Leverage: Neither the prime contractor nor any intermediate subcontractor shall use its power to award subcontracts as a means of acquiring greater rights in software from its subcontractors than is needed to perform the government contract.

(5) Flowdown to Subcontractor Whenever any software is to be obtained from a subcontractor under this contract, the contractor shall use this same clause in the subcontract, without alteration. No other clause shall be used that will enlarge or diminish either the government's or the contractor's rights in the subcontractor's software which is to be delivered to the government.

(d) Restrictive Legends

(1) No Marking If In Public Domain: Software that is in the public domain shall be delivered with no restrictive markings.

(2) Government Purpose Rights Legend: Software in which the government has government purpose rights is to be delivered to the government with the following restrictive legend:

Government Purpose Rights
Property of: (contractor or subcontractor's name)

Standard Restricted Rights Legend: Restricted rights software in which the government has only the standard five minimum rights are to be delivered to the government with the following restrictive legend:

Restricted Rights
Property of: (contractor or subcontractor's name)

The SDRC will govern all rights in software matters unless one of these circumstances is present. Our proposed standard software clause would operate in much the same fashion. That is, it would be a mandatory clause for insertion into all DoD software acquisition contracts unless one of a set of authorized alternate rights acquisition clauses was used in the contract. We would recommend retention of the two already authorized alternatives, and would recommend serious consideration of two other authorized alternatives, one permitting the government to negotiate for less than government purpose rights when there is substantial private funding of the software's development in addition to some public funding, and another for acquiring less than the standard set of minimum rights in software tools and CAD/CAM programs.

2.2.2.2 A "mixed funding" alternative to equitably distribute rights based on public and private funding.

As one alternative to the standards "rights in software" clause, the DoD should consider adopting a clause which would equitably allocate rights in software in mixed funding situations. The DoD Authorization Act of 1985 seems to contemplate adoption of a data rights policy that differentiates between wholly government funded and partly government funded projects. DoD's present regulations have not responded to this Congressional directive. The DoD would, of course, need to address issues regarding what forms of contribution to a project constitute private funding (resources or cash), what degree of private funding would be necessary to trigger the mixed funding alternative, how much flexibility to allow contracting personnel in structuring mixed funding arrangements, and the like.

2.2.2.3 An alternative clause to obtain less than the standard minimum rights in software tools and CAD/CAM programs.

Additionally, the DoD might consider adopting another alternative allocation of rights clause, one which would allow the DoD to obtain less than minimum rights in certain items such as software tools and computer aided design/computer aided manufacturing (CAD/CAM programs). Since software tools and CAD/CAM programs are such valuable resources of private firms, contractors are loath to provide these tools to the government under the standard rights arrangements. It would seem that DoD would be wise to provide in its regulations the flexibility to negotiate for some access to these items, on the theory that partial access will in some instances be better than none at all. It is in DoD's interest to assure contractors that they can provide their best technology to the DoD without fear of loss of these rights in their software.

2.2.2.4 Why government purpose rights is the standard ceiling of rights under the clause instead of unlimited rights.

As our First Report has indicated, it seems that under the standard data rights clause the government now obtains government purpose rights rather than unlimited rights in publicly funded software in which the contractor claims a copyright. It is not clear why the government has chosen to provide this incentive to contractors to copyright software. After studying this matter, we have concluded that there should not be a difference in the extent of the government's rights

This conflict points out the predicament encountered by government and industry alike in dealing with this strange hybrid subject matter. To the extent software is like hardware, it would seem an appropriate subject matter to hold to the higher, more operationally oriented standard of development under the patent law, and to the extent it is like technical data and is subject to continual modification, it seems more appropriate to the more flexible standard for development found in the copyright law. This is a dilemma, but DoD has already tried unsuccessfully to adopt a patent standard for defining "developed" and found the software industry to be so hostile to it that another approach must be found.

