

20th Century US insurance: Public service, associations, & technology

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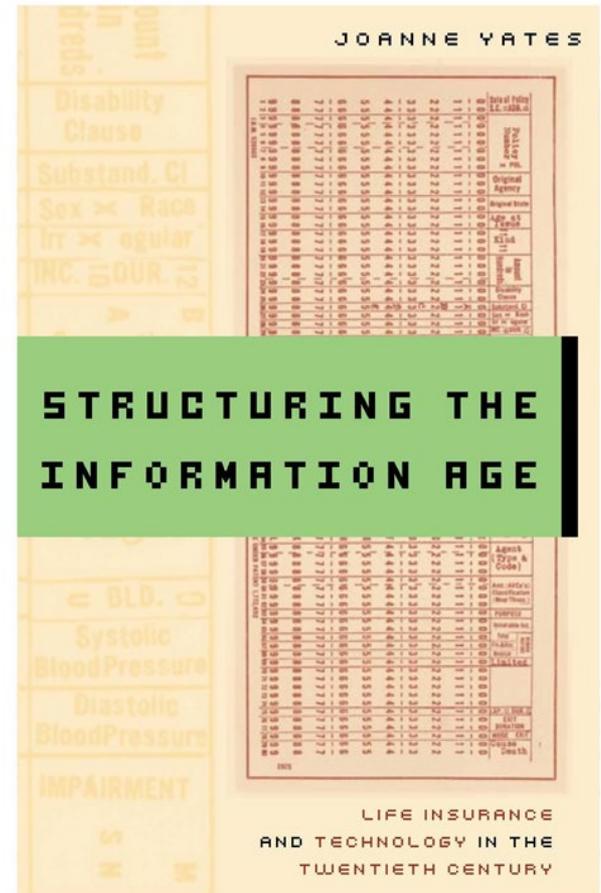
Based on

Structuring the Information Age: Life insurance and technology in the 20th century

Book focus: Technology adoption and use

In the talk, focus on two factors in that story

- **Public service ideology**
- **Knowledge-sharing associations**



Agenda: Public service, associations, & technology

- US life insurance before computers
- Transition to computers
- Results for life insurance & computing industry
- Coda: Fire insurance associations & standards for fire prevention



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Before computers

US life insurance in 19th century: **Public service** to cut-throat competition

Pre-1840: Mutual aid societies with *public service* role

- Making money on death considered repugnant (Zelizer)

1840-1905: Emergence of life insurance firms

- Considered morally ambiguous, so used *public service rhetoric*
- Mutuals or stock firms (with capped profits)
- Regulated by states, not federal government

By 1905

- “Big 3” ordinary life firms had insurance in force over \$2 billion
- 2 big industrial life firms had over \$1 billion
- Cutthroat competition for policies and growth
- Internal fight for control at Equitable triggered broader scandal



Before computers

Armstrong Hearings exposed corruption, returned industry to *public service* focus

NY State's Armstrong Commission investigated Equitable & other large life insurance firms

- Questionable competitive tactics (e.g., tontine-like policies)
- Execs with huge salaries, perks, private profit via syndicates & loans
- Corrupt practices that contrasted with public service rhetoric

Aftermath of Armstrong Hearings: Refocus on public service

- Increased regulation & self-regulation
- Embraced public service ideology, not just rhetoric
- Increased mutualization
- Limited sales, sales costs, commissions, policy types



Before computers

Life insurance & **associations** before computing

Many life insurance associations formed for professional / occupational affiliation, information-sharing

Key insurance associations in insurance & computing story

- **Society of Actuaries** (1889): To create professional identity, standards
- **Life Office Management Association** (LOMA, 1924): To share ideas on systematic office management & technology, cooperate on cost savings →
- **Insurance Accounting and Statistical Association** (IASA, 1928): *To promote the discussion of office methods and practices as applied to life insurance companies, particularly with reference to punched cards*



