WHITE PAPER

November 2026

What eight civilisations teach the modern enterprise

Ledgers, laws, networks and failures, from Sumer to Ming China, read against the evidence

Dr John Burgin · SHIFT127

Business borrows from history all the time. Most of these stories are told quickly and checked rarely.

Leaders quote Rome on scale, the Medici on finance and Alexandria on knowledge. This paper checks those stories for eight civilisations whose disciplines still shape organisations. What did they actually do? What has business inherited? And what does their failure teach, once the popular version is set aside?

TWO WAYS HISTORY REACHES US

Descent. A practice passed down by a path we can trace, like double-entry bookkeeping or the legal form of the company.

Resemblance. An old case built the same way as a modern problem, so it can teach without being an ancestor.

Both are useful. Mixing them up is where most business history goes wrong.

HOW SURE ARE WE

WELL SUPPORTED

Specialists agree.

SUPPORTED WITH CARE

The core is right, but the popular version overstates it.

DEBATED

Specialists disagree, and this paper says so.

THE EIGHT, IN ORDER OF TIME

Sumer
from c. 3300 BC
The written record

Athens
5th century BC
The open decision

Alexandria
from 331 BC
The knowledge institution

Rome
509 BC to AD 476
Standards at scale

The Silk Road
from c. 130 BC
Trust across distance

Byzantium
AD 330 to 1453
Defence in depth

Ming China
1368 to 1644
Modular production

The Medici
1397 to 1494
Structured capital

For leaders, educators and anyone who reaches for a historical example.

Sources and method in the appendix

Sumer

Writing was invented to keep accounts

PLACE AND TIME Southern Mesopotamia, from about 3300 BC

THE CASE — FROM C. 3300 BC

The first writing appeared at Uruk around 3300 BC. Most of the early tablets count grain, beer rations, livestock and labour. Literature, law and letters came later. Around 2100 BC the Code of Ur-Nammu set out fixed penalties and standard weights. It is the oldest law code that survives. The Sumerians also counted in base 60.

THE FAILURE

Irrigation water carried salt. Without enough drainage, salt built up in the southern fields over centuries. Many scholars read the temple records as showing yields falling over time, though others dispute that reading.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

Base 60, through Babylonian astronomy, gives us 60 minutes in an hour and 360 degrees in a circle.

Resemblance

Built the same way as a modern problem

The receipt, the contract and the audit trail. Written records were reinvented many times after Sumer, but Sumer shows why every organisation needs them first.

THE LESSON

Damage that builds up quietly is the hardest kind to see. Software engineers call it technical debt: shortcuts that cost little now and much later.

How sure are we

DEBATED

Writing, law and base 60 are well supported. The salt story is debated, and it was not the whole cause: invasion ended the last Sumerian state around 2004 BC.

History: Nissen, Damerow and Englund 1993; Jacobsen and Adams 1958; Powell 1985. Modern idea: Cunningham 1992 (technical debt). Full references in the appendix.

Athens

Open debate needs a way to test the evidence

PLACE AND TIME Athens, 5th century BC

THE CASE — 5TH CENTURY BC

From 508 BC every adult male citizen could speak and vote in the Assembly. Officials were audited at the end of their term, generals included. In 483 BC a rich silver seam was found at Laurion. Themistocles persuaded the Assembly to spend it on a fleet. Herodotus says 200 warships were built, and they won at Salamis three years later.

THE FAILURE

In 415 BC the Assembly voted to invade Sicily. Thucydides records that doubters stayed silent, afraid of seeming disloyal. When one leader inflated the cost to deter the vote, the Assembly voted the larger force. Athens doubled down as the campaign failed, and lost almost the whole army.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

The words strategy, economics and politics come from Greek, much of it carried forward in Athenian writing.

Resemblance

Built the same way as a modern problem

Decisions made in the open, the audit of leaders, and investing before the threat arrives.

THE LESSON

Openness alone does not prevent groupthink. A group also needs a way to test claims it cannot check for itself.

How sure are we

WELL SUPPORTED

The account comes from Thucydides, who lived through it.