2.2.2.6 Respects in which the model standard rights in software clause is more advantageous to the DoD than the SDRC.

In addition to the benefits the DoD would realize as a result of eliminating disincentives which cause some developers to withhold their best technology from the DoD, there are several respects in which the model standard rights in software clause gives to the DoD broader rights than those which it would acquire under the present treatment of software acquisitions under the SDRC. These include:

- the right to reverse engineer as a minimum right in software acquisitions;
- the right to license support contractors as a minimum right in software acquisitions;
- the right to make derivative works as an explicit part of the government purpose rights package;
- a very broad definition of government purpose rights which includes such rights as use or disclosure for competitive reprocurements, as well as disclosure to and use by state, local and foreign governments.

2.3 If DoD Does Not Adopt a Separate Rights in Software Clause, how Should it Revise the Standard Data Rights Clause to Improve its Software Acquisition Practices?

Sections 1 and 2 of this report detail the reasons why a separate software clause may be in the DoD's best interests and then sets forth a model software rights clause for the Department's consideration. In the event the Department of Defense has not been convinced of the desirability of taking this approach, there is still much that can be done to improve the existing SDRC as it affects software. The following 22 recommendations are distillations of many of the points made in the First Report of the SLP. (Page and chapter numbers in parentheses below refer to the First Report.)

2.3.1 Definitions

2.3.1.1 Don't overdefine software terms.

Six software-related definitions are included in the SDRC. Only three seem to be significant in the body of the standard data rights clause -- software, software documentation, and commercial software. Only these three need to be defined. Also, the SDRC speaks constantly of "computer

governmental agencies a derivative works right in unlimited rights software would weaken DoD's argument that the derivative works right is implicitly included in its unlimited rights policy. In light of the importance of this right to DoD, it would seem prudent for DoD to take the precaution of including the derivative works right within its unlimited rights.

2.3.2 Policy as to Publicly Funded Software

2.3.2.1 Clarify that unlimited rights is a kind of license, not an ownership right.

The project's research revealed that DoD personnel had at least four different interpretations of the meaning of unlimited rights vis a vis ownership rights.. Intellectual property law would likely treat "unlimited rights" as a broad license, not as an ownership interest. In order to avoid future misunderstandings and possible litigation, this concept needs to be clarified (see pp. 24-25, Chapter 7).

2.3.2.2 Clarify DoD's intent as to the effect a contractor's claim of copyright in publicly funded software will have on the government's rights in publicly funded software.

There is an ambiguity in the present SDRC concerning the extent of the government's rights in copyrighted software developed at public expense. One part of the SDRC seems to give DoD unlimited rights in it because it was developed at public expense and another part gives the government only government purpose rights if the contractor decides to retain a copyright in the software. DoD should clarify its intent on this matter.

2.3.2.3 If DoD decides to retain the apparent policy of allowing a contractor's copyright to cut back the government's unlimited rights license to a government purpose license, it should require the contractor to give DoD early notice of his intent to claim copyright.

A further disadvantage of the present SDRC as regards contractor copyrights in publicly funded software is that it appears that the government will typically not know the extent of its rights - whether unlimited rights or government purpose rights - until the software is delivered to the government, that is, until it sees whether the software was delivered with or without a copyright notice attached. The government may want to require notice of an intent to claim copyright at the time the contract is entered into so that it can plan accordingly.

2.3.2.4 Revise the special works clause so that DoD will be able to take broader rights in software when it needs them.

The DoD's special works clause (DFARS 52.227-7020) purports to claim a direct copyright for the government under the "work for hire" doctrine. This clashes with Section 105 of the Copyright Act (17 U.S.C. Sec. 105) which prohibits the government from taking direct ownership rights in copyrighted works. Use of the current special works clause would seem to have two effects: (1) to preclude the contractor from claiming a copyright in the software and (2) to put the software into the public domain, since neither the government nor the contractor can own it.

with no more than the barest minimum of documentation needed to meet contract requirements (see pp. 23-24).

2.3.2.8 Examine the need for "unlimited rights" as opposed to "rights for government purposes".

In accordance with the regulatory policy that DoD shall acquire only such rights to use, duplicate and disclose software developed at private expense as are necessary to meet government needs, consideration should be given to restructuring the unlimited rights policy to afford the government unlimited rights only where they are truly needed (see pp. 38-43).

