History of Information Systems Usage in Japan

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CIGREF Workshop

Summary of the research project

- Two year research project
  - Research Project on History of Development of Information Systems in Japan
    - FY 2007
  - Research Project on Information Systems Which Respond to Industrial and Social Needs: A Historical Perspective
    - FY 2008
- SIG of JASMIN
- Supported by METI, JIPDEC, JUAS

Summary of the research project

- Investigation of
  - History of development of information technology
  - History of development of information systems in manufacturing, distribution and financial industries
  - History of development of companies' information systems
    - 7 manufacturing companies
    - 5 distribution companies
    - 4 financial companies
- Support from user companies
  - Interviews with key people
  - Provision of data including company history

Overview of sixty years of IS usage in Japan

- 1950's
  - Punch-card systems had been used for data processing since 1920
    - Cost reduction through laboursaving
  - 1st generation, stored-programme computer Bendix G-15 was imported in 1957
    - The Railway Technical Research Institute used this machine to research on seat reservation systems
  - IBM 650 was introduced at Institute for Nuclear Studies and Onoda Cement Co. Ltd in 1958
    - Technical/scientific calculation
    - Onoda also introduced UNIVAC File Computer for business computing in 1959
  - Domestically made computers started to be developed in the mid 50's
  - Japan was at least ten years behind the US in information systems development and use

Overview of sixty years of IS usage in Japan

- 1960's
  - Information systems were used for streamlining business operations and cost reduction during the high-growth period of Japanese economy (1955-73)
  - 2nd generation computers started to be introduced in 1961
    - The number of orders for computers exceeded one for PCS in this year
    - The beginning of the computer age in Japan
  - 3rd generation computer IBM System/360 was introduced at Tokai Bank in 1965
  - Domestically made 3rd generation computers started to increase their market share in 1968

Overview of sixty years of IS usage in Japan

- 1960's
  - 2nd and 3rd generation computer-based information systems
    - EDPS
    - Magnetic tape/disk units

    → development of business information systems
      - Production management systems
      - Account processing systems …
  - Online real-time systems were developed in 1964
    - The seat-reservation system MARS 101 for Japan National Railways in January
    - Tokyo Olympic Games Online System in October
    - Mitsui Bank set up their online real-time system in 1965
  - MIS Boom in the end of the 60's

Overview of sixty years of IS usage in Japan

- 1970's
  - Integrated database systems emerged
  - Special purpose terminals started to be developed and used
    - Manufacturing industry
      - Graphic display terminals

      ➔ CAD/CAM
    - Distribution industry
      - POS systems were put into practical use in the end of the 70's

      ➔ Consolidated business management systems
    - Financial industry
      - The world first online cash dispensers were set up in 1971 by Bank of Mitsubishi
      - Automatic teller machines in 1977

Overview of sixty years of IS usage in Japan

- 1980's
  - Office Automation Boom
    - Japanese word processor, facsimile, photo copier
    - Personal computer, PC telecommunication

    → Productivity advance in office work

    ➔ Enhancement of IT literacy
  - Deregulation in telecommunication
    - Telecommunication between companies and provision of value added network services over telephone lines became possible in 1982
    - Liberalisation of telecommunication business in 1985

    ➔ Enhancement of electronic data interchange
  - SIS Boom in the end of the 80's
  - Japan has caught up the US in information systems development and use

Overview of sixty years of IS usage in Japan

- 1990's
  - BPR Boom
    - ➔ Process innovation methodology
      - Supply Chain Management, Customer Relationship Management …
  - NE/O/DA/MA
    - Network/Open systems/Downsizing/Multi-vender
    - Construction of open systems using personal computers and standardised technology
  - Client-server architecture make it possible for companies to construct the open systems
  - 1995 is the "First Year of the Internet"
    - Network systems = systems using the Internet technology

Overview of sixty years of IS usage in Japan

- 2000's
  - IT Strategic Headquarters was established in 2000 within Cabinet Office
    - e-Japan Strategy in 2001
      - Defined 2001 as the "First Year of Broadband"
      - Set the goal to make Japan a leading world IT nation within five years
  - Ministry of Internal Affairs and Communication (MIC) announced u-Japan Policy in 2006
    - Attempt to realise the ubiquitous network society by 2010
      - Anyone can access the network anytime, anywhere

History of success or history of failure?

- Failure of MIS
  - Japan Productivity Centre organised an MIS mission sent to the US in 1967
    - The mission report emphasised the necessity of using computer technology to enhance Japan's international competitiveness

    → MIS Boom
- Failure of SIS
  - The notion of strategic information systems was introduced in the end of the 1980's
    - It was emphasised that competitive advantage of a company could be gained by development and use of SIS

    →SIS Boom
  - Failure of SIS gave us a good lesson that user companies should ensure their autonomy in development of information systems
- Failure of …

History of success or history of failure?

