Session Abstract

B03   Supporting decision-making in the e-business world
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e-business, with its increased competition and speed of change presents dramatic new challenges to company man-
agement. New and existing information must be understood, integrated and managed in a dynamic process to sup-
port decision-making and action-taking. We need new approaches to the creation, management and use of metadata
and new tools to manage the control and flow of decisions around the organization. This presentation provides a
vision for management and decision support beyond today's business intelligence.

B03

Supporting decision-making
in the e-business world

Dr. Barry Devlin

IBM Data Management Technical Conference

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Agenda

1. ## *Business background*

   – **What problem are we trying to address?**

2. ## *Technological approach*

   – **Where are the possible solutions?**

3. ## *Worked example*

   – **How to begin to provide a solution today?**

4. ## *Conclusion*

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Business background

Plus ça change, plus c'est la même chose.

Dot coms become dot gones ...
  but e-business becomes business as usual

Cost management is back in fashion...
  but profitability is still key

Managing a business today is
 more difficult then ever

In today's business environment, increasingly rapid and discontinuous change forces faster decision making.

Traditional models of business are being stretched to the limit.

e-business adds to the problem!

- Facilitates new ways of doing business, lowers barrier to entry for competitors, etc.
- Forces faster reaction in more distributed environment

Rate of business change

e-business

Acceptable reaction time

1980 1990 2000 2010
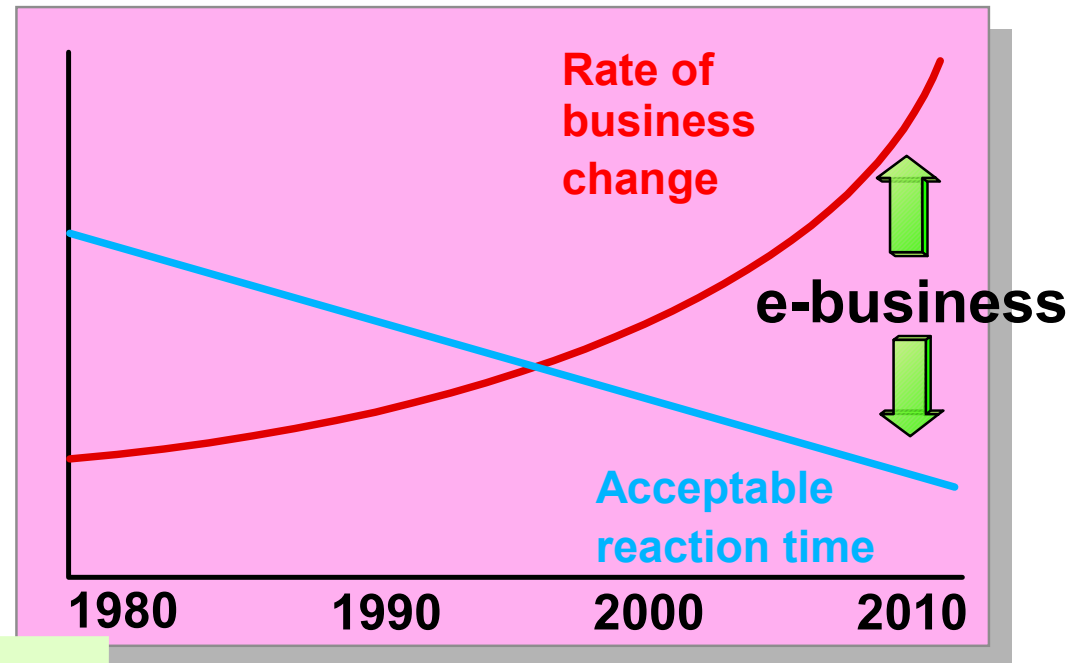
"**Uncertainty** has become so great as to render futile, if not counterproductive ... forecasting based on probabilities."
P. Drucker, "Planning for Uncertainty", Wall Street Journal, 22 July 1992

"From a sample of over 3,000 executives (1994-98), over 50% saw their future business environment to be one of '**continuous discontinuity'**".
S. Haeckel, "Adaptive Enterprise", 1999

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A renewed focus on costs, profits and basic financials further emphasises the need for better decision-making.

"Better" decisions?
- Balancing conflicting aims?
- Based on which criteria?
- Over what timescale?

Optimising decisions
- Individual vs. collective responsibility
- Organisational / political aspects
- Distributed decision-making

Promoting excellence in decision-making
- Goal setting
- Tracking results
- Making **all** information available to decision maker

Linking decisions/ actions together
- Over time
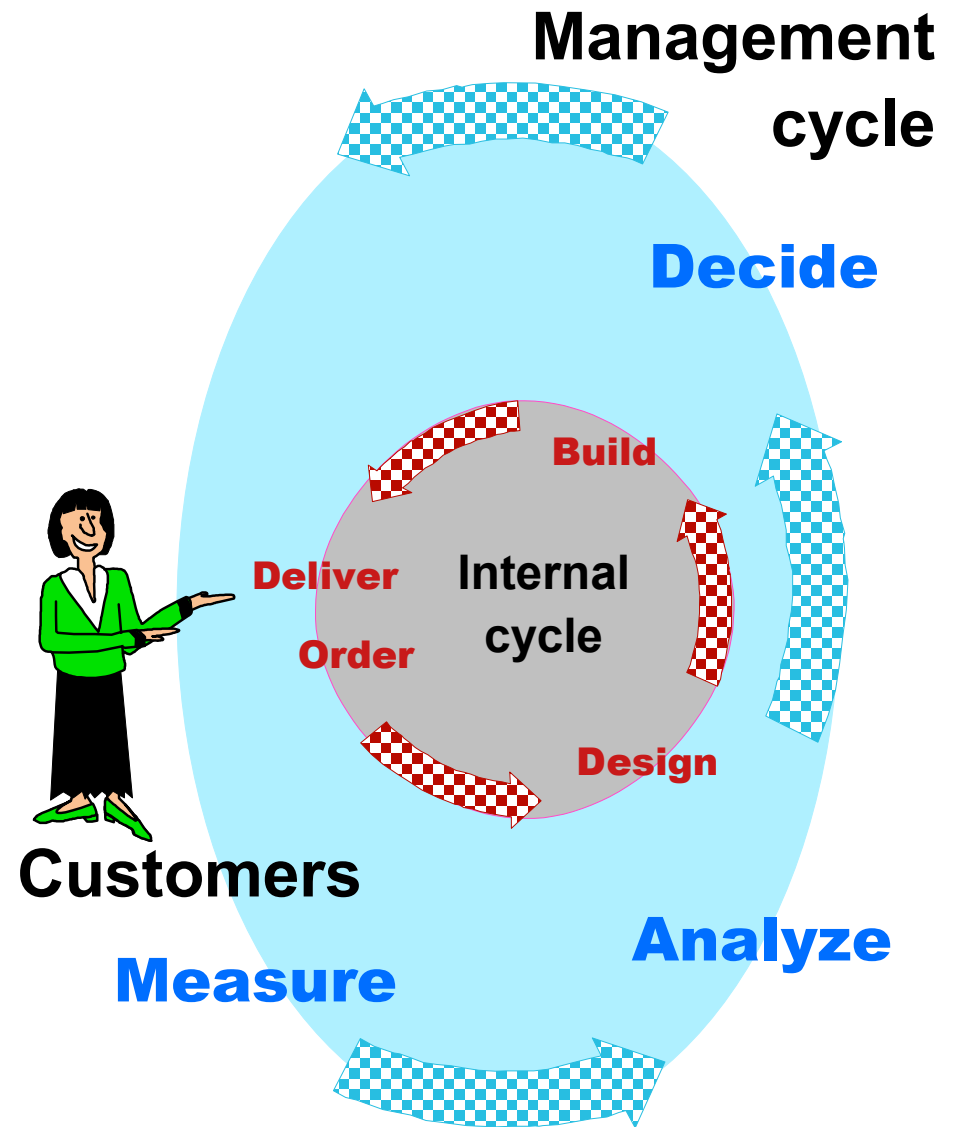- Across organisations
- Across systems