2.3.3 Policy as to Privately Funded Software

2.3.3.1 Add to the minimum restricted rights the government obtains in privately developed software the right to make a copy for reverse engineering purposes if necessary to make modifications.

The restricted rights provisions of the SDRC seems to limit the government's right to copy software to archival or back-up purposes. Although the minimum rights do include the right to modify the software, if insufficient documentation has been obtained or it is not possible to have the original contractor modify the software, the government may attempt to reverse engineer it. It is not clear under the regulations or the copyright law whether the modification right includes the right to make a copy for reverse engineering purposes. In light of the potential risks, it would be prudent for DoD to clearly state that it has this right. (p. 55.)

2.3.3.2 Develop a standard policy for acquiring privately developed software for local area networks.

Since local areas networks which share software are becoming more commonplace within DoD, the regulations should provide guidance about acquiring software intended for use in such networks. (p. 27-28.)

2.3.3.3 Clearly establish the status of restricted rights software which the government has modified.

When the government modifies privately developed software in which it has restricted rights, the effect of that modification appears to vary, depending on whether the software is subject to commercial or other-than-commercial restricted rights. The SDRC provides that as to commercial software, "unmodified portions shall remain subject to these restrictions." However, modifications to other than commercial software are governed by another subsection of the clause, which provides that "those portions of the derivative software incorporating restricted rights software are subject to the same restricted rights." This apparently inconsistent treatment of modifications to restricted rights software is extremely confusing and needs to be clarified. (p.54-5.)

restricted rights as the machine readable code but is instead acquired by the government with limited rights. This gives the government the right to use, disclose and duplicate the documentation throughout the government. Subjecting other than commercial documentation to the broader limited rights policy not only causes confusion but deters many software firms from selling rights in their most valuable technology to DoD. (p. 26-27.)

2.3.3.7 Allow contractors to retain the privately developed status for software when only minor modifications are made to tailor it for government use.

Under the DoD policy, if a company has developed a piece of software wholly at private expense, and then under a government procurement contract, makes some minor modifications to tailor it for intended government use, the company would forfeit restricted rights status for the delivered software if DoD funds subsidized the modification. This policy deviates from standard commercial practice, and is viewed by many software firms as inequitable.

Consideration should be given to adopting the proposed FAR's more flexible approach which allows contractors to retain the privately developed status for their software when only minor modifications are made for the government (see pp. 25-26).

2.3.3.8 Consideration should be given to restructuring the software procurement process so as to allow the government the flexibility to take less than the current minimum restricted rights in software and less than limited rights in documentation in certain situations.

In some situations it may be in the government's best interests to have the flexibility to acquire fewer rights in privately developed software than the current SDRC permits in exchange for certain concessions from the contractor. This built-in flexibility could allow the DoD to satisfy a more pressing need such as:

a) the need to get a warranty on the software which may not be possible unless the government agrees to permit the developer to perform all the maintenance work (Chapter 11);

b) the need to create an escrow arrangement to obtain access to privately developed source code that the software firm would otherwise not provide at reasonable cost to the government (see pp. 52-53); and

c) the need to get access to software tools and/or CAD/CAM programs (see pp. 50-51, Chapter 10).

2.3.3.9 Rename the proposed "license rights" provision of the proposed SDRC, if a "fixed expiration" option is to be preserved.

The "license rights" concept as originally conceived by the OSD Study Group was to enable the government to require its contractors to license competitors to use their proprietary data in competitive re-procurement (or maintenance) situations. However, the "license rights" option

3. Conclusion

It is important to observe that the problems which DoD is experiencing with its software acquisition policy are not unique to the government. The problems are being experienced industry-wide, and are due in large part to the unique nature of software and to the lag between the ability to conceptualize software as a product and the development of the end product. The DoD, as the major single consumer of software, is in a unique and enviable position to address the difficulties being encountered within the software industry, and to place itself on the leading edge of the effort to bring acquisition and licensing practices in line with the technical and economic realities of software development. By taking this leadership role, the DoD could do much to help maintain the U.S. lead in software technology in the world.