Before computers

LOMA tied cost reduction to **public service**

*It is the opinion of many life insurance executives that one of the greatest problems which confronts us in the future is **the problem of reduction in costs**. Every improvement in service and every decrease in the cost of operations will permit lower rates, thus **widening the market for insurance and increasing its opportunities to serve**.*

*More significant even than this is the recognition of the **idealism of our profession** as embodied in the purpose of this gathering. Behind it is a well-defined appreciation of the premise that **the public service fostered by life insurance is our mutual responsibility to mankind....***

--Franklin Mead, LOMA 1924



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Before computers

Life insurance & pre-computer information technology

Life insurance as an information-intensive business

- Highly subdivided and repetitive processes
- Many clerical & mechanical devices

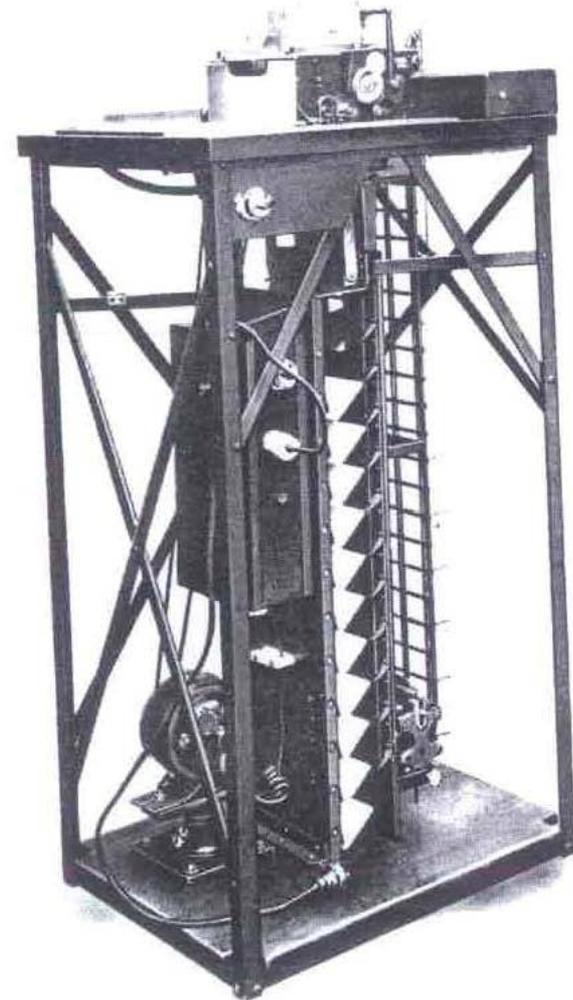
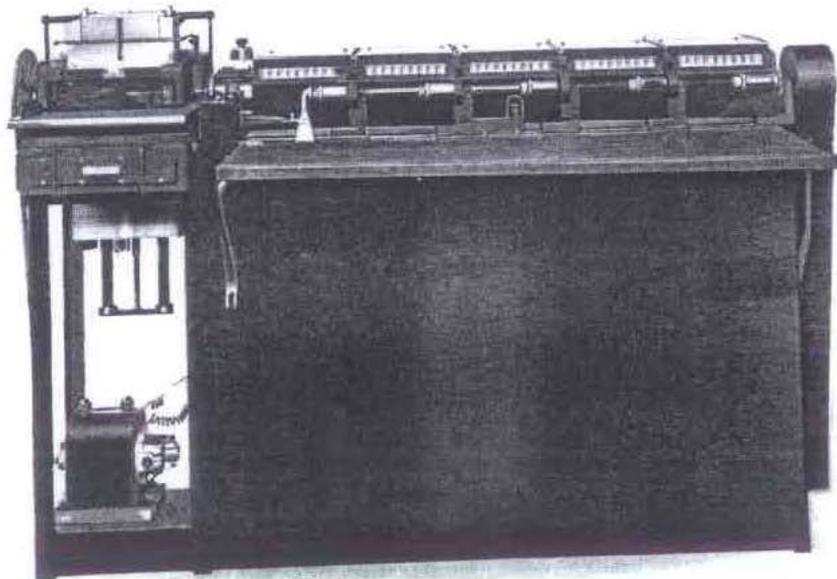
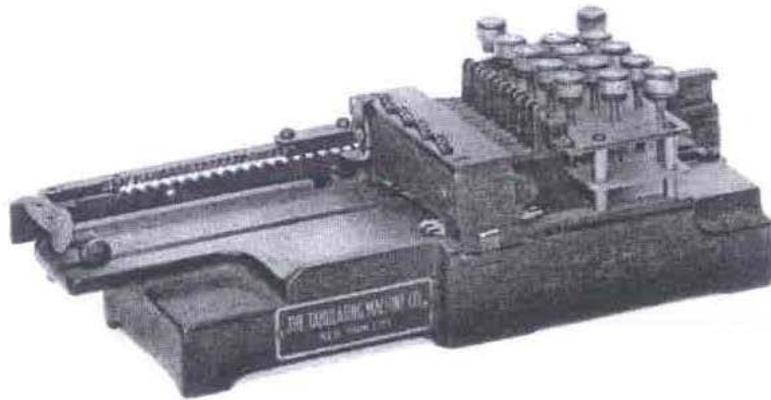
Tabulating technology in the early 20th century