Revenue

Costs
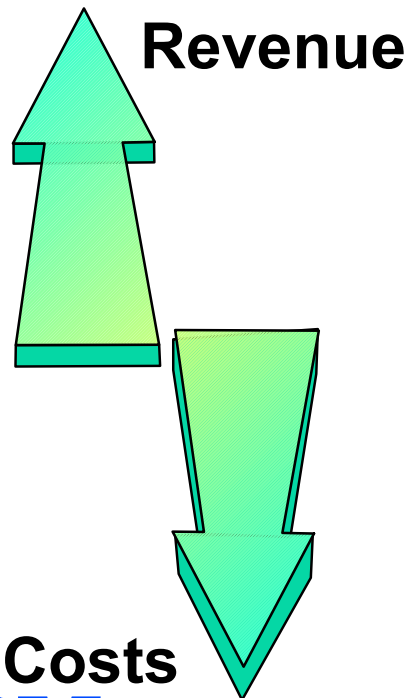
In the past, when change was less pervasive, it was sufficient to focus mainly on the internals of the business.

- *Internal cycle - get the job done faster, cheaper, better*
  - Operational systems extension and optimisation
  - Workflow - internal process optimisation

- *Management cycle - figure out how we're doing*
  - Data warehouse - largely internal data, often backward-looking
  - As time allows
  - "Decision support"

Management cycle

Decide

Build

Deliver

Internal cycle

Order

Design

Customers

Analyze

Measure

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Despite such data warehousing efforts, decision-making is poor and slow in many organisations, especially larger businesses.

✖ **Basic information is hard to gather**

➡ **Delays in decision-making**

✖ **Information does not reflect the true state of the world**

➡ **Poor decisions**

✖ **Decision-makers are partially disconnected**

➡ **Postponement/rework of decisions**

✖ **Consequences of decisions are not tracked across the business**

➡ **"Decision-churn"**

✖ **Lack of trust across the organisation**

➡ **Competitive behavior, sub-optimal decisions**

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As e-business matures, companies must link the internal and external cycles through effective decision points.

- *Customer cycle - the customer side*
  - Multi-channel interactions
  - Multiple relationships
  - Multi-product interactions
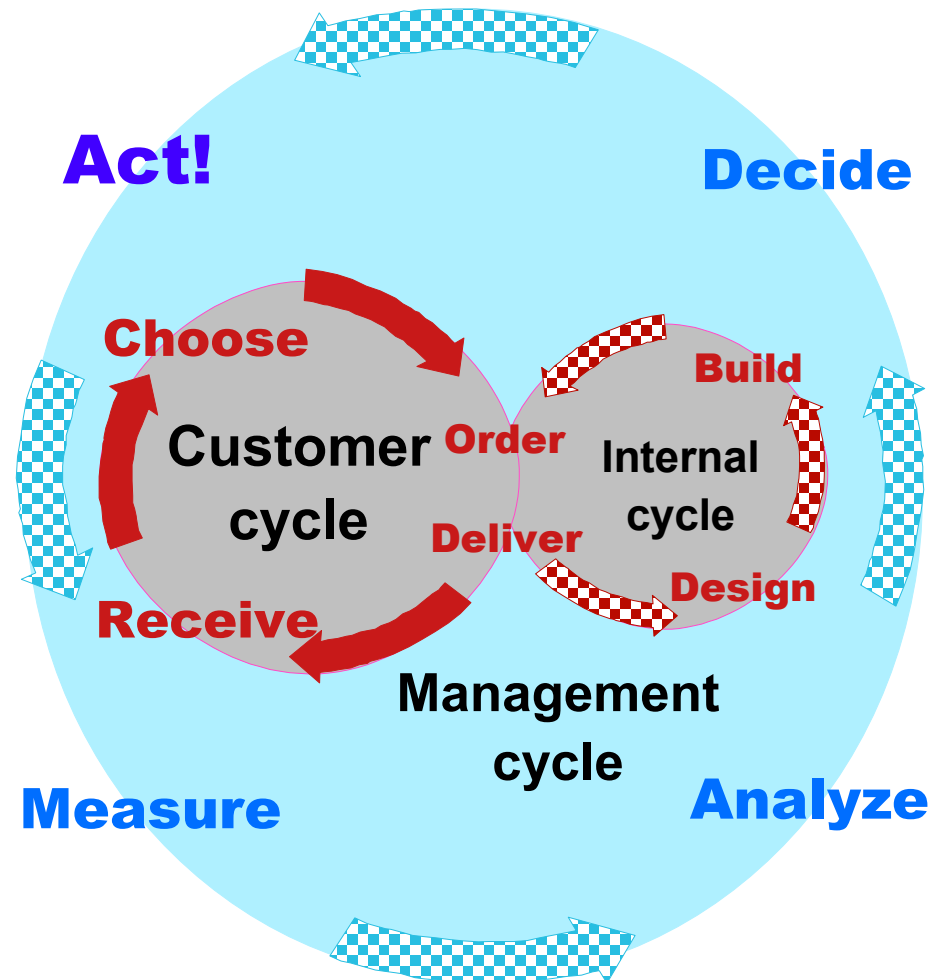
  - **Supplier cycle**
    - B2C shown, but also applies to B2B

- *Management cycle - anticipate the customer and the market*
  - Link to external and internal cycles
  - Complete full feedback loop (communicate, act & measure)
  - Rapid action / reaction

- *Making the right decisions at the right times is vital*
  - Many more decision points
  - Faster and more visible decisions

Act!   Decide

Choose

Customer cycle

Order   Internal cycle   Build

Deliver   Design

Receive

Management cycle

Measure   Analyze

Integration of these cycles is very difficult ...
But also imperative -- for success or for survival.

The current state of support for decision-making in most organisations leaves much to be desired.

Large organisations face challenges in improving support.
- Growth and prosperity adds new barriers in the chain of command
- Cost cutting shortens chains of command, but often removes key knowledge

Smaller companies wanting to grow face a difficult transition to large scale decision-making.

Solving the problem of decision-making is key to addressing the new e-business environment.

Effective management decision-making & actioning needs support for both data and process. This is the basis of the decision cycle.