- There exist companies which have successfully developed and used their information systems for long time!
  - They have not been swayed by prevailing technology trends.
    - They’ve constructed their systems centred on making their main businesses efficient and effective.
  - They have had excellent IT staff at their in-house IS department.
  - They have preserved good partnership with IT vendors.

Manufacturers	Toshiba, NSK, Nippon Steel, Toyota, Mitsui Chemicals, Kirin Brewery …
Distributors	Seven-Eleven Japan, Ryoshoku, Daimaru, Aeon, Planet …
Financial companies	Nomura Securities, Bank of Tokyo Mitsubishi UFJ, Sumitomo Trust Bank …

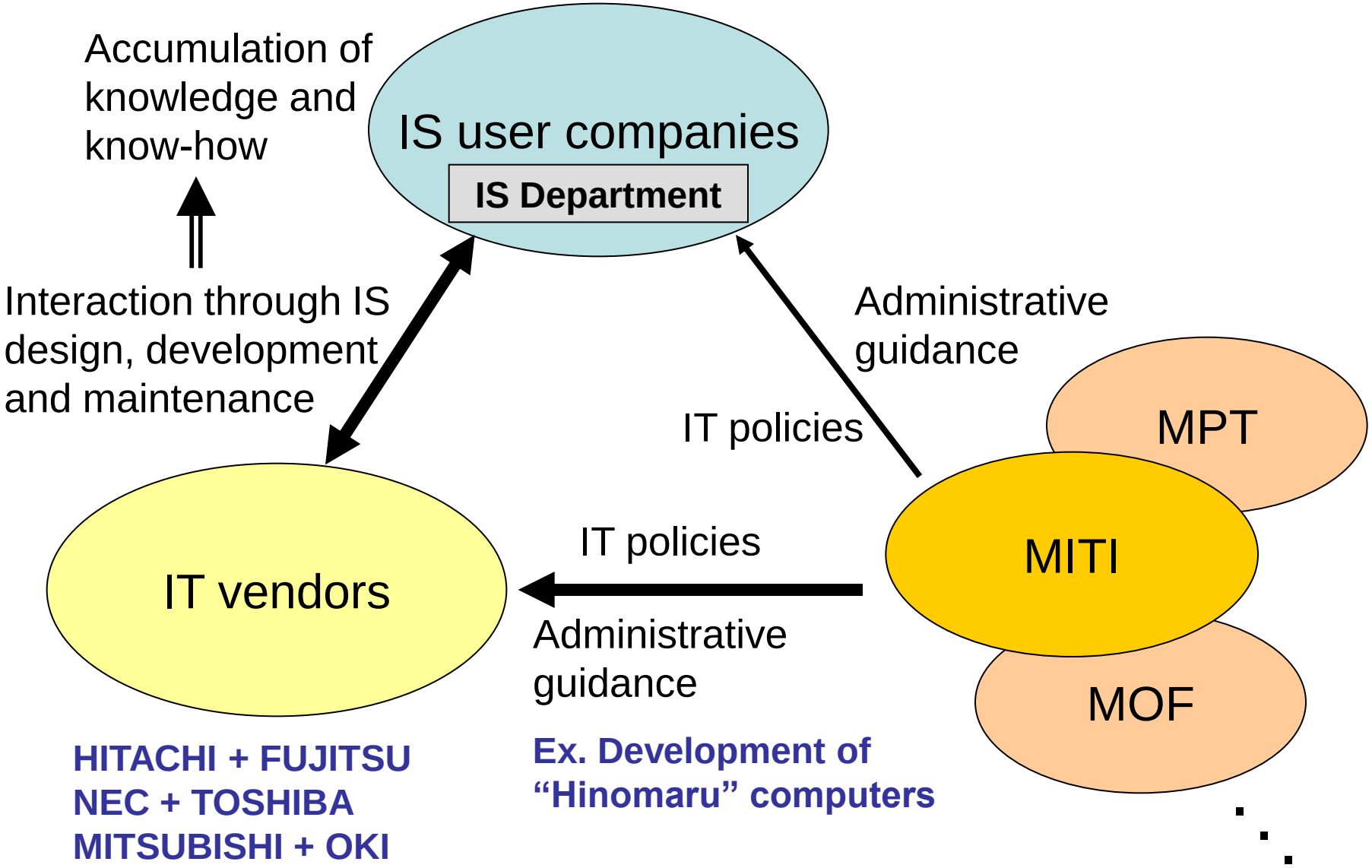
The lessons of IS history in Japan

- The basis of successful information systems is great philosophy and vision embedded in them
  - Quality of users' thoughts and values are key success factors
  - Users' strong will to develop excellent systems is extremely important