- Vendors: Hollerith (TMC, IBM) & Powers (Remington Rand)
- In 1910: Card punches, sorters & accumulators →
- 1910 -1930: Pushed for printing capability, increased card capacity



Before computers

Tabulating equipment in early 20th century



Before computers

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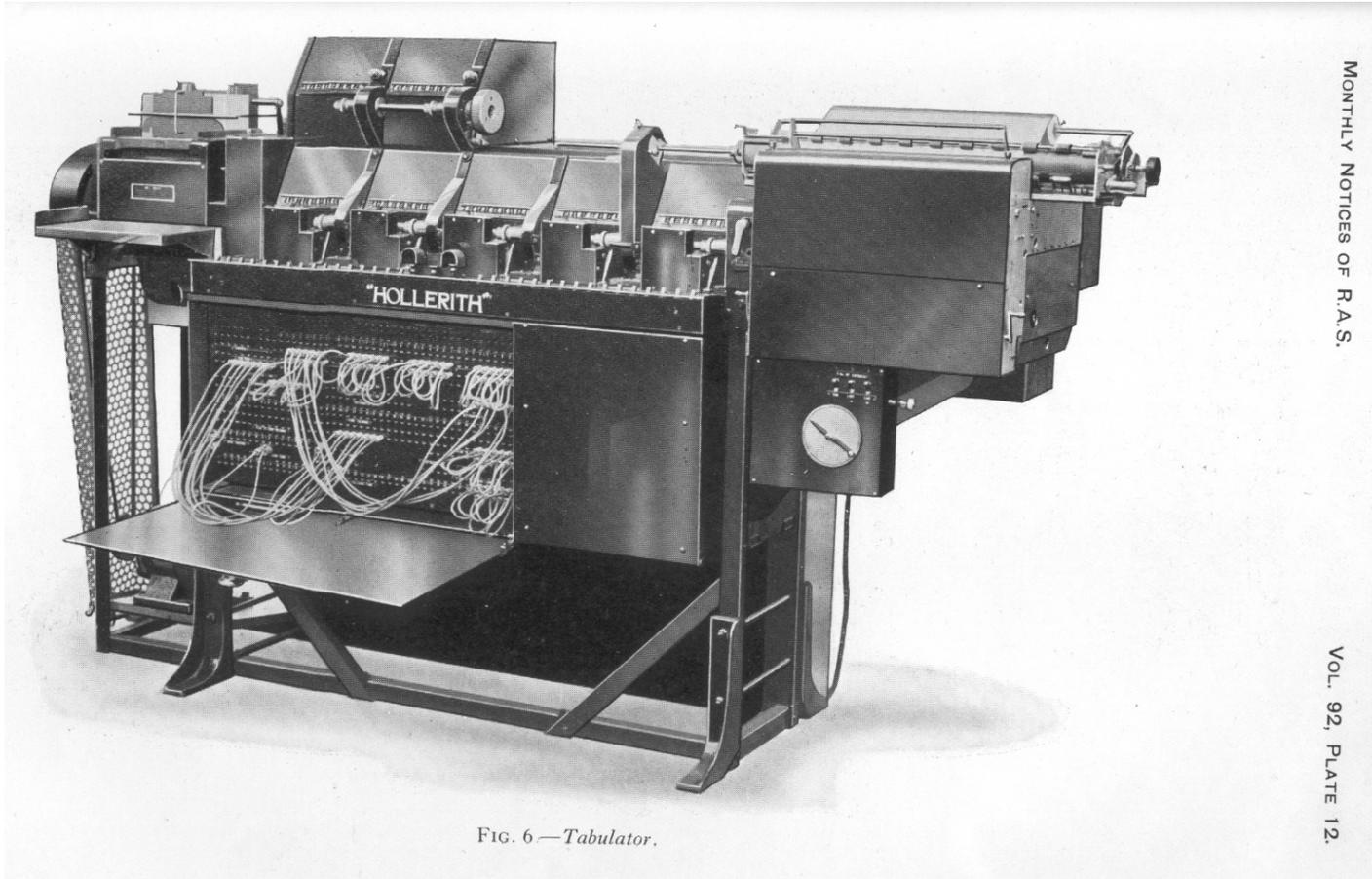
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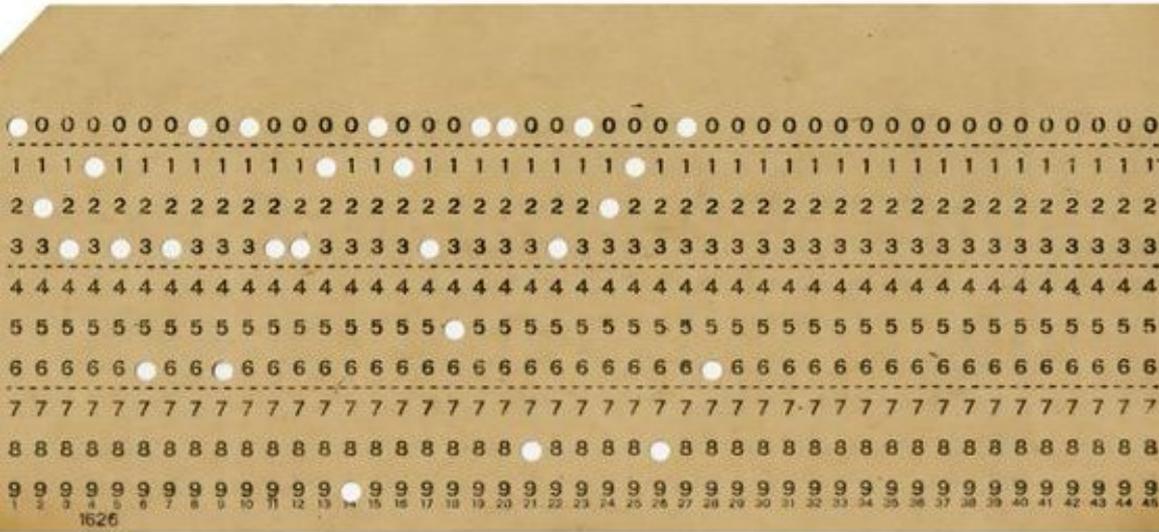
Before computers