- ***Today's business demands:***
  - Access to the right information, as soon as it becomes available, in a business context
  - Rapid decision-making based on such real knowledge (internal & external)
  - Decisive action and immediate feedback
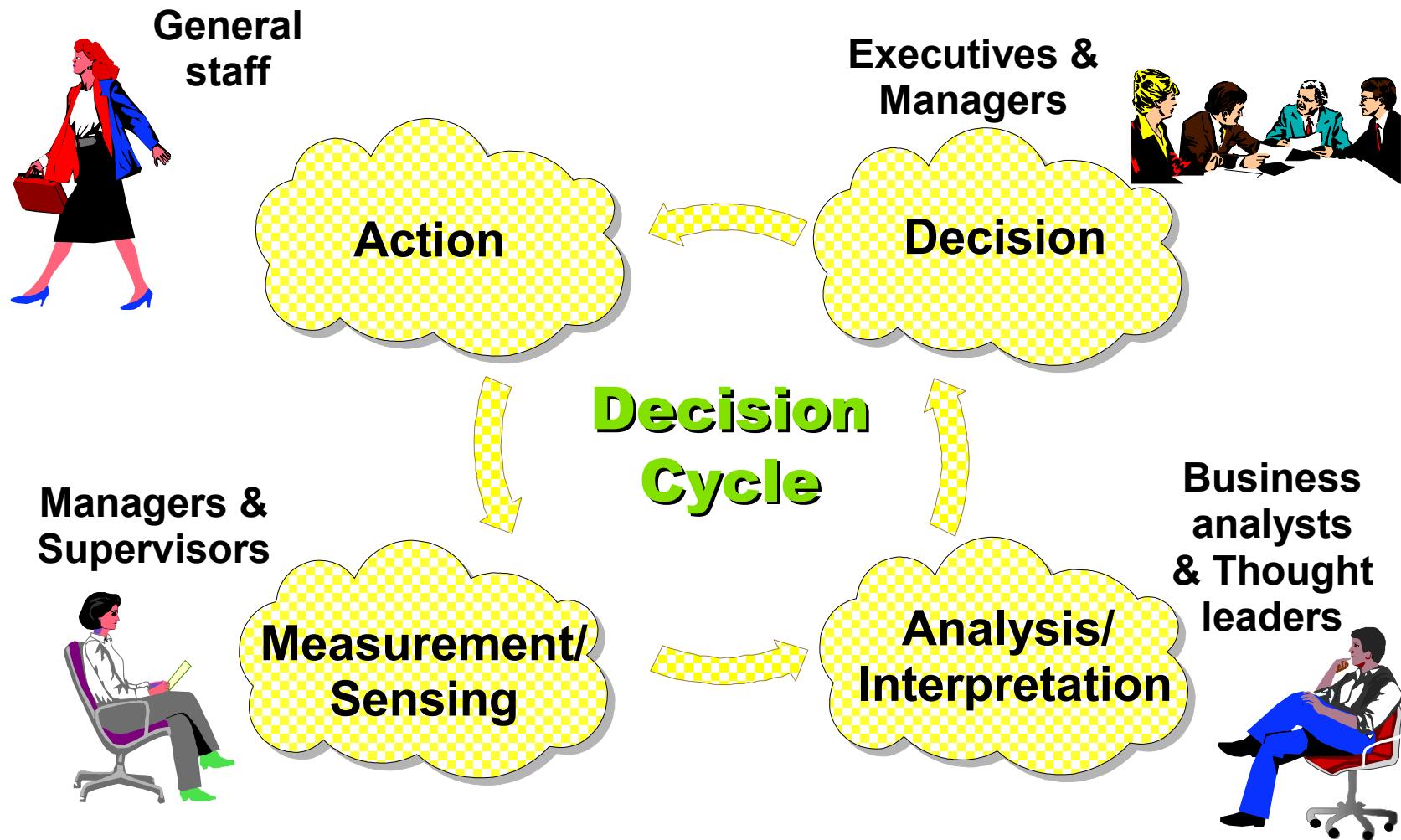 - Equal focus on data and process to create a closed-loop process

- ***Large and small companies alike need effective decision-making to grow ... or survive***
  - Make the right decisions, quickly
  - Follow with immediate actions
  - Track results and adjust actions

- ***Applies in all industries***

Knowledge

Action

Feedback

Data
Data
Data
Data
Data
Data

Information
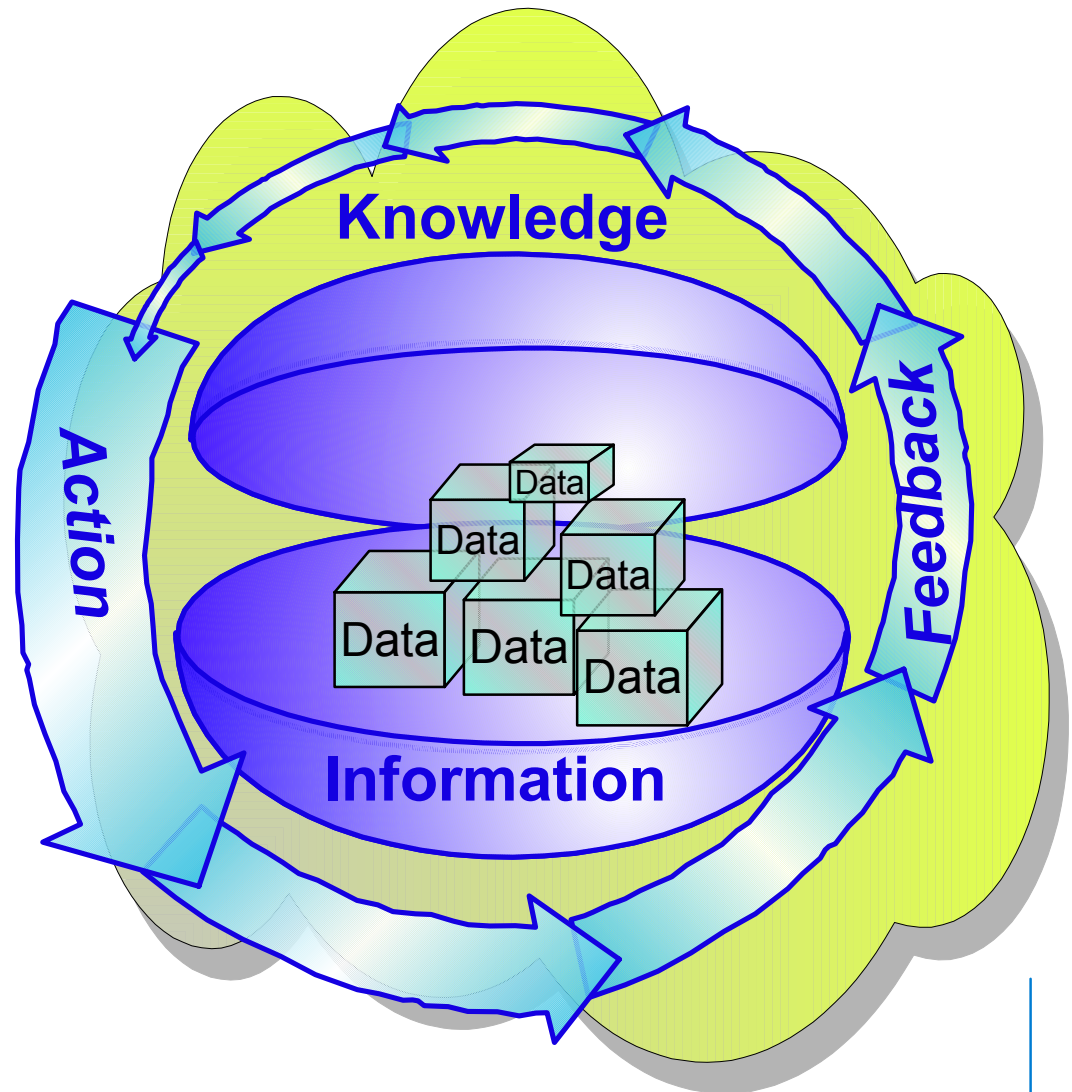
The decision cycle is a high-level representation of the activity of an organization, viewed from the perspective of decision-making.