History: Herodotus 7.144; Thucydides 6–7; Ober 2008. Modern idea: Janis 1972 (groupthink). Full references in the appendix.

Alexandria

Knowledge is lost slowly, one unfunded year at a time

PLACE AND TIME Alexandria, Egypt, founded 331 BC

THE CASE **FROM 331 BC**

The Ptolemaic kings paid scholars to research at the Mouseion, the shrine of the Muses. Books found on ships in the harbour were copied for the Library. Euclid wrote his Elements here, and it was taught for more than two thousand years. Eratosthenes measured the Earth. Nobody knows how many scrolls the Library held. Ancient writers give anywhere from 40,000 to 700,000.

THE FAILURE

The Library did not burn in one great fire. It declined over centuries, through a purge of scholars in 145 BC, war damage, lost funding and scholars moving elsewhere.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

The word museum, and the mathematics of Euclid.

Resemblance

Built the same way as a modern problem

The research laboratory, funded long before it pays, and the organisation that keeps what it knows when people leave.

THE LESSON

Organisations forget, and faster than they expect. A study of wartime shipyards found that skills learned on the job decayed quickly when work slowed or people left.

How sure are we

WELL SUPPORTED

This holds once the Library's size is treated as unknown.

History: Strabo 17.1.8; Bagnall 2002. Modern idea: Argote, Beckman and Epple 1990 (organisational forgetting). Full references in the appendix.

Rome

Scale multiplies good standards and bad ones alike

PLACE AND TIME Rome and its empire, 509 BC to AD 476 in the west

THE CASE — 509 BC TO AD 476

Rome's genius was repetition. Its engineers built roads, aqueducts and harbours to one method from Britain to Syria. The Pantheon's dome, built around AD 125, is still the largest of unreinforced concrete. Recent studies show why the concrete lasts: lime in the mix reseals cracks when water gets in, and seawater grows new minerals inside harbour walls.

THE FAILURE

Historians have offered dozens of reasons for the fall of the western empire. One reading is overstretch: the system grew faster than its logistics and standards. Others stress pressure from outside. The eastern half, run on the same systems, lasted another thousand years.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

The company itself. Roman law treated some associations as one legal body that could own property. Medieval lawyers built the corporation on that idea. Rome also had public contracting companies with shares held by outside investors.

Resemblance

Built the same way as a modern problem

Shared infrastructure built once and used by all, and building to last rather than to impress.

THE LESSON

Grow no faster than your standards can travel. Treat it as one reading of Rome, not the agreed cause of its fall.

How sure are we DEBATED

The engineering and the law are well supported. The cause of the fall is debated.

History: Jackson and others 2017; Seymour and others 2023; Malmendier 2009; Heather 2005; Ward-Perkins 2005. Modern idea: Kennedy 1987 (overstretch). Full references in the appendix.

The Silk Road

A network carries risk as efficiently as value

PLACE AND TIME China to the Mediterranean, from about 130 BC

THE CASE **FROM C. 130 BC**

The Silk Road was never one road. The name was coined in 1877 for a shifting web of routes. Most trade along it was local, and goods moved in relays. For several centuries the key relay traders were the Sogdians of Central Asia, whose family firms placed agents in distant cities. In the 800s Tang China used flying money: pay cash in the capital, collect it in the provinces.

THE FAILURE

The routes that carried silk also carried plague. Ancient DNA from graves in Kyrgyzstan dated 1338–39 places the origin of the Black Death on the trade routes, shortly before it reached Europe.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

Little that can be traced. Modern banking transfers grew from European bills of exchange.

Resemblance

Built the same way as a modern problem

The money transfer, the trusted broker, and reputation as a business asset. Medieval Mediterranean traders policed trust the same way: cheat one member and lose business with all.

THE LESSON

The connections that create value also spread shocks. Know what travels through your network besides your goods.

How sure are we

WELL SUPPORTED

One popular claim is wrong, though: the Ottomans did not close the Silk Road in 1453. Trade continued under them. It declined as sea routes grew.

History: Hansen 2012; de la Vaissière 2005; Spyrou and others 2022; Lybyer 1915. Modern idea: Greif 1993 (trust networks). Full references in the appendix.