Hollerith printing tabulator, 1921



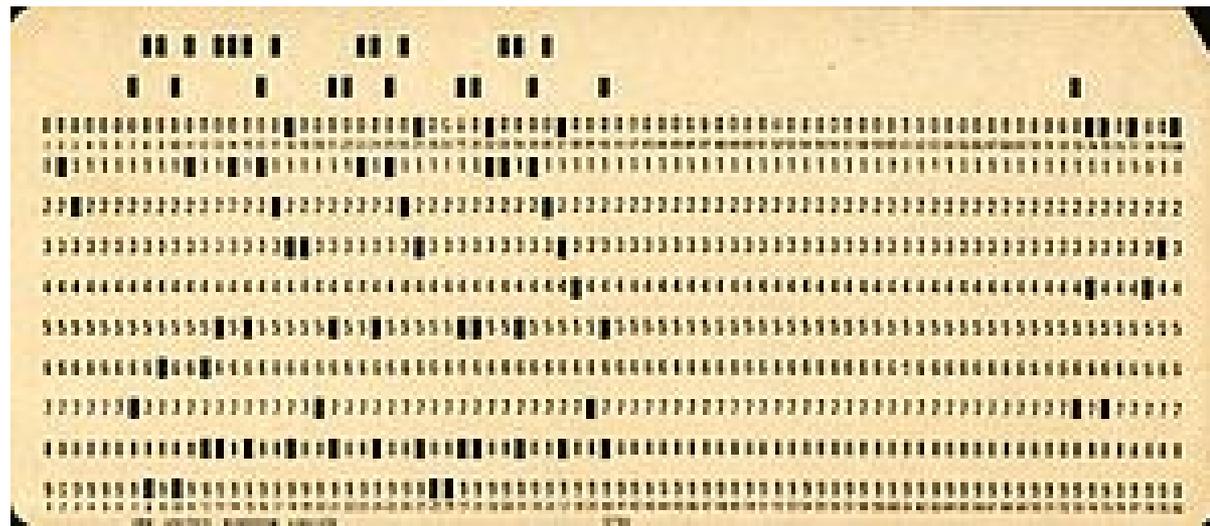
Before computers

IBM 80-column card, patented in 1928



45-column card, used with Hollerith or Powers equipment

80-column card, used only with IBM equipment



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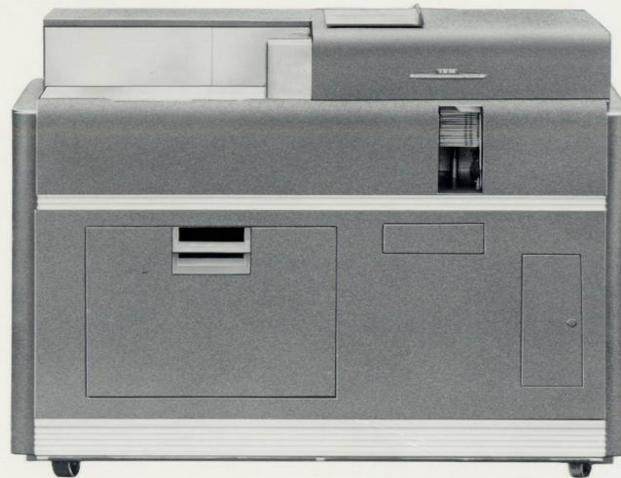
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Insurance & tabulating in the 1930s & 1940s

- Early integration of billing and accounting applications
- Electronic tabulator with vacuum tubes—IBM 604 in 1948



Before computers
IBM 604 electronic tabulator



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Transition to computers

Post-war insurance interest in computing: Individuals and **associations**

Insurance growth and labor shortages after WWII

Prudential's Edmund Berkeley interacted with potential vendors

- Pru signed developmental contract for Univac

Society of Actuaries Committee formed in 1947

- Represented insurance to potential vendors at highest level
- Researched what applications would justify purchase
- Issued 1952 report recommending *Consolidated Functions* app

IASA and LOMA hosted forums on computer apps at operational level

- 1950: IASA & LOMA sponsored Remington Rand Forum on Univac
- 1953: IASA held special conference on Univac & IBM computers