General staff

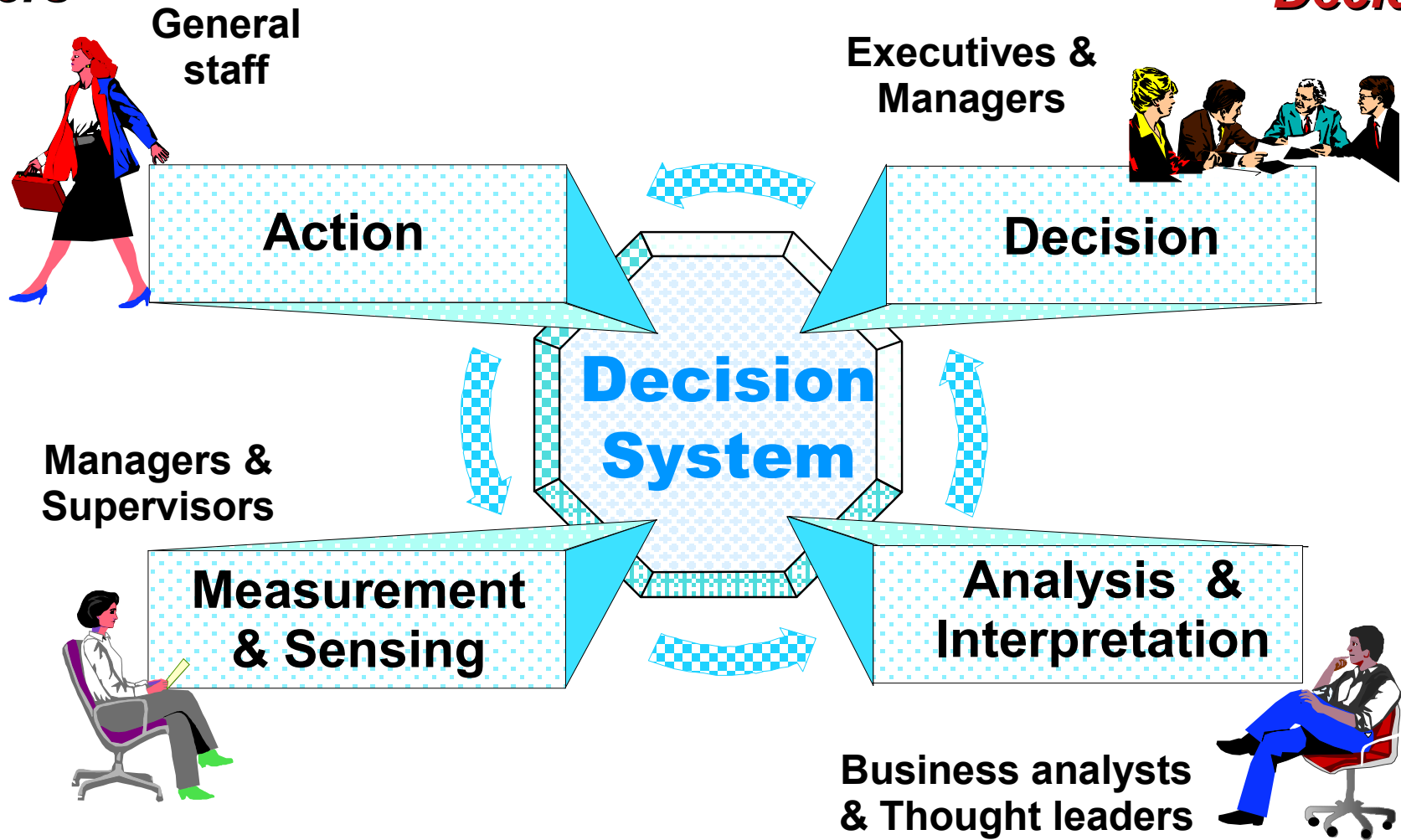Executives & Managers

Action

Decision

Decision Cycle

Managers & Supervisors

Business analysts & Thought leaders

Measurement/ Sensing

Analysis/ Interpretation

Part 2

Technological approach

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A proactive decision system effectively manages decision-making and action-taking between the roles involved in the decision cycle.

Doers

Deciders

General staff

Executives & Managers

Action

Decision

Decision System

Managers & Supervisors

Measurement & Sensing

Analysis & Interpretation

Business analysts & Thought leaders

Measurers

Interpreters

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Today's business intelligence covers only a small part of the needs of a decision system. Many other technologies are also needed.

Enterprise portals

Operational systems

Text mining

Search

Social computing

Application integration

Metadata

Management workflow

Content management

User interface

Knowledge management

Action

Decision

Decision System

Measurement & Sensing

Analysis & Interpretation

Business intelligence

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Metadata - especially business metadata - is key to enabling decision making and action taking based on information.

Role of metadata

- ✓ Business context
- ✓ Alternative interpretations
- ✓ Knowledgeable people
- ✓ Responsibilities
- ✓ Existing answers
- ✓ Related facts
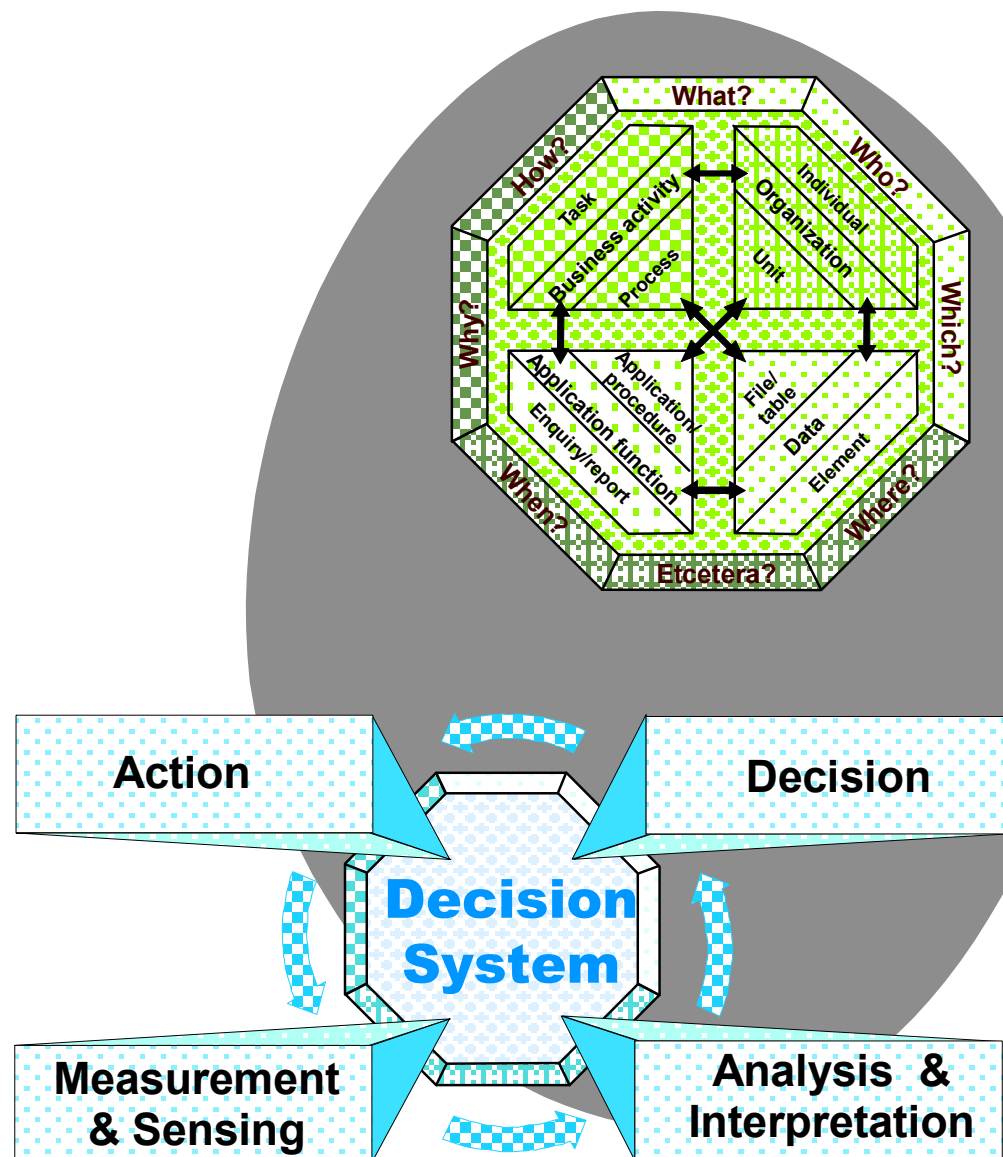
Workflow tools combined with Internet technologies provide support for integrated communication and information flow.