Byzantium

The defence that never failed was bypassed twice

PLACE AND TIME Constantinople, AD 330 to 1453

THE CASE — AD 330 TO 1453

The Theodosian Walls, built from about 408, gave the city a moat, an outer wall and an inner wall. They turned back Avars, Persians and Arab armies. A chain could close the harbour. Greek fire, a secret weapon at sea, was guarded so well that its formula is still unknown. The gold solidus kept its weight and purity for about seven centuries.

THE FAILURE

In 1204 crusaders who came as allies broke the harbour chain and crossed the sea walls. The land walls held, but the city fell. In 1453 Ottoman cannon broke the land walls, and ships were dragged overland around the chain.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

A name. In 1982 computer scientists framed their hardest trust problem as a story of Byzantine generals. Byzantine fault tolerance is now used from flight control to blockchain, but the mathematics owes nothing to Byzantium.

Resemblance

Built the same way as a modern problem

Defence in depth, guarded trade secrets, and a currency trusted because it never changed.

THE LESSON

New technology can make the best defence obsolete. A trusted partner and an unwatched flank can undo it too.

How sure are we

WELL SUPPORTED

Both falls are well documented, and the 1982 naming is recorded by its authors.

History: Lamport, Shostak and Pease 1982 (the naming). Modern idea: Tushman and Anderson 1986 (technological discontinuity). Full references in the appendix.

Ming China

A capability given up is hard to get back

PLACE AND TIME China, 1368 to 1644

THE CASE — 1368 TO 1644

The Forbidden City rose between 1406 and 1420. Chinese builders sized beams, columns and brackets as multiples of a standard unit, so parts could be made in many places and fitted on site. From 1405 to 1433 Zheng He led seven state fleets across the Indian Ocean. The official history reports about 27,800 men on the first voyage. At the imperial kilns of Jingdezhen, porcelain not good enough for the court was smashed.

THE FAILURE

After 1433 the court ended the voyages. Historians point to cost, the northern frontier and court politics. The fleet was never rebuilt. China still traded with the world, but it gave up the ability to act at sea, and felt that loss in the nineteenth century.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

The English word china for porcelain, named after the country it came from.

Resemblance

Built the same way as a modern problem

Modular production, where standard parts let complex things be built and improved fast, and strict quality control.

THE LESSON

Retreating from a capability is a decision that can be very costly to reverse.

How sure are we

SUPPORTED WITH CARE

Ship sizes are disputed. A later tradition says the voyage records were destroyed, but that is not certain.

History: Li Jie 1103; Dreyer 2007; Flynn and Giráldez 1995. Modern idea: Baldwin and Clark 2000 (modularity). Full references in the appendix.

The Medici

Freedom without oversight is a countdown

PLACE AND TIME Florence and its branches, 1397 to 1494

THE CASE 1397 TO 1494

The Medici bank had branches from London to Rome. Each branch was a separate partnership. The family held the controlling share and the local manager shared the profits, so a loss in one city could not sink the rest. Its historian compared it to a modern holding company. The bank kept its books in double entry, a method already in Italian use, a century before Pacioli wrote it down.

THE FAILURE

Under Lorenzo the centre paid less attention. Branch managers in London and Bruges lent heavily to kings and dukes who did not repay. By 1494, when the family was expelled from Florence, the bank was close to collapse.

WHAT BUSINESS INHERITED

Descent

Passed down by a path we can trace

Double-entry bookkeeping, which the Medici used and helped spread, and the words bank and bankrupt.

Resemblance

Built the same way as a modern problem

The group of companies with ring-fenced liability, and the power that comes from being the one who connects everyone else.

THE LESSON

Giving managers a share of the profit does not stop them taking risks the owners would refuse. Economists call this the agency problem.

How sure are we

WELL SUPPORTED The bank's history is unusually well documented.

History: De Roover 1963; Lee 1977; Padgett and Ansell 1993. Modern idea: Jensen and Meckling 1976 (the agency problem). Full references in the appendix.

What the eight show together

The inheritance is quieter than the legends.

