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The Director of Central Intelligence

Washington, D.C. 20505

Intelligence Research and Development Council

IR&DC 84-0044

29 AUG 1984

MEMORANDUM FOR: Chairman, AI Steering Group

FROM: Dr. Richard D. DeLauer
                  Chairman

SUBJECT: Artificial Intelligence Initiatives

REFERENCE: Memo for USDRE from C/AI Steering Group, dtd 21 August 1984,
                  Subj: Issues in Artificial Intelligence (see attached)

     1. I am pleased with the work that the AI Steering Group has accomplished over the past year. The initial tasks that you have completed, sponsoring an AI Symposium with Government, Industry and Academia attendees, initiating various AI training courses in the AI disciplines, and providing for a continuing AI forum for Intelligence, Defense, and other Governmental organization participation are all initial steps which will work toward our goal of capturing appropriate AI technology as the technology matures.

     2. I believe that we must continue with the momentum that has begun and, therefore, I endorse your recommendations for Steering Group initiatives for the coming year. I would like to have a report prepared on your attainment of these goals for consideration by the Council by 1 October 1985.

Richard D. DeLauer

Attachment:
  a/s

cc: Deputy Director of Central Intelligence

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SUBJECT: Artificial Intelligence Initiatives

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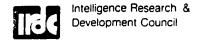   Original - Addressee (w/o att)
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Washington, D.C. 20505

Irdc Intelligence Research &
Development Council

21 August 1984

MEMORANDUM FOR: Dr. Richard D. DeLauer
                   Chairman, Intelligence R&D Council

FROM   :   [   ]   25X1
                     Chairman, AI Steering Group

SUBJECT   :   Issues in Artificial Intelligence

    1.   In February 1983 the Intelligence R&D Council formed the
Artificial Intelligence Steering Group (AISG) for the expressed
purpose of providing a mechanism for exchanging information
throughout the Community regarding Artificial Intelligence (AI).
Since that time we have been meeting monthly to discuss issues in
transferring AI technology into (as well as within) the Community.
The purpose of this memorandum is to identify for you several
activities which are going on in the Community relevant to AI and to
call to your attention several significant issues related to the
exploitation of this technology by the Community.

    2.   In December 1983 the Steering Group sponsored a 3-day
Symposium on AI applications in intelligence. Over 600 people
participated in the event (and more were turned away for lack of
room). The Symposium brought together researchers, educators,
implementers, vendors, and potential users of AI technology in an
environment where we could discuss the specific needs of the
Intelligence Community. A synopsis report on the Symposium was
distributed recently. Another AI Symposium is scheduled for March
1985 at DIA's new building on Bolling Air Force Base.

    3.   In April 1983 we held the first running of two courses in AI
at CIA's Information Science Center. The Executive Seminar is a
1/2-day overview of artificial intelligence and its potential
application to intelligence. The 3-day Technical Seminar delves
more deeply into the technology of AI and explores alternative ways
to employ AI in intelligence problems. Additional offerings of
these courses are scheduled for FY84 and 85, and more detailed
courses will be added to the curriculum in FY85. Government
employees, by and large, need considerably more training in the
theory and practice of artificial intelligence to make widespread
use of the technology.

SUBJECT: Issues in Artificial Intelligence

4. Several agency-specific AI Working Groups have been formed over the past year at CIA, DIA, NSA, and elsewhere. Independent of, but in concert with, the inter-agency activities of the AISG, these working groups typically have focused on developing AI plans for their respective agencies. The "committee approach" of the AISG has served well the purpose of developing a broad awareness of AI technologies and issues. There was no mandate to direct specific resources against specific AI problems, nor were Community resources available.

5. An encouraging number of AI R&D efforts have begun throughout the Community. These encompass such areas as expert systems, natural language processing, intelligent data base interfaces, image understanding, signals interpretation, geographic and spatial data management, and intelligent workstation environments. It should be noted, however, that these efforts are largely aimed at demonstrating potential applicability of AI technology rather than producing operational systems in the first instance. Laboratory facilities and testbeds are also being established at several Community locations including CIA, DMA, ETL, NRL, NSA, and others.

6. New AI start-up companies as well as traditional Community contractors have responded both to the potential of the technology and the expressed interest of the Government. These contractors have started to assemble teams of qualified personnel; they have begun to invest in the necessary computing infrastructure; and they are just beginning to understand our unique needs. These efforts necessarily will remain tentative until we better understand our own needs, and until substantial procurement is signalled. Moreover, time will be required for the contractor experience base to grow, and this is complicated by too much contention for too few qualified AI researchers nationally.

7. Defense in general, and DARPA in particular, are continuing to explore opportunities to exploit AI for Defense needs, and considerable AI research is being sponsored by the Department of Defense. Proportionately less is sponsored by the Intelligence Community, and close interaction is required to ensure that the Community is able to capitalize on the basic technology being developed by Defense. There is loose coordination of AI programs in the Community and with Defense already, but added opportunity exists for sharing existing AI tools, experiences, and expertise.

SUBJECT: **Issues in Artificial Intelligence**

8. New and more cost-effective AI programming environments and system development tools are appearing regularly. There is need for improved methodology to: size a potential AI application, assess the adequacy of AI tools, and estimate the likelihood of success of an AI undertaking. Additional automated tools are needed to facilitate the "knowledge acquisition" process, i.e., the elicitation of knowledge from human experts and the proper encoding of this knowledge in the machine. The Ada programming language is not yet suitable for developing AI applications. DoD Directive 5000.31 forcing new software development in the Defense Department to use Ada is premature for AI applications.

9. Based upon the findings and conclusions presented above, the AI Steering Group offers the following recommendations:

(1) Because of the broad applicability of technologies loosely labelled "AI", and because of the diversity and uniqueness of the specific applications of the various agencies, the Director of Central Intelligence should continue to resist any impulse to designate an office of primary responsibility for AI plans and policy to coordinate AI R&D efforts across the Community.

(2) Individual agency AI laboratories should be encouraged to grow and flourish. Inevitably, due to mission-specifics of the member agencies, certain labs will emerge as leaders in specific AI technologies. This is to be encouraged, however, but not dictated as we are insufficiently prescient.

(3) A mechanism should be established in the Washington area to build a stronger relationship between academic research and intelligence applications of AI.

(4) The Community should accelerate AI training, include more technical AI courses, and equip an AI training facility for hands-on learning.

(5) An AI clearinghouse should be established to share information and Government-owned software.

(6) The Community should consider initiating one or more AI projects of general Community interest, with specific Community objectives, which parallel the military service applications contained within the DARPA Strategic Computing Plan. Additional AI tools and methodologies should be developed for use throughout the Community.

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SUBJECT: Issues in Artificial Intelligence

(7)   A Blue Ribbon Panel of cleared AI experts should be established
       to advise the Community.

(8)   The Ada Joint Program Office, DoD, should attempt to extend Ada
       for AI or find a suitable alternative, and, in the interim,
       should grant a general waiver from DoD Directive 5000.31 for
       LISP- or PROLOG-based AI systems and subsystems.   25X1

       10.   The AI Steering Group would like to see these
recommendations implemented by the Community. We would be happy to
work with the Council to develop more detailed plans for how to
accomplish this goal.

4