Action

Decision

Decision System

Measurement & Sensing

Analysis & Interpretation
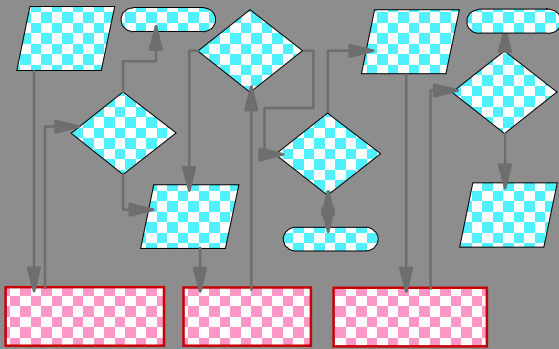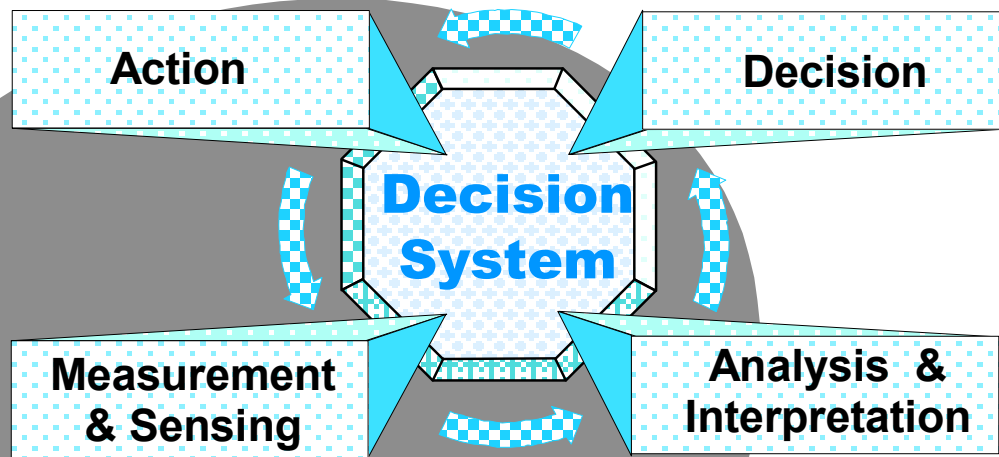
Role of workflow and Internet tools

- ✓ Defined and managed management processes
- ✓ Flexible linkages
- ✓ Publish and subscribe
- ✓ Intuitive interfaces

New knowledge management and portal approaches are key to comprehensive but comprehensible access to and use of this knowledge.
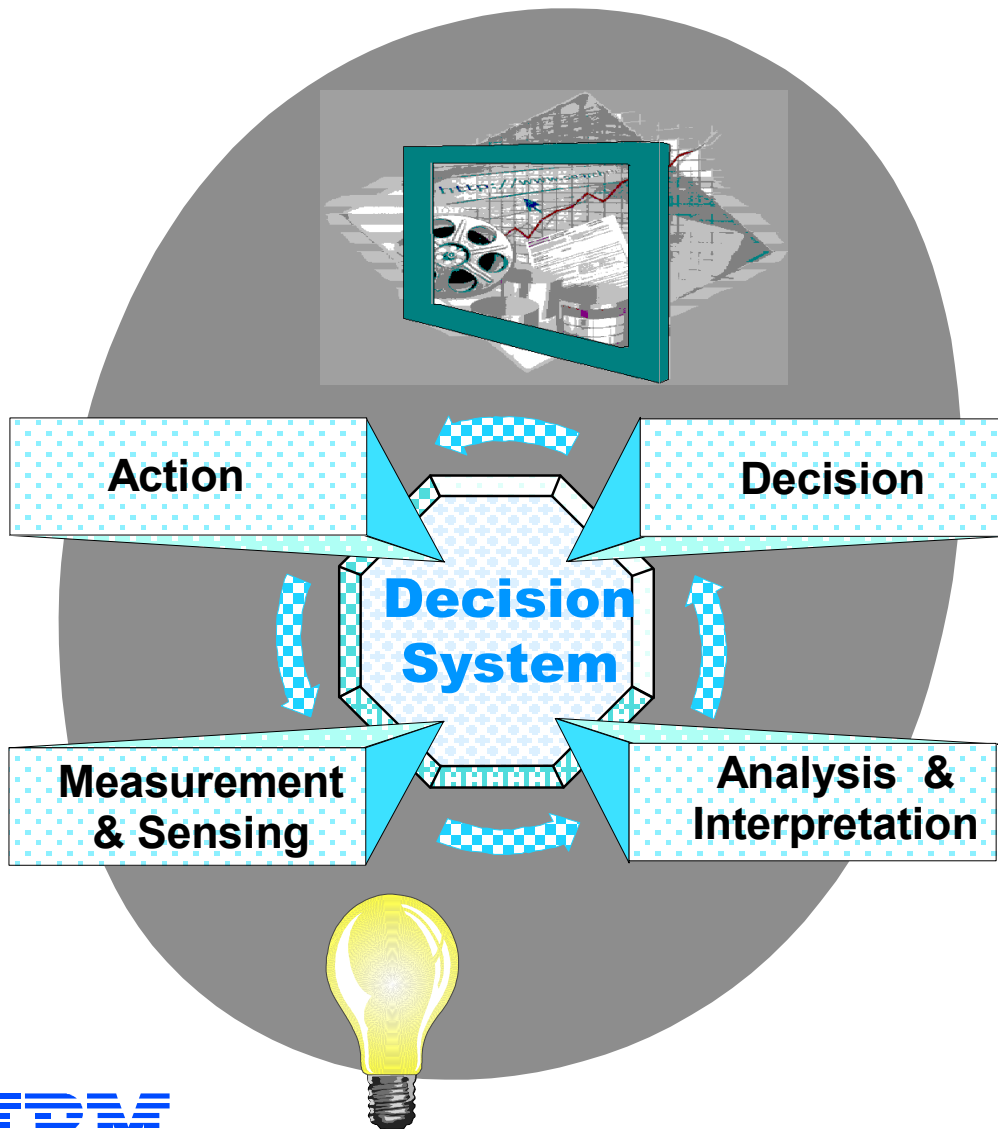
Role of enterprise portal technology