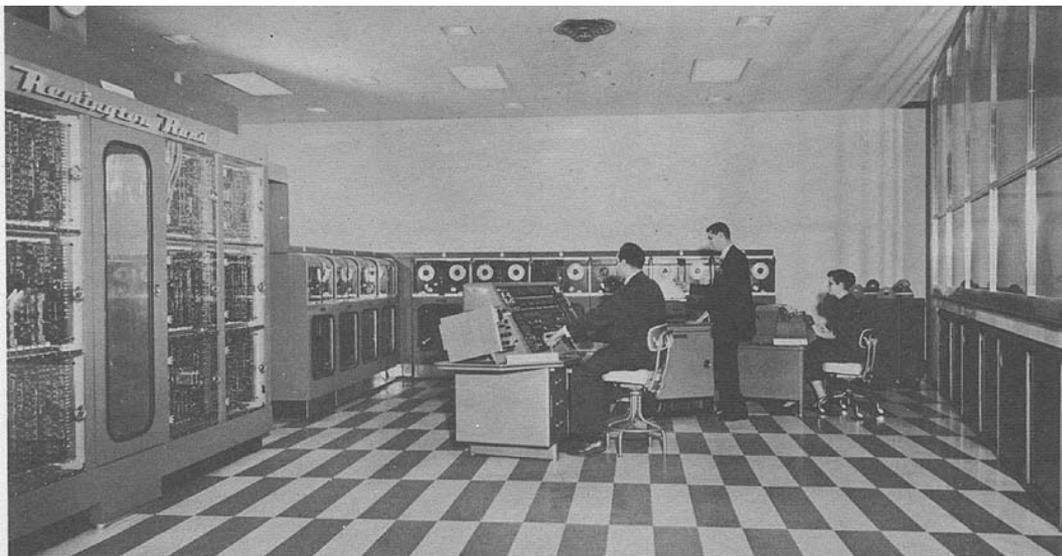
➤ **Release of first commercially available computers in 1954**



Transition to computers

Remington Rand's large Univac computer available in 1954

- Consisted of room full of equipment
- Sold for \$1.25 million
- Used magnetic tape, but converters to & from cards were available
- So large that only largest firms could justify for discrete apps



Transition to computers

IBM's small 650 (barely) computer released in 1955

- Designed as stop-gap because IBM lagged in large computers
- Used cards and magnetic drum (not magnetic tape)
- Rented, not sold, at \$3200 monthly (comparable to tabulator)
- Physically resembled 604 electronic tabulator

IBM 604 electronic tabulator



IBM 650 computer



Transition to computers

IBM 650 took lead over Univac in insurance installations by 1956

Remington Rand sold 4 Univacs to insurance firms, 1954-55

- 2 large firms designed incremental migration of tabulator apps
- 2 medium firms used consolidated functions app to justify purchase

IBM rented dozens of 650s, one IBM 702 to insurance firms, 1955-56

- Firms could decide to rent 650 easily
- Firms migrated tabulator applications directly to 650, using cards
- Firms saw 650s as an easy, incremental step into computers

By 1962, IBM bundled insurance software based on Consolidated Functions app ('62 CFO) with hardware rentals



