

Olympic Games Reform: A Study in System Engineering

Neville Holmes, University of Tasmania

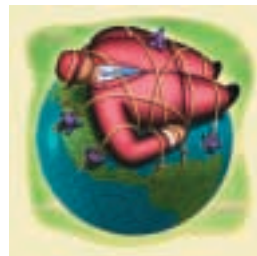
Central to the overall computing profession is the design and implementation of systems. Insofar as our profession looks to the public for recognition, the public should be able to get advice about its systems from us. We should not be slow to give such advice, and should even volunteer it on occasion, as I am about to do.

Our professional responsibility extends beyond a system's computing or communications aspects. Fifty years ago, before the term "automation" became fashionable, a wise saying in the data processing profession warned, "Don't mechanize a mess!" This saying recognized that a professional owes more responsibility to the prospective user than to the equipment supplier.

Many public systems are clearly in the throes of failure, either because they fail to meet their objectives or—and these are big messes—their objectives are ignored, subverted, or inappropriate. Some such systems are local to a neighborhood, to a province or state, to a nation, or to a region. At each level, professional advice most properly should come from members of the profession local to the failure.

The readership of *Computer* is international, however, so for our purposes a case study of a clearly troubled international system will serve best. In September 2000, the Olympic Movement provides

an obvious example of such a system. As I write this column, it is unclear just what crises or controversies will arise at the Sydney 2000 Games, although use of per-



The author offers a modest proposal that we have a responsibility to apply our expertise to reform social systems.

formance-enhancing drugs and certain swimsuit designs present clear candidates. Problems like these, together with the prolonged scandals over the selection of sites for holding the Olympic Games, have brought the Olympic Movement into miserable disrepute.

Some might say that the Olympic Movement is simply a branch of the global entertainment industry, and as such owes at least part of its lucrative success to such scandals. But the Olympic Movement itself formally professes different ideals, and Item 6 of the Fundamental Principles of the Olympic Charter (http://www.olympic.org/ioc/e/facts/charter/charter_intro_e.html) reads as follows:

The goal of the Olympic Movement is to contribute to building a peaceful and

better world by educating youth through sport practised without discrimination of *any kind* [my emphasis] and in the Olympic spirit, which requires mutual understanding with a spirit of fairness, solidarity and fair play.

Although the Olympic Movement pursues its agenda mainly through the Olympic Games, the Games have shifted way out of line with the ideals of its only professed goal. Instead of exemplifying the Olympic spirit, the Games exhibit ruthless commercialism combined with a spirit of frenetic partisanship, unrelenting competitiveness, and a willingness to bend if not break the rules.

TOWARD THE OLYMPIC GOAL

If the Olympic Movement is failing to meet its goal through its Games system, professional system designers should as a matter of professional responsibility—given the Games' global importance—

consider how the Games system could be improved. Two practical aspects, of a kind familiar to professional system engineers, must constrain such a system redesign.

First, changes to a system should be introduced gradually; otherwise, we risk instability and possibly catastrophe. This fact of engineering life is often overlooked in political circles.

Second, it is proper to expect a complex system of any kind, particularly a social system such as the Olympic Games, to move toward its goal, but foolish to expect it to completely attain that goal.

Reforming the Olympic Movement in its entirety would be a vast undertaking. We can begin, however, with some practical suggestions for a staged redesign of the Games. In making the following sug-

gestions for reform of the Olympic Games, I am trying to

- show that the principles of computer system engineering can usefully be applied to broader systems, though my application of them must be taken as very tentative; and
- emphasize that professional system engineers have both the capacity and the duty to take a lead in pressing for needful reform of social systems such as the Games.

I propose a three-step, system engineering approach to reforming the Olympic Games.

MODULAR PROGRAMMING

Perhaps the oldest principle in system engineering is to split the system into parts—the “divide and conquer” technique. The Games are such a large system that the first step in fixing them is to split them into several independent modules—or maybe that should be objects: “The OO Olympics” has a certain wry charm. Fortunately, there is a precedent for such division: The Winter Games already take place separately from the summer events because they require distinctive venues.

In addition to winter events, then, the next group we could split off might be those based on water, giving us the Aquatic Games, which would include swimming, diving, and various boating contests. As it is, these events’ distinctive venues require that they must often be held in a different part of the host country from other Summer Olympics events.

If we can achieve an aquatic separation, we need only one further split to allow four different yearly Games modules, which would let us run one module each year of the four-year Olympic Games cycle. For that split, we could use the fairly clear distinction between events that have a finishing sequence and those that don’t: matches of the win-or-lose binary-result kind. This split would separate the Olympic Sports—composed of events like track and field, cycling, archery, and gymnastics—from the Olympic Matches, composed of events like hockey, fencing, badminton, and wrestling.