- ✓ Content management
- ✓ Single point of access
- ✓ Intuitive personalised interface
- ✓ Reactive and proactive to user behavior
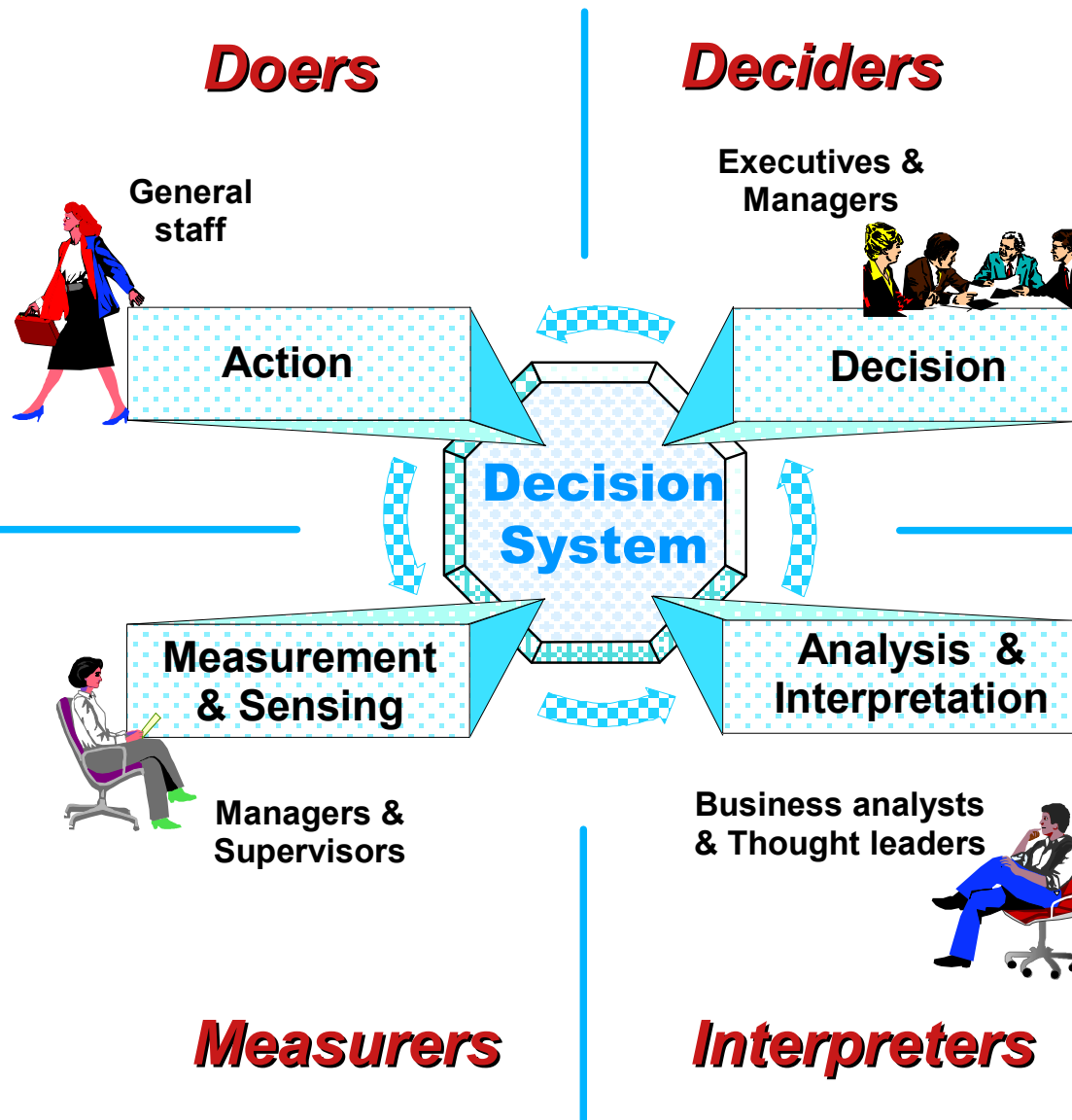
Role of knowledge management

- ✓ Tacit / explicit knowledge transformation
- ✓ Community building
- ✓ Creation of trust
- ✓ Innovation
- ✓ Reduced information overload

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Part 3

Worked example

How users interact with the decision cycle depends on their roles, as well as on their different ways of handling information.

Doers

Deciders

General staff

Executives & Managers

Action

Decision

Decision System

Measurement & Sensing

Analysis & Interpretation

Managers & Supervisors

Business analysts & Thought leaders

Measurers

Interpreters

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For example, look at a "discovery process". Interpreters transform data into information, making and publicizing valuable discoveries.

- **Interpreters (5% of population)**
  - **Primary information providers**
  - Analyze info. via high function BI tools
  - Create and publish reports, spreadsheets, database subsets (information objects)
  - Publicize in metadata

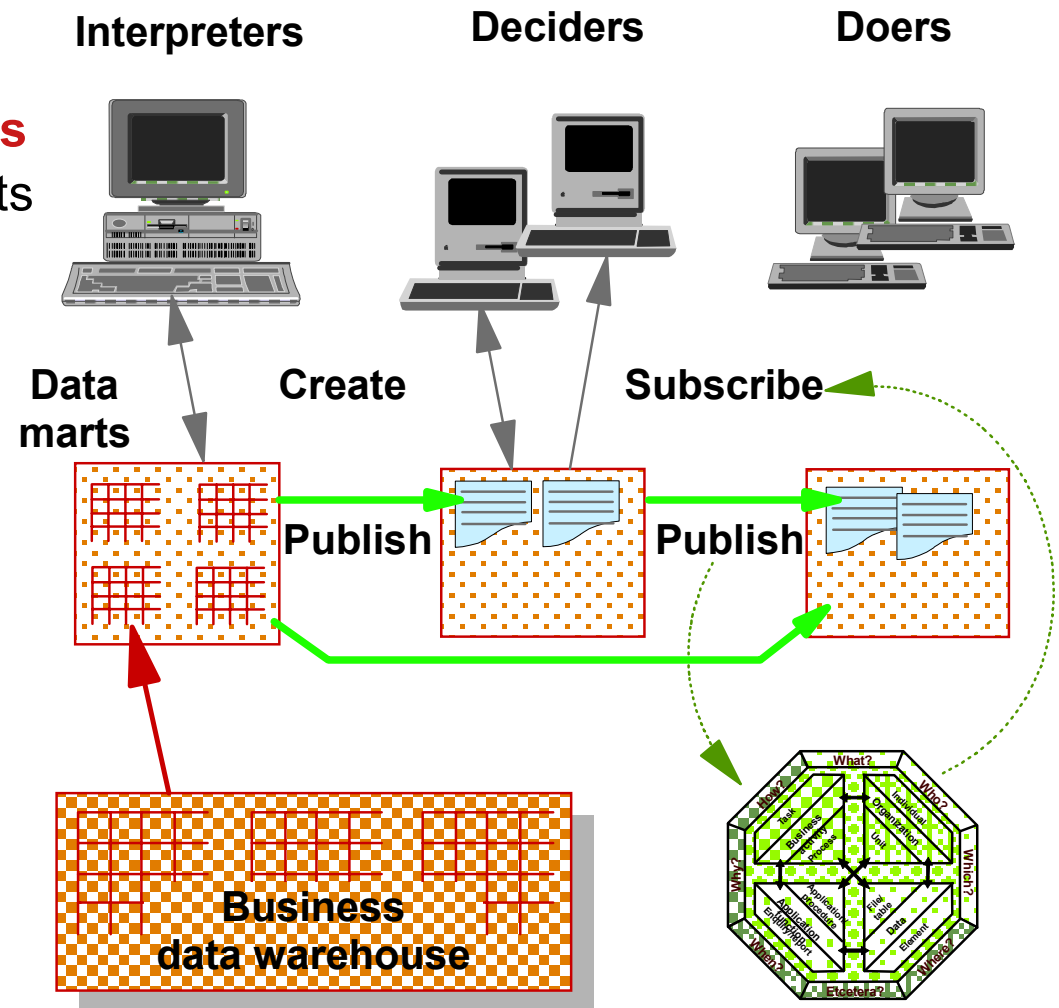Business analyst discovers new market niche for improved product