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This report recommends three distinct regulatory strategies for addressing difficulties the Department of Defense (DoD) has been experiencing with respect to legal issues related to software acquisitions. First, the report reiterates the Software Licensing Project's earlier recommendation that the DoD adopt the proposed Federal Acquisition Regulation (FAR) data rights provisions instead of the proposed revisions to the DoD supplement to the FAR (DoD FAR SUPP).

Secondly, in the event that the Defense Department chooses to adopt a data rights procurement policy different from that found in the data rights provisions of the proposed FAR, this report recommends that the DoD adopt a separate "Rights in Software" clause for software acquisitions, rather than continuing the present practice of handling software procurements under the "Rights in Technical Data" clause. Reasons in support of a separate software acquisition policy, as well as a beginning model "Rights in Software" clause are offered. (see reverse for summary of abstract).

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Finally, in the event that the DoD elects to retain the procurement format presently found in the DoD FAR SUPP provisions governing software and technical data acquisitions, this report offers several concrete recommendations for changes to those regulations which should result in a procurement policy which more effectively meets the mission needs of the Defense Department.

proposed by the DoD FAR Supplement appears to focus on obtaining expirations for restrictive legends. "License rights' is a misnomer for this set of rights, particularly in view of the fact that the SBIR provisions reflect a very different "license rights" policy. Give the new policy a better name, perhaps "fixed expiration rights," so that people won't get confused. It is questionable whether this new option will be acceptable to industry which can always elect limited or restricted rights protection for its valuable technologies (see pp. 32-35).

The ambiguity of the DoD regulations about ownership rights and restrictions as to software modifications may mean that if the original software is protected by copyright law, it is copyright law that will fill in the gaps. Since modifications are derivative works, a host of copyright issues could arise which could substantially inhibit the government's use of the software to its maximum potential. (Chapter 4.)

2.3.3.4 Consider eliminating the two different sets of restricted rights for commercial and other-than-commercial software developed at private expense.

As noted above, the SDRC provides for two different sets of restricted rights for commercial and other-than-commercial software. There appears to be no clear rationale for this differential treatment and for the corresponding differential treatment of documentation. Moreover, neither the regulation nor policy provision provide any clear guidance as to when a piece of software qualifies for commercial or other-than-commercial treatment.

The resulting confusion and ambiguity can be avoided by establishing a "floor" of minimum rights which the government must have and then allowing arrangements between the "floor" of minimum rights and the "ceiling" of unlimited rights to be negotiated as the government's needs require (see pp. 26-27).

2.3.3.5 If DoD chooses to retain the distinction between commercial and other-than-commercial software, eliminate the potential unlimited rights claim in privately developed other-than-commercial software as to which no separate license agreement has been negotiated.

When other-than-commercial software is being procured, the SDRC stipulates that a separate license agreement containing the applicable restrictions is to be negotiated and made a part of the government contract, (so long as the government obtains, at a minimum, the four minimum restricted rights set forth in the clause). When a firm provides privately developed software to DoD but has not negotiated a separate licensing agreement, an issue arises as to whether the government would get unlimited rights in the software or only the four minimum restricted rights. The existence of such a potential "booby trap" in the regulations could be enough to dissuade the smaller, "high tech" companies from doing business with DoD with the result that the latest innovative software could be unavailable (see pp. 21-23). The SDRC should be revised to make clear that the government will have only the four standard minimum rights in privately developed other-than-commercial software when no separate licensing agreement is negotiated.

2.3.3.6 Treat privately developed software documentation as subject to the same restrictions as the machine readable code.

The SDRC treats commercial computer software and its documentation in a manner consistent with industry practice by providing that both machine readable code and documentation will be governed by the same set of restricted rights.

In contrast, documentation for other-than-commercial software is not subject to the same set of

Since copyright law does permit the government to own copyrights by assignment, a copyright strategy similar to that adopted by NASA and proposed for the FAR should be considered by DoD. (p. 21, Chapter 5.)

2.3.2.5 DoD should either give up its claim of unlimited rights in non-deliverable software or make a deferred ordering clause standard.