With four independent smaller mod-

ules running across a four-year cycle, more cities and countries could afford to host what would then be yearly festivals, spreading the direct benefits to more parts of the world. Moreover, with a Games module every year, the Olympic Movement could reasonably set up its own permanent professional staff to supervise directly the organization and management of all modules. Doing so would ease the cost to the host cities and reduce the opportunity for corruption.

Most at odds with the Olympic Movement’s proclaimed goal are the Games’ commercialism and partisanship.

INTERFACES AND INFORMATION HIDING

With the modules limned out, the professional system engineer will typically focus on the second step of development: the design and implementation of the modules themselves—in particular how they should appear to users. For the Olympic Games modules, this step means deciding how the Games should appear to the spectators, in particular the youth of the world toward whom the Olympic Movement should direct its efforts. Controlling the Games’ appearance means controlling or at least guiding the Games information that the public receives from the media.

Reducing commercialism and partisanship

The two public aspects of the Olympic Games that are probably most at odds with the Olympic Movement’s proclaimed goal are commercialism and partisanship. Splitting the Games into yearly modules could reduce the commercialism somewhat because the costs per module would be lower, thus lessening the dependence on large-scale commercial sponsorship.

Reducing partisanship is possible, but trying to eliminate it would be pointless. After all, Olympic events are promoted and staged as competitions, and specta-

tors both present and distant expect to cheer on those competitors with whom they identify. Unfortunately, as things stand, the representational spread of both competitors and their successes is very lopsided. The playing of national anthems and tabulating by nation the medals won only draws attention to this imbalance.

An exercise in information hiding

We can solve the partisanship problem not by censoring information about competitors’ nationalities, but rather by hiding it behind other information. A good way to achieve this objective would be to have competitors represent supranational regions, not nations themselves, and to have each region represented by equal numbers of competitors. The Olympic Movement should then require that all public information about the Games, as far as its organizers can negotiate it, should identify regional affiliations and ignore nationalities.

This solution would not keep participants’ nationalities secret, but would hide them as much as possible behind other information. Partisanship could then focus on equally represented regions, which might well foster cooperation within them. Rules ensuring that all regions got to share the hosting of Games modules equally among them would further reduce partisanship.

Computing professionals would probably consider it best to divide the world either octally or hexadecimally, with eight regions the better choice for simplicity. Figure 1 shows how the world could be divided into such regions and provides a symbol for each region. Having 8 or 16 regions would also suit the event administrators responsible for scheduling heats and matches, given equal regional representation.

Agreeing on a regional approach would be politically challenging, but sharing the Games’ hosting evenly between regions should make the proposal easier for smaller nations to accept.

DESIGNING WITH PATTERNS

The third step in my redesign of the Olympic Games relies on using patterns to simplify structures and procedures. One aspect of patterns—their symbol-

ism—is sometimes overlooked. In the Olympic Movement, the pattern of five has a powerful appeal—as in the Olympic rings symbol.

The five rings could continue to stand for the five continents, but the introduction of a regional competition structure would certainly weaken that connection. The new structure might well be strongly opposed unless some new application of the five-ring symbolism accompanies it. This concern provides a good example of the need to take user psychology into account when designing systems.

Thus, we could use the symbolism of the five rings to reduce another significant Olympic Games blight—the unrelenting competitiveness that, given the media's depiction of the Games, overwhelms what cooperation and comradeship there is. Television, the press, and advertisers all focus on *the* winner of any event. The only relief from coverage of these anointed celebrities occurs when the occasional accident or scandal flares up.

From competition to cooperation

To those less competitively inclined, the most interesting events of any Olympic Games are those that require all-round excellence, either by individuals, as in the heptathlon or decathlon, or by teams, as in the various relay events. Thus, we can use the Olympic rings symbol to shift the Games' emphasis toward versatility and cooperation—a development congruent with the Olympic Movement's goal—by focusing on events and teams in sets of five.

We could reduce the focus on specialized individual achievements simply by introducing an extra class of awards—say gold, silver, and bronze crowns or wreaths—that would be more prestigious and fewer in number than medals. We would give these new awards to individuals and teams of five that excelled in groups of five events—in other words, generalized individual and team pentathlons. Medals would still be awarded for each specific event, but the appearance of competitiveness would be reduced, and the role of versatility highlighted, by awarding crowns for groups of those same events.