What business really took from these societies is law, accounts, counting and mathematics. Those are the tools used every day without a second thought. The dramatic claims are mostly resemblances.

The failures fall into two kinds. In four cases a society met a powerful new capability and chose badly, or was overtaken by it: Athens and its silver fleet, Byzantium and the cannon, the Ming and their ocean fleet, the Medici and their freedom to lend. In the other four, decline built up slowly from many causes and was only clear in hindsight.

Both kinds are with us now. New technology is arriving fast, and slow decline is still easy to miss.

BEFORE YOU USE A HISTORICAL EXAMPLE, ASK THREE QUESTIONS

1. **What is alike?**
2. **What is different?**
3. **What do the differences change?**

After Neustadt and May, Thinking in Time (1986)

A CAUTION

We read every case knowing how it ended, and that makes the outcome look more obvious than it was. Ask what the decision looked like to the people who made it, with what they knew at the time.

These eight civilisations are the teams in Tech Tempest®, a simulation by SHIFT127 in which players face the same decisions.

Appendix

A. How this paper reads history

Leaders reason from examples all the time. Studies of policymakers (Neustadt and May 1986) and of managers (Gavetti, Levinthal and Rivkin 2005) find the same thing: analogies are chosen quickly and tested rarely, and they help only when the deep causes match, not just the surface.

So this paper separates descent from resemblance, and grades each claim against specialist scholarship. It uses peer-reviewed research, standard scholarly books and the ancient writers themselves. It uses no commercial analyst reports. Ancient figures are given as the sources report them, and flagged where they cannot be checked. The caution about hindsight on the closing page draws on Fischhoff (1975).

B. The eight at a glance

Sumer	**Failure:** Salt in the fields. **Modern name:** technical debt. **Strongest inheritance:** base 60; writing for accounts. **How sure:** Debated.
Athens	**Failure:** Sicily, 415 BC. **Modern name:** groupthink. **Strongest inheritance:** the vocabulary of strategy. **How sure:** Well supported.
Alexandria	**Failure:** the Library's slow decline. **Modern name:** organisational forgetting. **Strongest inheritance:** Euclid; the word museum. **How sure:** Well supported.
Rome	**Failure:** the fall of the west. **Modern name:** overstretch. **Strongest inheritance:** the company as a legal body. **How sure:** Debated.
The Silk Road	**Failure:** the Black Death. **Modern name:** network contagion. **Strongest inheritance:** trust networks (resemblance). **How sure:** Well supported.
Byzantium	**Failure:** 1204 and 1453. **Modern name:** technological discontinuity. **Strongest inheritance:** defence in depth (resemblance). **How sure:** Well supported.

Ming China	**Failure:** the fleet ended, 1433. **Modern name:** strategic retreat. **Strongest inheritance:** modular production (resemblance). **How sure:** Supported with care.
The Medici	**Failure:** bad loans, 1494. **Modern name:** the agency problem. **Strongest inheritance:** double-entry bookkeeping. **How sure:** Well supported.

C. Limits

This is a review of published scholarship, not new historical research. Each field has live debates that a short paper cannot cover, and new evidence can change a grade, as the 2022 plague DNA and the 2023 concrete studies show.

The eight were chosen because their disciplines still shape business, so the sample is not random. Every one lasted long enough to leave rich records. African, American and Pacific societies are absent, and so are societies that failed early. A wider sample might change which lessons look universal.

D. Sources

Ancient and early sources

- Herodotus, *Histories*, 7.144.
- Li Jie (1103) *Yingzao Fashi* (Treatise on Architectural Methods).
- Strabo, *Geography*, 17.1.8.
- Thucydides, *History of the Peloponnesian War*, books 6 and 7.

Modern scholarship

- Argote, L., Beckman, S. L. and Epple, D. (1990) 'The persistence and transfer of learning in industrial settings', *Management Science*, 36(2), 140–154.
- Bagnall, R. S. (2002) 'Alexandria: library of dreams', *Proceedings of the American Philosophical Society*, 146(4), 348–362. Open copy
- Baldwin, C. Y. and Clark, K. B. (2000) *Design Rules, Volume 1: The Power of Modularity*. MIT Press.
- Cunningham, W. (1992) 'The WyCash portfolio management system', OOPSLA '92 experience report, published in *OOPS Messenger*, 4(2), 29–30 (1993). The paper that coined the term technical debt.
- De Roover, R. (1963) *The Rise and Decline of the Medici Bank, 1397–1494*. Harvard

University Press.