The SDRC seems to give the government unlimited rights in several categories of software, although their delivery may not be required by the contract (SDRC (b)(i).) Without the inclusion of a deferred ordering clause, it appears that the government would not have the right to require delivery of any of this non-deliverable software. The existence of this unenforceable inchoate right only serves to frustrate both the government and industry.

We recommend that DoD examine whether it needs to claim unlimited rights in these non-deliverables. If it is decided that such a right is needed, a deferred ordering clause should be made a standard part of the contract (see pp. 19-20).

2.3.2.6 In "mixed funding" situations, (i.e., where both public and private funds are used to develop the software DoD should provide an option for the government to take less than unlimited rights.)

This would provide needed incentives to software firms to invest some of their own capital in software development which could result in a higher quality product and in lower initial acquisition costs. It would also conform with the apparent congressional intent reflected in Section 2320 of the Department of Defense Authorization Act of 1985, (Public Law 98-525, 10 U.S.C. Sec. 2301, 2320.)

One possibility would be to give the government unlimited rights in software developed with predominantly public funds (whether or not the software is copyrighted) and to take only "government purpose rights" when funding is predominantly but not exclusively private (see pp. 38-39).

2.2.2.7 Surrender the potential unlimited rights claim to software documentation that might be in a manual or that might be construed as instructional material for installation, operation, maintenance or training purposes.

Under the SDRC, the DoD acquires unlimited rights in manuals or instructional materials prepared or required to be delivered under a government contract for installation, operation, maintenance or training purposes, even though such manuals may have been developed at private expense and are not in the public domain.

Although privately developed other-than-commercial-software may receive restricted rights treatment, manuals or instructional materials for such software, even though they contain proprietary information, would seem to be governed by the unlimited rights provision. This creates a significant disincentive to do business with DoD and could lead to firms providing the government

software" when it is only necessary to say "software", because "computer" is already included in the software definition.

2.3.1.2 If the distinction between commercial and other-than-commercial software is to be retained, provide a more precise definition of what is meant by commercial computer software.

The SDRC provides for two different sets of restricted rights applicable to privately developed software, one for "commercial" software and one for other software (or commercial software whose owner opts to have it treated as other-than-commercial software). (Different restrictive legends are supposed to be attached to software, based on what kind of software is to be delivered.) Unfortunately, the existing definition of "commercial computer software" is so vague as to be a poor guide as to what software will qualify for commercial restricted rights treatment (see pp. 23-4).

2.3.1.3 If two sets of restricted rights for privately developed software are retained, the definitional section of the clause should include and define both sets of restricted rights.

As noted above, there are two categories of privately developed software which are presently subject to different sets of restricted rights. The definitional section of the SDRC sets forth only one definition of restricted rights, which a later section of the SDRC seems to make applicable only to other-than-commercial software. The other set of restricted rights, those applicable to commercial software (and its documentation), are not set forth until subsection (b)(3)(ii). In order to achieve consistency, these "commercial restricted rights" should also be set forth in the definitional section of the clause. (p. 26.)

2.3.1.4 Define what is meant by "government purpose," perhaps clarifying its meaning by providing some examples.

DoD policy allows a contractor to copyright any software developed under a government contract (unless it is a "special work"). Subsection (c) of the SDRC provides that the contractor must grant to the government a copyright license "for government purposes" as to any work in which he has taken a copyright. However, there is no definition of "government purpose," either in that subsection or in the definitional section. This omission creates uncertainty as to the extent of the government's rights in publicly funded copyrighted software (see pp. 6, 24-5, and Chapter 7).

2.3.1.5 Expand the definition of unlimited rights to include the right to prepare derivative works.

The present SDRC definition of unlimited rights fails to make explicit whether the government will have the right to prepare derivative works when it has unlimited rights in software. Such a right is particularly important as to software because maintenance, enhancement, reuse, translation, rehosting and retargeting are all dependent on having such a right (see pp. 19, 54, 72). The fact that that the proposed Federal Acquisition Regulations (FAR 52.227-14(a)) would give other

depending on whether the software is copyrighted by the contractor. Because it appears that the government is already willing to accept government purpose rights for copyrighted software developed at public expense, we believe it is reasonable for the government to use the same policy as to all publicly funded software. Indeed, we fail to see why the government would ever need more than government purpose rights in publicly funded software.

