

T.I.A.C. REPORT No 3

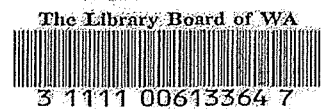
INTELLIGENT BUILDINGS:

What role for the W.A. Government?

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PREAMBLE

In the Woodside Building, here in Perth, approximately 50% of the staff have V.D.U's.

In ten years office systems and facilities will probably not even remotely resemble anything we use today.

By early 1989 Perth will have a fully intelligent building complex in the Metropolitan Market Trust facility at Canning Vale.

The world will soon be as critically dependent upon information technology as it now is on energy. One can expect:

- \* office automation towards a paperless office to advance rapidly;
- \* advances in speech recognition technology to accelerate the proliferation of computer equipment;
- \* the need for computer and communications cabling to increase dramatically;
- \* buildings that cannot accommodate changing technology to lose value and, in extreme cases, be demolished.
- \* buildings that most effectively meet the enhanced requirements of tenants will attract higher rentals.

The Government should anticipate the requirements technology will make of its offices, schools, hospitals etc., in order to get maximum value, both from technology and from each dollar spent on building or renovation. It should create Intelligent Buildings.

## DEFINITION

In essence:

Intelligent Buildings accommodate the needs of people and technology efficiently, to the advantage of all parties.

Buildings traditionally have been designed to provide environmentally controlled space. Today that is not enough. To meet contemporary and future needs, a building must establish an environment that is hospitable to those who work within it and which accommodates the changing technologies on which their productivity depends.

To reduce operating costs through technology and improved services building management must be given the tools to make more intelligent and timely decisions.

Organisations must come to understand the interplay between their ability to perform and the structures that house them.

It is no longer sufficient for a building to be a passive element in the workplace. It must now function as a dynamic medium that supports management by supporting the people and technologies responsible for accomplishing an organisation's mission.

An intelligent building is one which provides a productive and cost-effective environment which:

- accommodates the needs of people;

- accommodates and supports the needs of information technology;

- is flexible and adaptable, and

- facilitates effective building management.

## COMPONENTS

The components which warrant designating a building as "intelligent" will vary according to the needs of its tenants. The most common type of tenant service associated with the concept of intelligent buildings is the landlord sponsored provision of voice and data communication services.

Central communication services permit the integration of demand across the multiple organisations residing within a single facility, and in turn this permits the capturing of economies of scale in hardware, operating costs and technical support. Shared conference rooms and training centres, centralised copy centres and computing systems are becoming common-place.

A few years ago air-conditioning was left to the tenant and inefficient window units were installed as required. Now central air-conditioning units are standard practice. Proponents of the concepts of intelligent buildings maintain that a "similar transition will occur with many other services, from cleaning to computing".

In many situations the following components of intelligent buildings will be relevant:

### 1. EFFICIENCY

An intelligent building must be energy efficient and must be designed internally so that the staff can perform their tasks efficiently. New technology is expanding the options for design components such as lighting, so that rows of fluorescent lights are no longer the most cost-effective option.

Computerised building management systems enable the close monitoring of heat-control systems and the automatic billing of tenants according to energy consumption (even of centralised services).

### 2. PEOPLE'S NEEDS

Intelligent buildings are more attentive of the needs and wishes of staff. In addition to comfortable and attractive work areas, attention is paid to facilities such as recreation and exercise areas, shopping, cafeteria, change rooms and showers, dry-cleaning depot and even daycare centres for children.

### 3. TECHNOLOGY NEEDS

#### i. Ducting:

Intelligent buildings can facilitate the varied and changing needs of technology by improved cabling options. Raised floors, multi-channel floor ducts and ceiling cabling are some of the alternatives which facilitate laying the cables required for computing and communication technology. Even the capacity of skirting ducts is a factor influencing the flexibility of the office space.

#### ii. Communication:

Provision needs to be made for the location and cabling and the extra cooling demands occasioned by increased computing and other communication equipment. Satellite and microwave antenna must also be considered.

Shared central PABX systems will remove fees for calls within the building complex, reduce rental costs and enable telecommunication and data transmission (which would require equipment beyond the justification by individual tenants).

#### iii. Computing:

Central computing services provide a level of speed, power and flexibility which individual tenants could not afford.

#### iv. Back-up Power Supplies:

Computing and communication equipment can be sensitive to power fluctuations. Central power filtering and uninterrupted power supplies can prevent loss of data and equipment damage.

### 4. FLEXIBILITY AND ADAPTABILITY

In the USA between 28% and 45% of office staff relocate each year. Intelligent buildings have air-conditioning, fire sprinklers, lighting, power, telephones and computer ducts situated such that the space can be used flexibly.

## 5. BUILDING MANAGEMENT

Central security monitoring, conveniences such as shops and day-care centres, conference facilities and copying services can reduce costs and be an extra draw for tenants, thus increasing the rent obtainable. A building's flexibility will, of course, strongly influence the time taken to locate and adjust to new tenants. "Intelligent building" concepts can facilitate and reduce the costs of building management.

## CONCLUSION

The concept of intelligent buildings is a mixture of sound building design practice, and a requirement for a higher level of catering for the special and growing demands of the equipment required for advanced information technology which is needed for the competitive edge in business. Buildings designed according to these concepts will command high rents and more faithful tenants because they facilitate efficiency.

Government offices, hospitals, schools and other government building complexes have similar needs for the efficiency advantages encouraged by the intelligent buildings concepts. Planning will be needed urgently to ensure the principles of intelligent buildings are considered for all new government buildings and that, in so far as this is possible, existing buildings are remodelled to "intelligent" specifications when renovations are undertaken.

## RECOMMENDATION

In the interest of facilitating the uptake of technological advances, the Minister for Economic Development should ensure that the concepts of intelligent buildings are understood and acted upon in the design and renovation of Government buildings.