- de la Vaissière, É. (2005) *Sogdian Traders: A History*. Brill.
- Dreyer, E. L. (2007) *Zheng He: China and the Oceans in the Early Ming Dynasty, 1405–1433*. Pearson Longman.
- Fischhoff, B. (1975) 'Hindsight is not equal to foresight', *Journal of Experimental Psychology: Human Perception and Performance*, 1(3), 288–299.
- Flynn, D. O. and Giráldez, A. (1995) 'Born with a "silver spoon": the origin of world trade in 1571', *Journal of World History*, 6(2), 201–221.
- Gavetti, G., Levinthal, D. A. and Rivkin, J. W. (2005) 'Strategy making in novel and complex worlds: the power of analogy', *Strategic Management Journal*, 26(8), 691–712.
- Greif, A. (1993) 'Contract enforceability and economic institutions in early trade: the Maghribi traders' coalition', *American Economic Review*, 83(3), 525–548.
- Hansen, V. (2012) *The Silk Road: A New History*. Oxford University Press.
- Heather, P. (2005) *The Fall of the Roman Empire: A New History*. Macmillan.
- Jackson, M. D. and others (2017) 'Phillipsite and Al-tobermorite mineral cements produced through low-temperature water-rock reactions in Roman marine concrete', *American Mineralogist*, 102(7), 1435–1450.
- Jacobsen, T. and Adams, R. M. (1958) 'Salt and silt in ancient Mesopotamian agriculture', *Science*, 128(3334), 1251–1258.
- Janis, I. L. (1972) *Victims of Groupthink*. Houghton Mifflin.
- Jensen, M. C. and Meckling, W. H. (1976) 'Theory of the firm: managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, 3(4), 305–360.
- Kennedy, P. (1987) *The Rise and Fall of the Great Powers*. Random House.
- Lamport, L., Shostak, R. and Pease, M. (1982) 'The Byzantine generals problem', *ACM Transactions on Programming Languages and Systems*, 4(3), 382–401.
- Lee, G. A. (1977) 'The coming of age of double entry: the Giovanni Farolfi ledger of 1299–1300', *Accounting Historians Journal*, 4(2), 79–95.
- Lybyer, A. H. (1915) 'The Ottoman Turks and the routes of oriental trade', *English Historical Review*, 30(120), 577–588.
- Malmendier, U. (2009) 'Law and finance "at the origin"', *Journal of Economic Literature*, 47(4), 1076–1108.
- Neustadt, R. E. and May, E. R. (1986) *Thinking in Time: The Uses of History for Decision Makers*. Free Press.
- Nissen, H. J., Damerow, P. and Englund, R. K. (1993) *Archaic Bookkeeping*. University of Chicago Press.
- Ober, J. (2008) *Democracy and Knowledge: Innovation and Learning in Classical*

Athens. Princeton University Press.

- Padgett, J. F. and Ansell, C. K. (1993) 'Robust action and the rise of the Medici, 1400–1434', *American Journal of Sociology*, 98(6), 1259–1319.
- Powell, M. A. (1985) 'Salt, seed, and yields in Sumerian agriculture: a critique of the theory of progressive salinization', *Zeitschrift für Assyriologie*, 75, 7–38.
- Seymour, L. M. and others (2023) 'Hot mixing: mechanistic insights into the durability of ancient Roman concrete', *Science Advances*, 9(1). Open access
- Spyrou, M. A. and others (2022) 'The source of the Black Death in fourteenth-century central Eurasia', *Nature*, 606, 718–724.
- Tushman, M. L. and Anderson, P. (1986) 'Technological discontinuities and organizational environments', *Administrative Science Quarterly*, 31(3), 439–465.
- Ward-Perkins, B. (2005) *The Fall of Rome and the End of Civilization*. Oxford University Press.