2.2.2.5 The definition of the term "developed" should be grounded in principles of copyright law.

The approach DoD has taken toward defining "developed" within the meaning of "developed at private expense" has been a patent-oriented definition of the term. Indeed, the government's patent lawyers seem to have diligently and aggressively attempted to use a patent standard toward software development so as to establish for the government as broad a set of rights as possible in software. As discussed in the First Report, one result of claiming this broad set of rights for the government has been to create significant disincentives for contractors to deliver their best technology to the government.

The model clause takes a more copyright-like approach to defining "developed." Because software is copyrightable, and copyright law allows intellectual property rights to attach whenever a work is fixed in a tangible medium of expression, it seems appropriate for the government regulations applicable to software to be more consistent with this body of intellectual property law (which is, after all, the most important body of federal intellectual law affecting software). (Although software may sometimes be patentable, software patents are much rarer than software copyrights.) A copyright approach to a definition of "developed" would also be more consistent with the nature of the software development process. Unlike hardware, software is almost continually in the process of development. Copyright law which is attentive to this evolutionary nature of software, is more appropriate than a patent-oriented standard.

We recognize that because software is a hybrid, lying somewhere between traditional copyright and patent subject matters, it is difficult to find the appropriate location on the continuum as to when software is "developed" or not developed. The proposed DoD regulatory standard would seem to call for software to have gone through extensive testing before it can be deemed developed. We consider this to be one extreme of the continuum. The "fixed in a tangible medium" standard which we have chosen to include in the model clause may represent the other extreme.

In choosing this standard, we were deferring to the copyright law since that is the nearest body of intellectual property law applicable to software. We offer this definition as a point of discussion, and understand that DoD may prefer a more operational definition. As a viable alternative to the definition we have presented, the DoD might consider a compromise between the copyright approach to the definition of "developed" and an operational definition which does not require the developer to go to an extensive degree of testing before software can be deemed developed. It is important that such a definition recognize that software is in a state of continual development and improvement which makes impractical any definition which focuses on finished products.

(4) Other Restricted Rights Legend: When the government and the contractor (or subcontractor) have negotiated an arrangement whereby the government will get more than the standard five minimum rights in restricted rights software, the software shall be delivered with the following restrictive legend:

Expanded Restricted Rights

Property of: (contractor or subcontractor's Name)

Contract No: _____

(5) Copyright Notices: Unless the special works clause has been invoked, the owner of intellectual property rights in software may attach appropriate copyright notices to software delivered under this contract.

2.2.2 Commentary to the Model Standard Rights in Software Clause

There are a number of respects in which this standard rights in software clause differs from the SDRC, among them:

- that software is defined to include documentation;
- that governmental purpose rights are the standard "ceiling" of rights that the government has in publicly funded software;
- that there is no differentiation in the level of the government's rights dependent on whether or not the contractor copyrights the software;
- that the government will have a right to prepare, or authorize preparation of, derivative software from software developed at public expense;
- that software will not lose its restricted rights status if only slight modifications are made to it at the request of the government;
- that use by support contractors (subject to restrictions binding the government) is included in the set of restricted rights;
- that "developed" is defined in a manner more consistent with copyright than patent standards;
- that no explicit reference is made as to the contractor's right to claim a copyright because we regard this as implicit in the clause's recognition of the developer's right to intellectual property rights in the software.

Before discussing some of these features, it may be helpful to describe the circumstances in which we would envision this clause being used.

2.2.2.1 The quasi-mandatory nature of the standard clause.

The SDRC is required to be inserted in all Defense Department software acquisition contracts. The present SDRC contemplates two situations in which the government's rights in the software may be different than those that the SDRC itself prescribes:

1. When the government uses the special works clause in a software development contract, and
2. When the contractor and the government negotiate an agreement giving the government more than the four standard minimum rights in privately developed software.