Agenda: Public service, associations, & technology

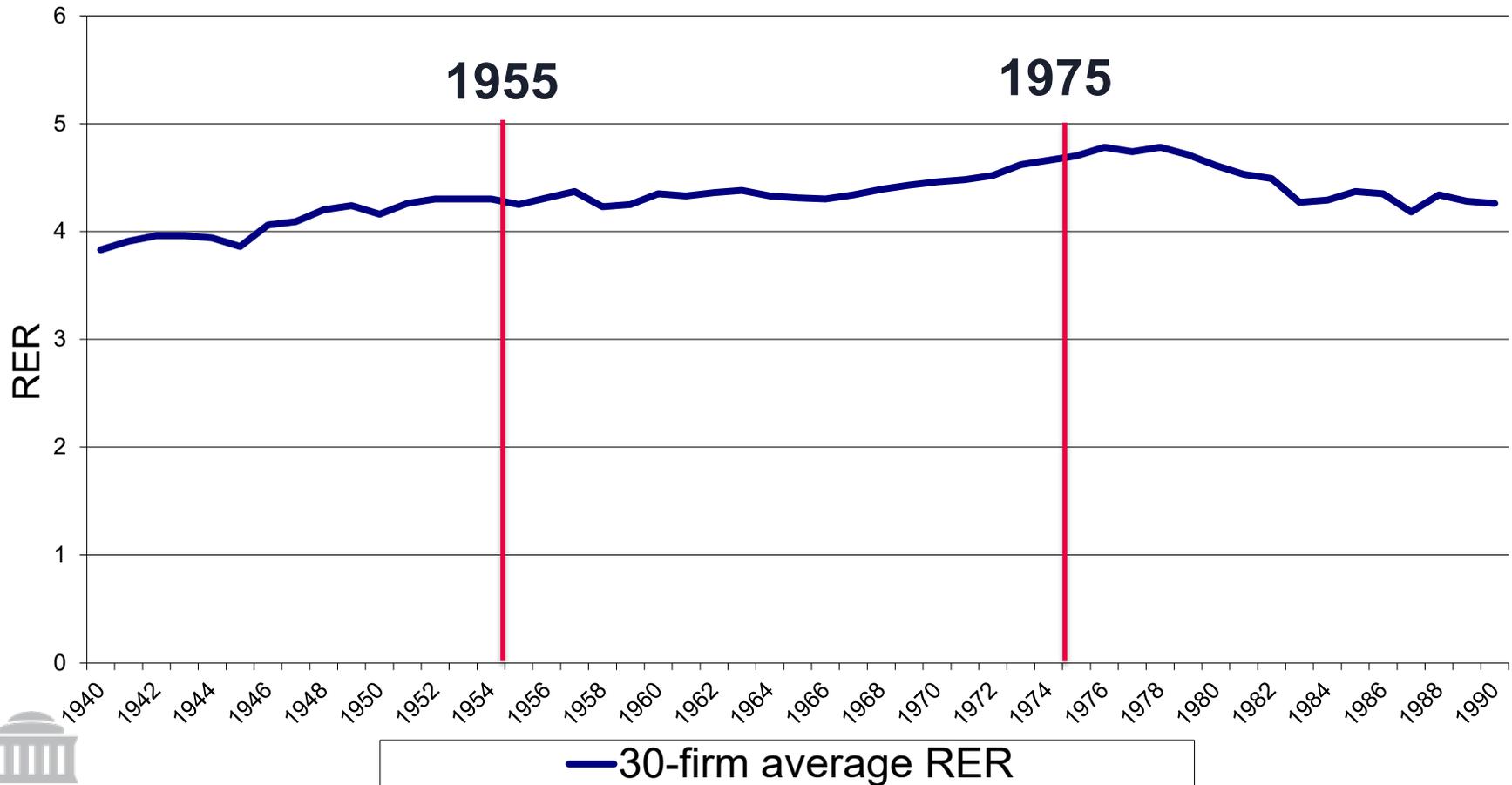
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Results

Public service goal: Life insurance costs did not drop until mid-1970s

Average Ordinary Renewal Expense Ratio for largest 30 firms



Results

Associations shaped early insurance adoption & use of computers

Society of Actuaries

- Communicated insurance needs to vendors at high level
- Examined possible apps & set goal: *consolidated functions app*
- Gave IBM basis for '62 CFO, first packaged life insurance app

LOMA

- Led sharing of information on tabulator use
- Supported some information-sharing on computers

IASA

- Led sharing of information on early computer use at mid-level
- Sponsored multiple computing conferences with vendors
- Supported extensive sharing of computer apps & adoptions



Results

Mutual shaping of life insurance industry and computer **technology** & industry

- Insurance assured Univac developed card-tape converters
- Insurance validated IBM's incremental strategy
 - 650 allowed IBM to take & keep the lead over other computers
 - IBM developed larger 1401 to allow incremental migration from 650
 - IBM developed emulation software to allow firms to continue incremental migration for decades, including to IBM 360 in 1965
- Computers became central to insurance operations and organization
 - Programming became challenge: Make or buy
 - Firms reorganized to reflect gradual integration of functions



