

CISM Results – The Backroom View

Background

In late 1986 the question was raised of using a computer to collate, compute and print the results of the XXI CISM Orienteering Championships. A preliminary study indicated that it would be possible using existing PDF resources of both manpower and equipment, and software design and construction commenced early in 1987. The software was completed in time for the FCA Orienteering Championships and the data from that competition was used for test purposes.

Software

The software design centred on a competition database with separate records for each competitor, team and nation. A database query language, Datatrieve, running on the VAX/VMS operating system, was used to construct code modules which, when linked, provided a menu driven software package for the competition. This package had four main functional sub menus:

- a. Record handling including entry, correction, validation, etc.
- b. Day 1 Results production.
- c. Day 2 Results production.
- d. Relay Race Results.

Use of such a query language also enabled smaller code modules to be constructed, tested and implemented in very short time slots. This proved to be a particularly valuable facility in such a time critical environment as an orienteering competition where the time overheads involved in compiling, linking and debugging code written in a traditional high level language (Cobol, Fortran, etc.) would prevent the construction of such modules "on the fly". The overheads in terms of demands on processor time were acceptable since the actual mathematics of the results calculations were quite simple.

Operation

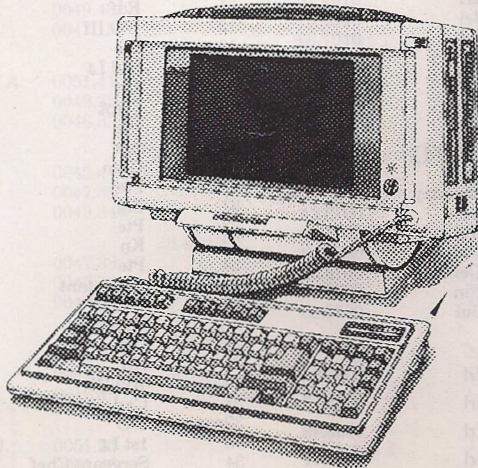
Initially it was hoped that a sponsor could provide a suitable processor for installation in the competition centre (Pearse Hall, Military College). When this did not occur operation was switched to the office of Area Records, Curragh. The existing terminals to the central processor in Enlisted Personnel Section were augmented by the addition of a graphics terminal and near letter quality printer.

Two sets of data were required from the competition site in order to produce the complete suite of printed results. The first was the set of finish times. This was used to compute the order of finishers (first, second etc.)

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and the team rankings each day. This data was relayed in from the various competition sites by HF teleprinter link provided by the Signal corps echelon of the competition staff.

The computed results were printed and sent to the competition office for duplication before each evening's technical meeting.



The second set of data was the set of split timings. These were the times at which each competitor reached each of the eighteen control sites. (This did not apply to the Relay Race.) This was a much larger volume of data and was brought in by hand from the competition site and computed, printed and transmitted to the competition office during the evening of each race day.

One variation on the standard CISM results format was the use of graphics to give a pictorial representation of the results. Two types of graphs were used – bar charts for national and team results with line graphs, for a more complex time/distance comparison of the top runners' performances.

The complete suite of results were compiled by the competition office, printed by the DFPP and the resultant booklets presented to the competitors at the closing banquet.

Lessons

A number of lessons were learned, and a number of old lessons re-learned, from the computerisation of the results service. These were as follows:

a. Learned

- (1) Time critical computing demands thoroughly tested software, a high level of software familiarity and training from staff and modular, operationally independent code.
- (2) Where possible in such operations both processor and data terminal equipment should

be colocated with the competition centre or headquarters. The enforced use of the terminals in Area Records resulted not only in a physical separation between the data processing facilities and the competition office but also in a communications gap.

- (3) The use of graphics should be increased in such applications. Graphs are a quick, effective and flexible method of data interpretation and most software systems today provide sophisticated graphics tools.

b. Re-Learned

- (1) Check your data! The main problems encountered with the results service were as a result of invalid data entering the system. The HF teleprinter link had a tendency to scramble sets of figures when encountering interference. This was resolved for the relay race by spelling the numbers out on the teleprinter. However, this did not eliminate the need for thorough manual checking of the completed results.
- (2) Get the end user to thoroughly vet the output. One problem (resulting in an "early hours of the morning" software rewrite session) resulted from a simple misunderstanding between one of the users and the software designer.
- (3) If somebody says "That's great but could you make just one little change?" – shoot him! There are no "little changes" when writing software!

Summary

Overall the computerised aspect of the results service was successful. In common with all the support elements of the CISM competition it proved an excellent training exercise quite apart from the execution of the competition requirements. However, people make a computer system work and particular thanks are due to the following:

Comdt J. P. Kennedy, OIC EPS, for sanctioning the use of the EPS processor and personnel, with the consequent disruption to EPS operations.

Capt R. Cullagh, the staff of Area Records, and in particular CS W. Cass, for uncomplainingly accepting the invasion of their offices. Last but not least, the programmers/operators who made the system work – Sgt A. Behan, Cpl J. Hurley, Cpl J. Otley and Pte P. Pendlebury.