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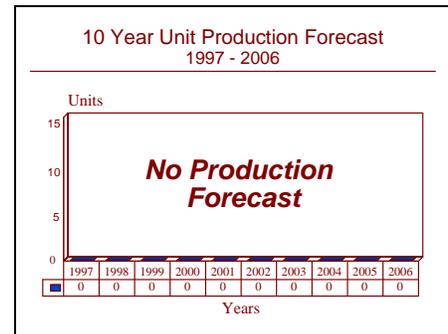
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NATO CCIS - Archived 4/98

Outlook

- Used only by Danish and Norwegian Armed Forces
- System was implemented in several stages
- Outdated technology; no future sales are likely



Orientation

Description. Automated information distribution and analysis system designed to provide timely battlefield surveillance data to users at the corps level.

Sponsor

NATO Command Control and Consultations Systems Committee (NCCSC)

Contractors

Hughes Electronics Corp
Hughes Aircraft Co
Ground Systems Group
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Berkshire RG16 8LU
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Hughes Aircraft is the prime contractor, while Norsk Data supplies the host processors.

Licensee. No production licenses have been granted.

Status. In production.

Total Produced. Present contractual arrangements are for 19 separate centers in Norway and Denmark.

Application. NCCIS is designed to provide an automated, digital battle management system which can generate and distribute on a timely basis information concerning the disposition of both allied and adversary forces in the air, at sea and on the ground.

Price Range. Analysis indicates that each operation center has a unit cost of US\$4.6 million.

Technical Data

Design Features. The Command and Control Information System (CCIS) is a network of computers and displays designed to generate and distribute information concerning the disposition of both allied and adversary forces in areas under dispute. The system was designed by the Hughes Aircraft Ground Systems Division. Intended primarily for air defense support, the CCIS will also be used to track forces on the ground and at sea. The fully automated and digitized CCIS will replace the battle management system currently in use in NATO headquarters. This is labor-intensive, fragmented and dependent upon hard-copy formatting for the distribution of data. The new system will offer overall logistics, planning intelligence and force status support to commanders at various NATO headquarters throughout Europe.

The CCIS system is structured around a series of Hughes HMD-8000 workstations. These consist of two tabletop or standalone displays producing large-format, 1,000-line resolution color or monochromatic visuals. User commands are received from a keyboard control panel located below the displays. The primary display, which is mounted above the work control display, is a cathode ray tube monitor. It reproduces maps of specific regions or zones under dispute and has the ability to magnify specific

portions of these maps for special scrutiny. The dispositions of both allied and adversary forces are superimposed on the maps, with opposing forces color-coded for easy identification. Different combat units are represented by a standard set of geometric symbols. The cursor on the primary display is controlled by a joystick located to the right of the keyboard on the workstation console.

The work control display, which is mounted at eye level, is used for projecting messages, schedules, and the status of specific individual units. The display is centered around a screen designed for either touch-sensitive or voice control. The entire workstation is TEMPEST shielded according to NATO standards. The customizable software package for the system is coded in C. Workstations in different locations are connected to one another through a series of fiber-optic cables and a 32-bit host processor developed by Norsk Data. Incoming data is processed through an internal 8086 processor and an I/O interface processor. A large-screen high-resolution display using an HDP liquid crystal valve is also available as an option.

Variants/Upgrades

There are no known variants of or upgrades to this system.

Program Review

Background. The design, planning and engineering of the CCIS began in 1981. The hardware development for the CCIS was completed in 1985. According to a Norwegian Ministry of Defense spokesperson, "We signed the contract in 1981 with a delivery date of 1985. Hughes then renegotiated the later delivery date of 1988. In 1988 it came up again that it couldn't deliver. At the end of 1988 we signed a new contract which agreed on an initial system capability in 1989 — this would have a 40 percent capability — with a full system capability in 1989." The delays are reported to have resulted from serious software problems and from inadequate processing power in order to meet the emerging requirements.

The plans then formulated called for five incremental installations of software over the next two years. Four Scandinavian subcontractors were appointed by Hughes, and full operational capability for the system was projected for 1990. This concept proved, once again, to be

over-optimistic and problems continued to be experienced on both the hardware and software sides of the system. A senior Norsk Data source has stated to Forecast International that the task was bigger than anticipated. There are a lot of discussions going on to try and meet the requirement." By early 1990 it was admitted that there was no clear date available upon which full operational capability could be expected.

Subsequently, in March 1990, the Norwegian MoD announced that IOC was to be pushed back to 1993. New negotiations concerning the software development timetable were undertaken, leading to a three-phase introduction of the system. The first was to provide a very basic capability. The subsequent two phases would progressively add capabilities leading to the system meeting its originally specified requirements.

Since this agreement, there has been almost complete silence on this program. In common with previous years,

the past year has seen no further substantial changes in this situation.

Funding

Hughes has received three contracts totaling US\$89 million to produce and install the CCIS.

Recent Contracts

No contractual information has been made publicly available.

Timetable

Dec	1985	Original scheduled in-service date
	1987	Planned full operational capability
	1988	Renegotiated delivery date
	1990	Planned initial operational capability
	1993	Rescheduled IOC
	1994	Interfacing with other NATO CCIS systems
	1995	Full Operational Capability (other NATO Commands)

Worldwide Distribution

The NATO CCIS will be used only by the **Danish Armed Forces** and the **Royal Norwegian Armed Forces**, who will have 19 operational centers between them.

Forecast Rationale

The complete silence surrounding this ill-run program makes assessment of the system difficult. Since there have been no statements to the contrary from the customer, it is possible that the projected entry to service and initial operational capability dates were met; whether this then translates into a timely entry to service of the rest of the system is unknown. What is known at this juncture is that the system was implemented in stages, and that this implementation has probably not changed the contract cost.

The program has been described by a senior NATO official to this Forecast International Senior Analyst as "one of the classic failures in the acquisition of a software-intensive system neither contractor has performed well on this project — and that's putting it mildly." This, combined with the rapid development of automated C³I expertise by all the NATO countries, indicates that any

future acquisitions of the NATO CCIS are most unlikely. NATO has no plans for further expenditures in connection with this project. The excessive delays have left the program with dated communications technology and nearly obsolete computers.

In addition to the work performed on the Danish and Norwegian systems, the number of different systems presently being introduced by NATO countries for C³I purposes is creating a major market for interfacing and integration work. NATO has promised funding for such programs in other countries. It is likely that this funding will be necessary in the early part of the next decade to ensure compatibility with other, similar systems that are being introduced throughout NATO. Whether these promises are honored under the changing circumstances in Europe is highly doubtful. In any event, it is highly unlikely that this system will ever be sold to any other client.

Ten-Year Outlook

None.