Conclusion: **Public service, associations, & technology**

20th century US life insurance was characterized by entanglement of **public service** ideology, knowledge-sharing **associations**, & information **technology**



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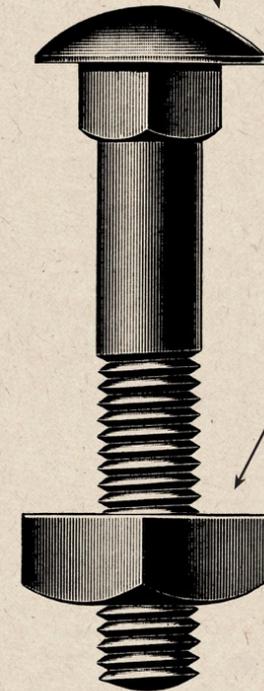
Coda:

Recent work on standards: *Engineering Rules: Global Standard Setting since 1880*

- Book focuses on *industrial* standardization by private standards bodies
 - Private standardization as **public service** by engineers, driven by a **social movement**
 - Process: technical committees of engineers with balanced stakeholder representation achieves consensus on standards that would be voluntarily adopted by firms
- Since the book, we began looking at *safety* standards incorporated in law
 - Follow similar process to set standards
 - Seek mandatory rather than voluntary adoption by incorporation in law



ENGINEERING



RULES

Global Standard Setting since 1880

JoAnne Yates and Craig N. Murphy

Coda:

Fire insurance **associations, public service,** & fire prevention standards

- Representatives of stock fire insurance associations established National Fire Protection Association (NFPA)
 - In 1895 association reps met to standardize sprinkler installations
 - Formed NFPA to set standards for fire prevention
 - Used public service rhetoric
- **Purpose:** *The objects of the Association are to promote the science and improve the methods of fire protection, to obtain and circulate information on this subject and to secure cooperation in matters of common interest. [Articles of Association]*
 - **Was NFPA formed as public service, way to improve profits, or both?**

*The **interest of the fire insurance companies** from a purely selfish standpoint lies in improvement of risks. **Profit** is made in eliminating the cause of fires, increasing facilities for extinguishing same, and not in advancing rates. [Bugbee, 1971, p. 7]*



Coda:

NFPA evolved to resemble standards bodies, not insurance associations

- Membership shifted over time to broaden stakeholder representation as in standards bodies
 - Initially membership included fire insurance associations & individuals (fire insurance as only set of stakeholders)
 - By 1904 added *Individuals interested in the protection of life and property against loss by fire* (e.g., fire chiefs, town officials)
 - By 1912 opened to all organizational & individual stakeholders
- Became part of American national standards system (ANSI)
 - **Why did standards model overtake insurance association model?**
 - Fire insurance not perceived as credibly acting in public interest?
 - In other nations fire prevention was standards issue, not insurance issue?
 - Standards movement gave its model more momentum?



Initial thoughts on parallels & divergences in two insurance cases

- **Technology**
 - Life: Information technology was central to internal operations
 - Fire: Fire prevention technologies were critical to business line
- **Public service ideology**
 - Life: More committed to public service, less to profits
 - Fire: More committed to increasing profits, less to public service
- **Associations**
 - Life: Shared information to reduce costs, grow market, serve public
 - Fire: NFPA initially shared information to reduce fire losses, then evolved into standards body—why?

More work to be done!



Thank you



Back-up slides



MetLife saw initial actuarial application on Univac as low risk

*This area of work is of such a nature that it permits the introduction of an electronic processing system with a **minimum of disturbance and risk**....*

*The system could be gainfully introduced into this particular area **without requiring a major reorganization** elsewhere as a condition precedent. This provided the facility for a first-hand understanding of its capabilities and limitations through actual use, **without risking the entire recordkeeping system of the company** on its success.*

Malvin Davis, 1953

