

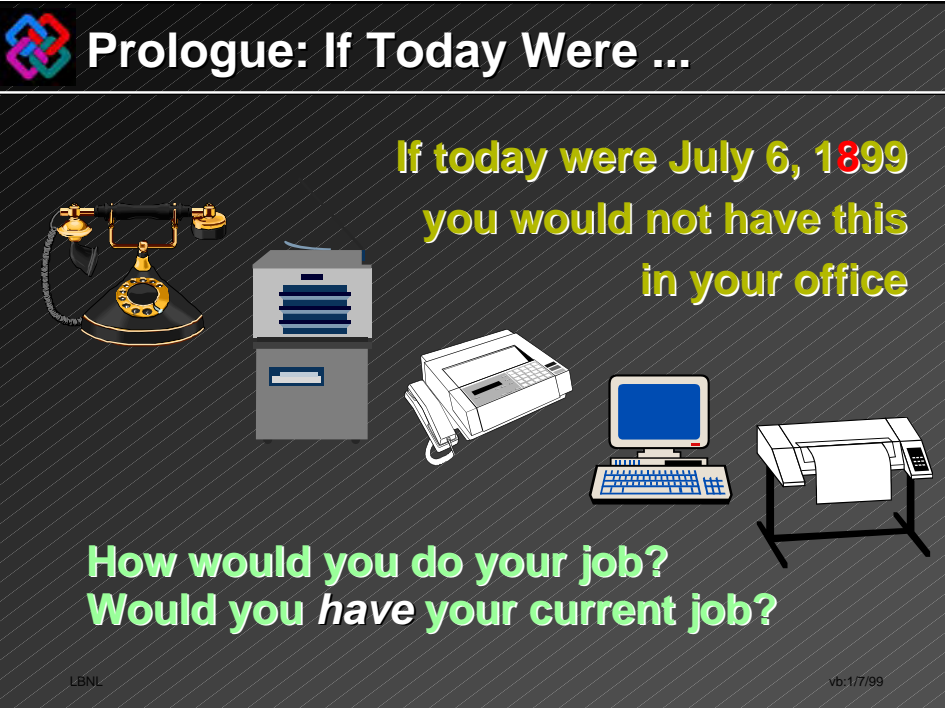
# IAI Organization and Processes

Presented in Dallas Jan. 23, 1996



***IT In The Building Industry - A U.S.  
Industry Perspective***

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**Prologue: If Today Were ...**


If today were July 6, 1899  
you would not have this  
in your office

How would you do your job?  
Would you *have* your current job?

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### Current information exchange

- **Four apparent rules that govern the current information exchange in the U.S. building industry:**
  - Formally record only what is required or may be contested in the future
  - Submit only what was requested
  - Digest only what is immediately pertinent
  - Minimize cost (cash outlay) of the exchange
- **These rules will vanish with industry-wide use of IT**

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### Recent developments and trends

- **Internet and WorldWideWeb**
- **High-performance, low-cost hardware**
- **Increase in productivity with professional CAD software**
- **Increase in productivity with other professional software**
- **Non-professionals' access to professional information**
- **Customers' increase in expectations from the product**




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## Internet and WWW



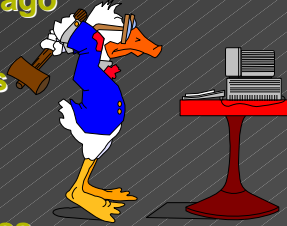
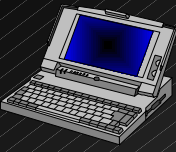
- **Speedy access to information: one minute to download a document that will take more than one hour to read**
- **More information than can be readily comprehended: complex documents that often take more time to digest and absorb the information than the time available**
- **Unknown and unmapped sources of information: it may take longer to find the information than to digest it**
- **Continuous and rapid change in information**
- **Inexpensive distribution of information to multiple destinations: e-mail, lists, exploders, file transfer (ftp access)**

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## New hardware




- **High-performance, low-cost hardware**
- **PCs that outperform workstations of a few years ago by orders of magnitude**
- **Inexpensive memory: allows efficient use of complex software (without paging)**
- **Cheap storage devices and large capacities: quick access to much more information, easy back-up and archiving**
- **LANs: connection of and access to multiple systems**

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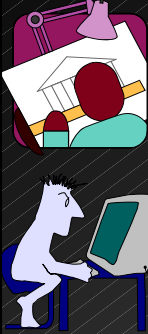
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## Productivity increase from CAD software




- **Professional CAD software:** allows a single individual to do what took 10 or more individuals only a few years ago
- **One change automatically includes adjustments to other affected information**
- **Global changes/corrections in documents:** change of one instance results in changes of all instances
- **Incorporation of multiple documents into one:** addition of notes, comments, references, dates, etc. to drawings
- **Master documents:** documents that serve as the basis for other documents (no need to redraw or duplicate)
- **Multiplication, reduction and amplification of information:** global and conditional copying, zoom-in, zoom-out
- **Multiple views:** rotation, isometric projections, 3D views
- **High resolution/high quality visualization:** lighting effects, incorporation of photographs and renderings
- **New critical job classifications:** CAD operator, data-base manager, communications officer

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## Productivity increase from other software




- **Software that delivers technical answers in a fraction of time:** quantitative support information, engineering information of various kind, cost data
- **Simulation software:** the simulation of system performance, of overall building performance, in section of time, over prolonged time

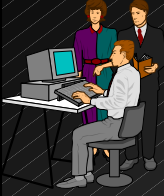
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### Open access to professional information





- Easy access to information that in the past was accessible only by those who needed it
- Mistreatment of professional information: taken out of context, misinterpreted, misrepresented
- The “wrong information in wrong hands” syndrome: unrealistic expectations (cost, time, etc.)

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### Customers' increased expectation




- Building viewed as an investment (concern with return on investment)
- Increase in demand for *value* of invested money
- Continuously changing building program/brief and use
- Shorter and shorter pay-off cycle
- Diminishing concern with quality (declining willingness to pay for better quality)
- Increase in litigation

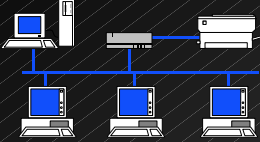
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### Blueprint for IT in the building industry




- Interoperability for integration of available information
- Analysis and synthesis of enormously large data bases: making use of all available/generated information
- Distributed computing and data bases
- New tools to aid communication specific to the industry
- Virtual buildings/environments
- Project-based virtual enterprises




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### Benefits to other industries: Shell



Findings from a Shell report that assessed the use of IT in process plant facilities:


- Current approaches to the exchange and sharing of information are very costly
- Good quality information plays a role to reduce costs and improve the effectiveness of a facility throughout its life

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### The impact on economy

- The 1994 Latham report challenged the UK building industry to achieve a 30% reduction of time and cost, partially through the use of IT
- 40% of the GNP in the U.S. involves buildings in some way
- A mere 15% reduction in the cost of design, construction and operation of buildings amounts to 6% of the U.S. GNP



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### What is possible now

- Evolve to “digital” ways
- Evolve in the ways you practice
- On the verge of automatic import-export of building geometry through Industry Foundation Classes (IFC) of the International Alliance for Interoperability (IAI)

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