(3) to make copies of the software necessary for backup and reverse engineering purposes; (4) to adapt and modify the software; and

(5) to authorize support contractors to exercise the rights described in (1) through (4), subject to the same restrictions as bind the government.

restricted rights software

software developed at private expense, including software as to which only slight modifications are made to adapt it for the government needs with public funds. The term "developed" means fixed in a tangible medium of expression. The term "at private expense" means entirely funded by the contractor and without any government reimbursement, direct or undirect other than through IR&D cost allocations.

software

computer programs, computer data bases, and documentation pertaining thereto including but not limited to such programs in any machine readable printed or interpreted form, system reference manuals and user manuals.

(b) Rights of the Government (1) Public Domain Software: There shall be no restrictions on the government's right to use, duplicate, disclose, distribute, display or make derivatives of software that is in the public domain.

(2) Government Purpose Licenses: The government shall have a government purpose license in all software deliverable under this contract that was developed at public expense. The government may also negotiate to obtain a government purpose license in software that was developed at private expense.

(3) Restricted Rights License: The government shall have a restricted rights license in all restricted rights software deliverable under this contract. Written permission of the owner of such software will be required before the government may make or authorize other uses or disclosures of this software.

(4) Negotiating for Additional Rights: The government may negotiate to obtain more rights in restricted rights software than the five standard rights that are named in the definition of the restricted rights license. Additionally, the government and contractor may negotiate to define the uses the government may make of software within the scope of the government purpose license.

(5) Incorporation of Other Software: When a contractor incorporates into software to be delivered to the government modules or subroutines in which the contractor does not own all intellectual property rights, the contractor shall obtain for the government at least a restricted rights license in such incorporated modules or subroutines.

(6) Rights from Subcontractors: The government shall have the same minimum rights in software developed by subcontractors as in software developed by prime contractors.

(7) Challenging Restrictive Legends: The government may challenge inappropriate restrictive legends.

greater rights in software than in technical data. DoD's response to such charges should, however, be that the differential treatment of software would actually save the government money in that the government would not be forced by the regulations into purchasing the more expensive "government-wide rights" to software documentation in those instances where a site license is adequate to the needs of the government and that better software at lower development costs will be made available to the government if it provides better incentives to the software industry. Such responses should serve to silence the critics.

2.1.2.3 The need to retrain DoD's contracting personnel as to any new software clause.

A separate rights clause to govern software acquisitions has the potential to further complicate the DoD acquisition process. Those who have long experience with the SDRC have become used to muddling through the present system. They would have to be retrained about rights in software, and this is no small job.

The DoD needs, like private industry, to be involved in the evolution of a conceptualization of software and software acquisition which is consistent with the technological, economic and legal realities of software development. A separate treatment for software, along with the retraining which would need to be undertaken in conjunction with such a change, could go a long way toward developing a new and more dynamic conceptual framework for dealing with software.

2.1.2.4 The desirability of an overhaul of the DoD procurement policy as to intellectual property.

The DoD would benefit greatly from a more substantial overhaul of the procurement regulations to make them more compatible with traditional and newly developing intellectual property law. A more integrated, more unified intellectual property policy could bring together DoD's policies as to copyright, patent, semi-conductor chip design, trade secret and trademark law. Advances in new technologies are bringing together and blurring the the lines between these traditional forms of intellectual property protection. As the new technologies continue to advance, the need to integrate policies in these areas will become more acute. Additionally, government attorneys working in the software/data rights area must of necessity have some grounding in the traditional forms of intellectual property law. Given this, it seems wise for DoD to draw upon the knowledge and expertise already possessed by its lawyers involved in this area by making its policies consistent with the already existing body of intellectual property law.

A separate clause for software acquisitions will contribute to a fractionated rather than a unified system of intellectual property regulations. The time and energy expended in adopting a separate software acquisition clause would probably be at the expense of efforts which might otherwise have been invested in developing a broader, more integrated intellectual property policy for the department, a policy which needs generally to be more integrated with copyright and trade secret law.

tasks; technical data merely conveys information. Because of this, the economics underlying the development and marketing of software and technical data are significantly different. Software generally involves significant research and development costs which can only be recouped through the marketing of the product, software itself, whereas technical data is generally produced as an ancillary step in the process leading to production of the actual item to be marketed.