Interpreters   **Deciders**   **Doers**

Data marts

Create

Publish

Business data warehouse
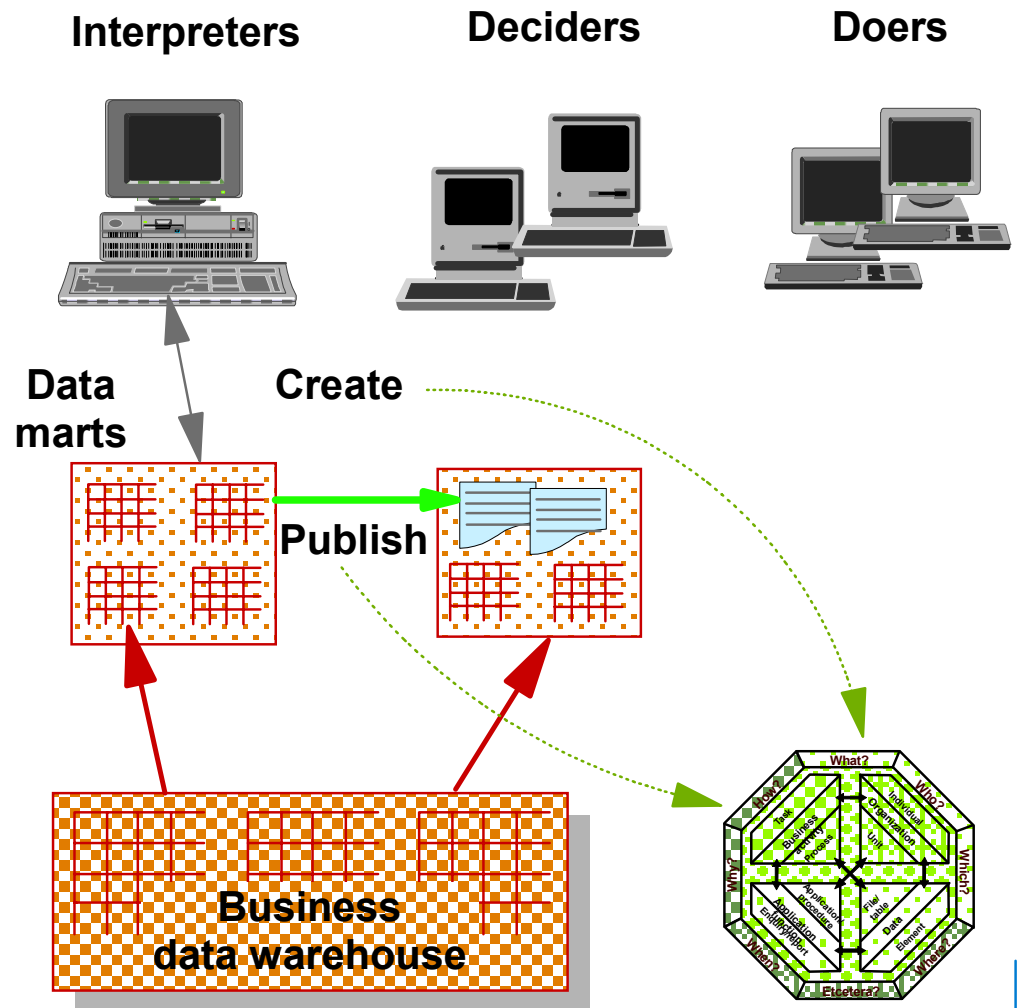
Deciders use the information received to make decisions & create minimal further information, e.g. instructions and calls to action.

- **Deciders (10% of population)**
  - **Primary information consumers**
  - Subscribe to / receive info. objects
  - Only use office suite tools
  - Create / publish / distribute info. objects (memos, reports)
  - Publicize in metadata

Interpreters

Deciders

Doers

Data marts

Create

Subscribe

Publish

Publish

Executives decide to enter market by investing in product upgrade; inform staff

Business data warehouse

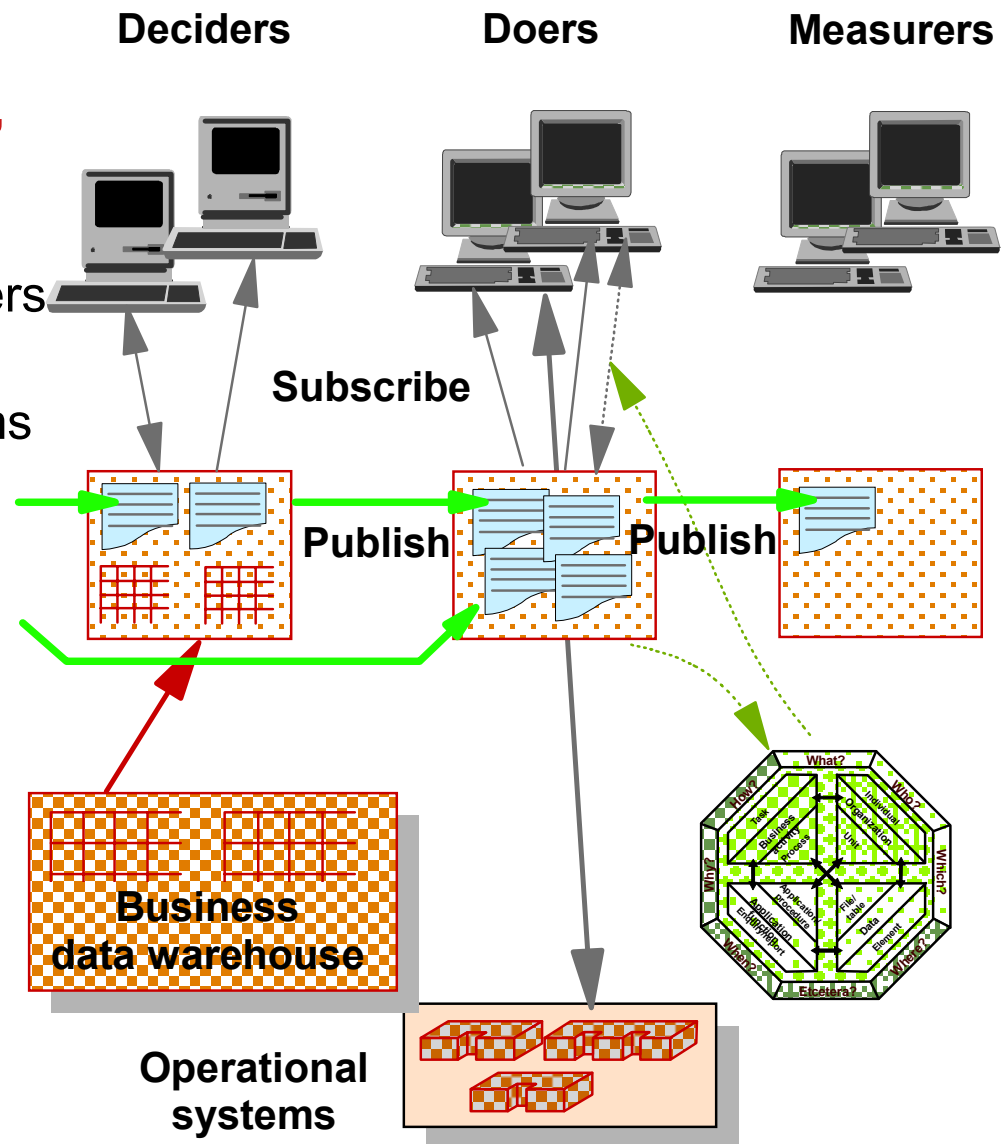IBM Data Management Technical Conference

Doers are also mainly consumers of information. However, their actions often result in the creation of data.

- *Doers (75% of population)*
  - **Primary information consumers, and data creators**
  - Subscribe to / receive info. objects
  - Use only office suite tools / browsers
  - Create few info. objects (reports)
  - Create data via operational systems
  - Are informed via metadata

Deciders　　**Doers**　　**Measurers**

Subscribe

Publish　　Publish

Staff perform necessary actions, thereby creating new data and reports

Business data warehouse

Operational systems

What? Who? Which? Where? When? Etcetera?