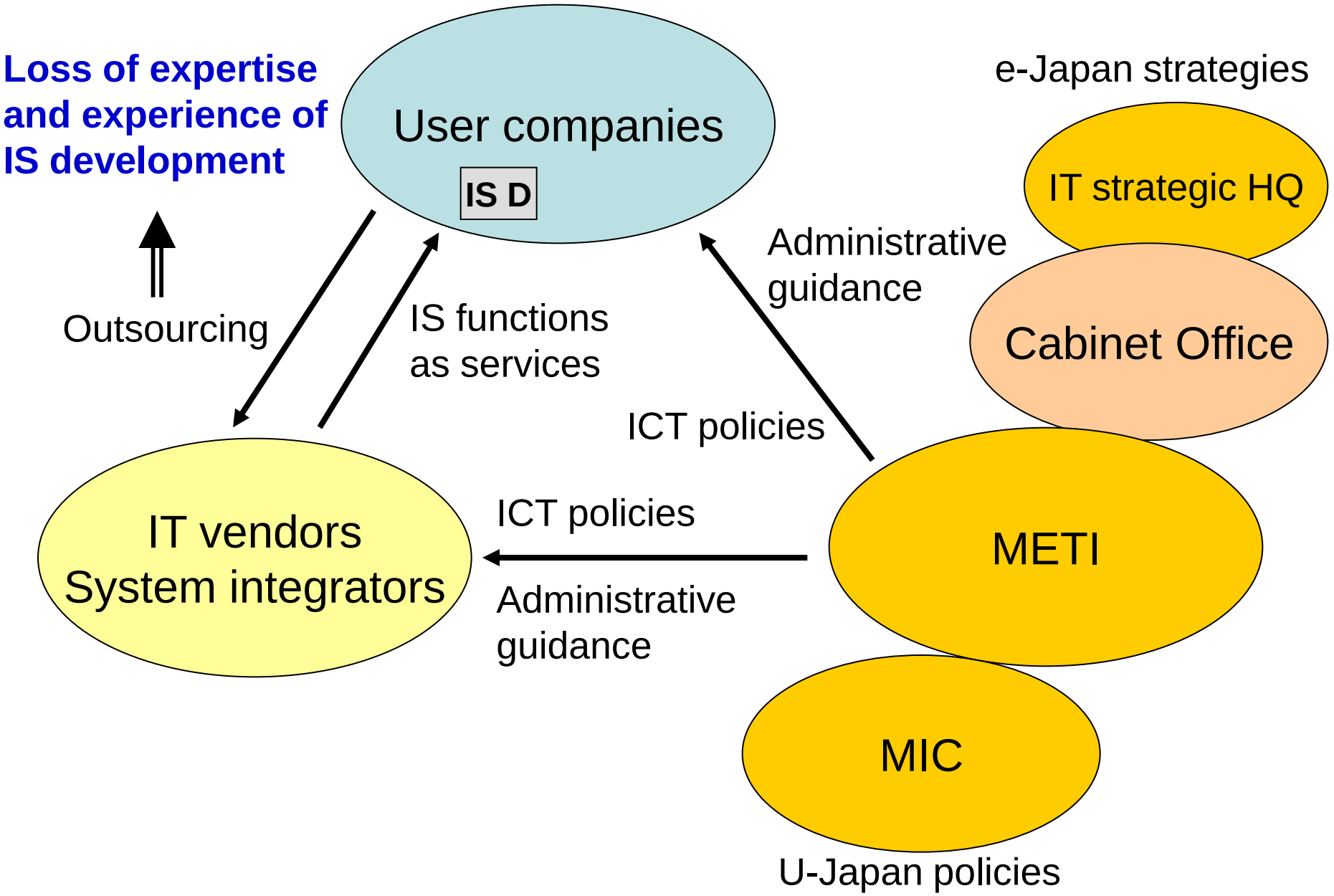
The lessons of IS history in Japan

- Superb ability of staff of an in-house information system department is critical to successful development of information systems
  - Behind a great success of information system development should exist a key person who have exerted significant influence over board members
  - Exceeding outsourcing is to sell out the company's capability of planning and designing information systems
  - Easy introduction of package software should result in an inability of companies to design systems and databases
  - Experience of attending a big IS development project is the best teacher for IS staff to cultivate their ability

Information systems development and use till 1991



Recent information systems development and use



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Merci pour votre attention!