The critical point here is that the capital cost of design and development (including the cost of software tools and/or CAD/CAM programs which aided in the development effort) are recouped as part of the sale of the system, not through sales of technical data that might have been generated in developing the system. DoD's policy with respect to hardware systems takes this into account by treating hardware systems in a manner different than it treats technical documentation. DoD's present policy with respect to software, however, is heavily technical data oriented, and does not allow software design costs to be recovered in the same manner.

Thus, the economics of software development indicate a need for breaking software (and the documentation which is an integral part of its development and evolution) out from the quasi-technical data treatment it has thus far received. With regard to development costs and capitalization, software is in many ways more like a hardware component than it is like the technical documentation which supports the hardware. The DoD procurement policy needs to be structured so as to take account of these technical and economic similarities between software and hardware, as well as the dissimilarities between software and technical data.

This policy should also recognize that unlike hardware, software is an evolutionary product - that is, it is in a state of constant development as maintenance and enhancement work is continually done to improve upon and/or alter the functioning of the software. As an evolutionary product, the documentation supporting the software is in fact a critical part of the software product itself. For this reason, the software documentation should be treated in the same manner as the executable version of the program. A properly structured software acquisition clause can accomplish this.

2.1.1.3 Outside of the DoD regulations, different intellectual property rights may attach to software than to technical data.

Software is a unique intellectual property in that it can be protected under the copyright law, trade secret law, and patent law. The unique nature of software allows it to be copyrighted without revealing all of its "secrets" which means that trade secret and copyright protection can coexist in the same subject matter. It is rare for a firm to copyright technical data that the firm wanted to claim as a trade secret, because the Copyright Office generally makes any deposited work available for public inspection and copyright law treats such things as manufacturing instructions or engineering designs as "ideas" which are in the public domain. Firms tend to keep manufacturing instructions and other technical data solely as trade secrets. A separate clause to govern software acquisitions could take into account differences in intellectual property protection affecting software and technical data.

data rights policy is also more compatible with standard software commercial practices and provides more incentives for industry to make its best technology available to the government than does the DoD policy. (3) At the same time, the proposed FAR data rights policy would give to the government a number of rights that DoD would seem to need to fulfill its mission (including rights which the current and proposed DoD regulations fail to claim for DoD). (4) Both statutory and policy reasons support having a uniform set of federal data rights regulations rather than having two policies, one for DoD and one for all other federal agencies.

This report is the third SLP Report to concern itself with the DoD procurement regulations affecting software. While we continue to stand on our recommendation that DoD adopt the FAR data rights provisions, we understand that for various reasons, the Department of Defense may find it undesirable to adopt the proposed FAR data rights policy and may decide to continue with its separate data rights policy.

In the event that DoD chooses to continue its separate approach to software acquisitions, we would have the Department of Defense consider three further recommendations which are set forth in this report. First, we recommend that the DoD create a separate "standard rights in software clause", that is, to break software out of the standard technical data rights clause. Some part of the reason why DoD has experienced so much difficulty in its software acquisition policy is, we believe, due to the quasi-technical-data-rights orientation of its present policy, an orientation which is inappropriate for software acquisitions.

Second, we offer a draft standard "rights in software" clause for DoD's consideration. This clause provides for separate treatment of software acquisitions, distinct from that accorded technical data under the standard data rights clause. This "rights in software" clause presents several unique features which distinguish it from the standard data rights clause. These include: the inclusion of software documentation within the definition of the term "software," the establishment of government purpose rights as the standard "ceiling" of rights that the government obtains in publicly funded software, and the provision that software will retain its restricted rights status even when slight modifications are made at the request of the government.

Third, in the event that DoD chooses not to adopt our first two recommendations, and decides to retain the basic structure and content of the existing standard data rights clause, there are still a number of specific changes to that clause, as it affects software, that we believe would be in the government's best interest to adopt. There are 22 specific recommendations for changes to the text of the DoD standard data rights clause discussed within, all of which would, in our view, improve DoD's software acquisition process.