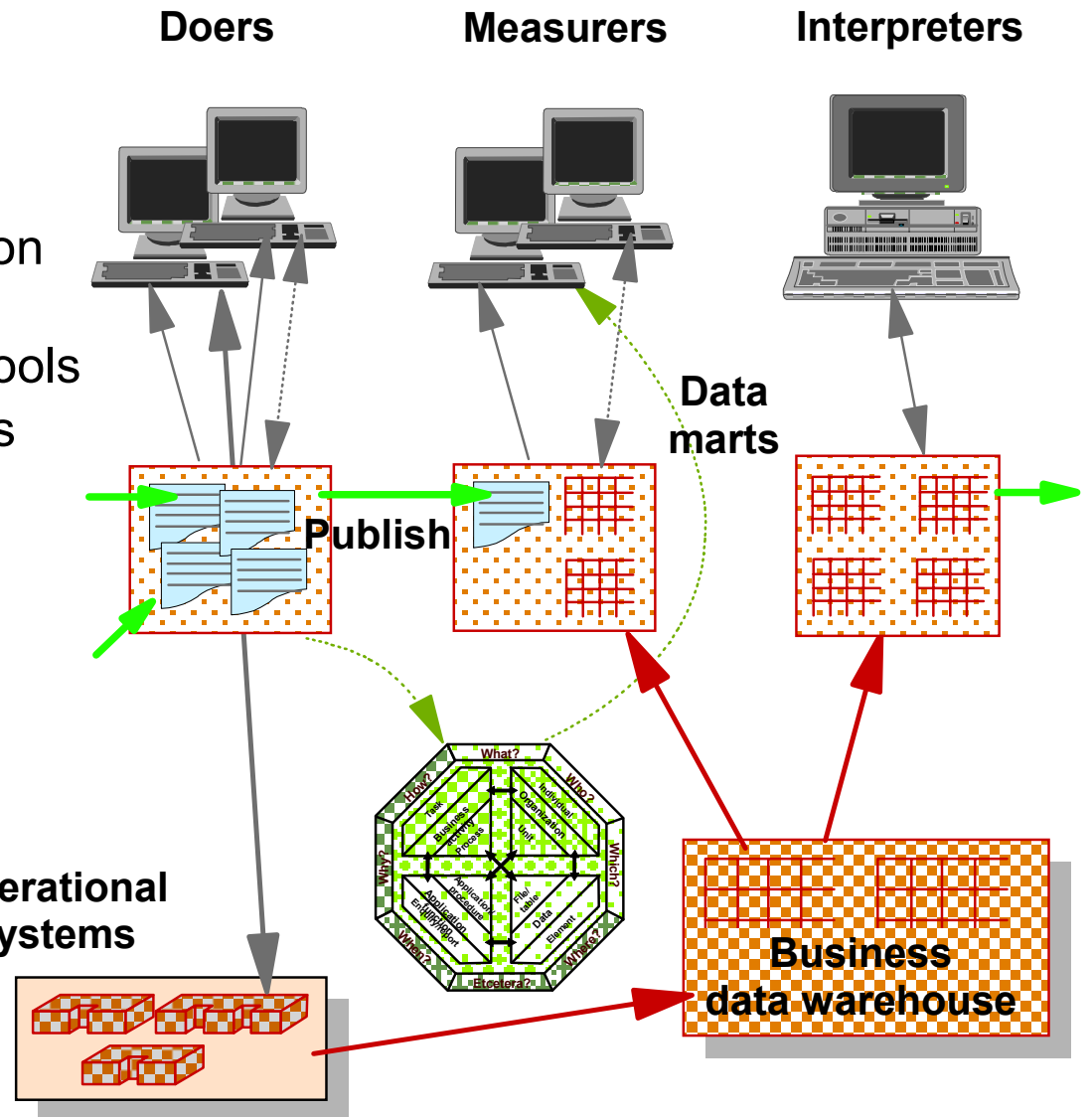IBM Data Management Technical Conference

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Measurers are both providers and consumers of information. However, they usually act in predictable ways in both roles.

- **Measurers (10% of population)**
  - **Information providers and consumers**
  - Subscribe to / receive information objects
  - Use office suite and simple BI tools
  - Create basic information objects (spreadsheets, reports)
  - Are informed and publicize via metadata

Managers & supervisors monitor progress; business analysts can see results of decision

Doers

Measurers

Interpreters

Data marts

Publish

Operational systems

Business data warehouse

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This is an **information supply chain** that links together information providers and consumers in the organization.

- *Interpreters*
  - Primary information providers

- *Deciders*
  - Primary information consumers
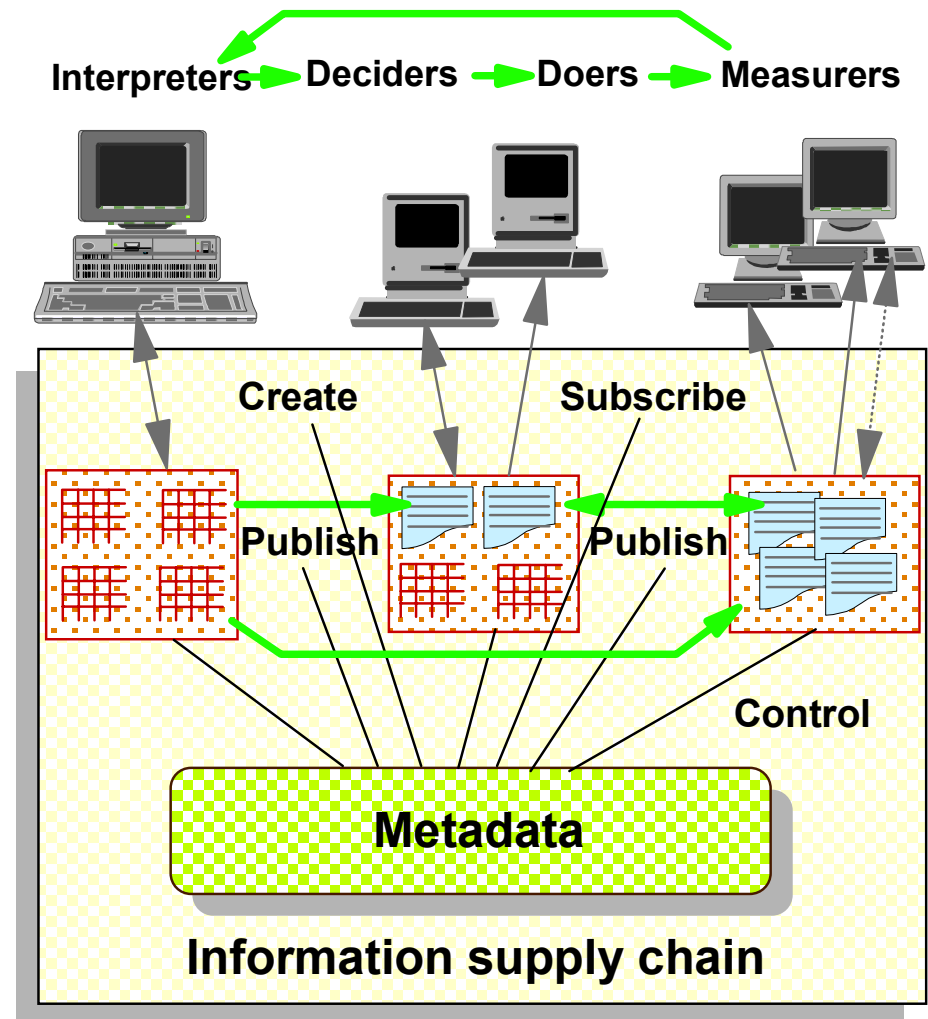
- *Doers*
  - Information consumers & data creators

- *Measurers*
  - Information providers & consumers

➡ *A new paradigm*
  - **Active publish and subscribe model**
  - **Metadata driven**
  - **Just in time information for most users**

★ **Beware the organizational issues!**

Interpreters → Deciders → Doers → Measurers

Create   Subscribe

Publish   Publish

Control

Metadata

Information supply chain

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In conclusion, congratulations on your working business intelligence system. Now the real work begins!

We need a new basis for managing an e-business:

- **The right and complete data made available**

- **Information in a business context**

- **The infrastructure for exploration of new information**

Recognize the decision cycle

- **Linking knowledge to decisions to actions and on to feedback**

- **Adding unstructured and untrusted information**

- **The basis for automating decision-making**

Create a decision system

1. **Based on metadata**

2. **Using Internet tools and workflow concepts**

3. **Address the organizational issues**

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