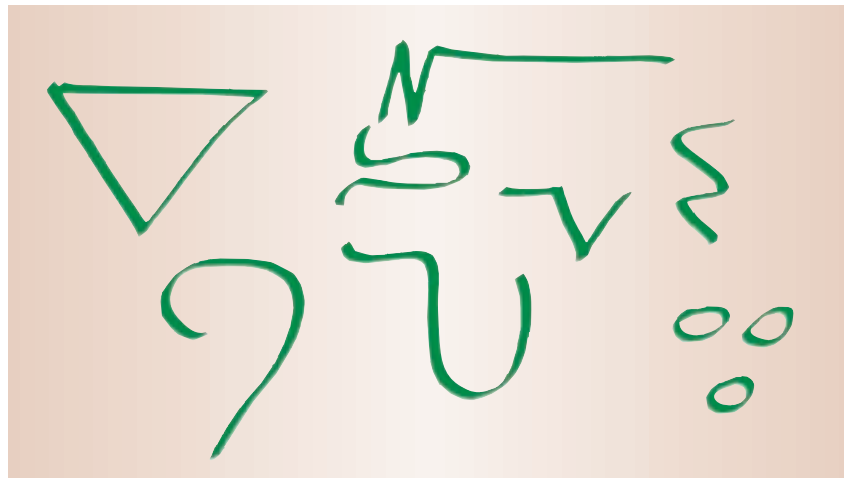


Figure 1. To reduce the obsession with national medal tallies—which invariably favors a few powerful nations—Olympics participants could be grouped into eight regional entities. The eight regions, represented by my suggested symbols for them, are (reading roughly from left to right) North America, South America, the Mediterranean Nations, Sub-Saharan Africa, North Eurasia, South Asia, East Asia, and the Island Nations.

Five by five

To show how we might implement this new award system, consider those Olympic Sports events primarily concerned with using the human body—gymnastics and track and field—in contrast to those primarily concerned with equipment such as cycles, horses, and weapons. The following five groups could encompass most of these events:

- sprints: 100 m, 200 m, 400 m, 800 m, 1,500 m
- endurance: 3,000 m, 5,000 m, 10 km, 20 km, marathon
- throws: pole vault, shot put, hammer, discus, javelin
- jumps: high jump, long jump, triple jump, high and low hurdles
- gymnastics: vault, floor, parallel bars, and two others

The judges could award individual and team crowns for each five-event group. Further, we could increase the emphasis on versatility by providing separate awards and events for, say, two different selections of sports across each group of five. The awards could focus on themes such as brevity and length, augmenting present events like the decathlon.

The arrangement for teams of five to best emphasize cooperation and leader-

ship would perhaps have two competitors from each team for each event, with each such competitor pairing used only once. One member of each team would serve as captain and be permitted to substitute for any injured or ill member, but would otherwise be required to compete only in the last event.

These speculations show how thoroughly we could apply designing by patterns to the problem of controlling competitiveness. We couldn't configure all Olympic events in this fashion, but—given that there are many other promising patterns of five—we could work on going in that direction if the Olympic Movement accepted the design principle.

ENGINEERING SOCIAL REFORM

Redesigning and reforming the Olympic Games presents a huge exercise in system engineering. I've explored the design of such a social system to demonstrate that, as computing professionals, we possess professional skills and knowledge appropriate to assist in social reform. Further, as professionals we have a duty to involve ourselves in reforms wherever our particular skills and techniques are useful.

This professional duty extends beyond being willing to act if asked. If a social system is failing to meet its objectives, as

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the Olympic Movement quite clearly is, then professional system engineers, such as the Computer Society's members, must engage in and even lead public discussion and consideration of the failing system's redesign. Should the community decide to proceed with such reform, professionals also have a duty to take part in implementing the redesigned system.

In the case of the Olympic Games, the Computer Society's nearly 100,000 members, spread through so many countries, could bring about meaningful changes if they take the lead in discussing reform. Doing so requires only a willingness to take part and some idea of the direction to be taken. The final outcome of the Olympic Games' reform would be different, possibly very different, from what I've hinted at here. What's important is not the redesign itself, but getting the reform process under way. Once under way, the participation of professionals like ourselves will be more important in ensuring that the process is not hijacked by special interests than in ensuring an ideal design. Such is the nature of social systems.

The attention the Sydney 2000 Olympics are receiving provides an opportunity to promote consideration of Olympic reform. Most likely, the Games will be a huge commercial success. Indeed, to continue as they have, the Games must *always* be a commercial success in the broad sense. The motivation for reform, on the other hand, must come from the desire to make the Games a success in other terms, particularly those expressed in the Olympic Movement's charter and goal. Alas, on *those* terms, the Sydney 2000 Olympics could result in abject failure. ✨

Although Neville Holmes is a lecturer under contract at the University of Tasmania, he is willing to accept nomination as the International Olympic Committee's next president. Contact him at School of Computing, University of Tasmania, Locked Bag 1-359, Launceston 7250, Australia; neville.holmes@utas.edu.au.