

Does Our Present Have A Future?



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NHPRC Electronic Records
Research Fellowships
Symposium

University of North Carolina
Chapel Hill

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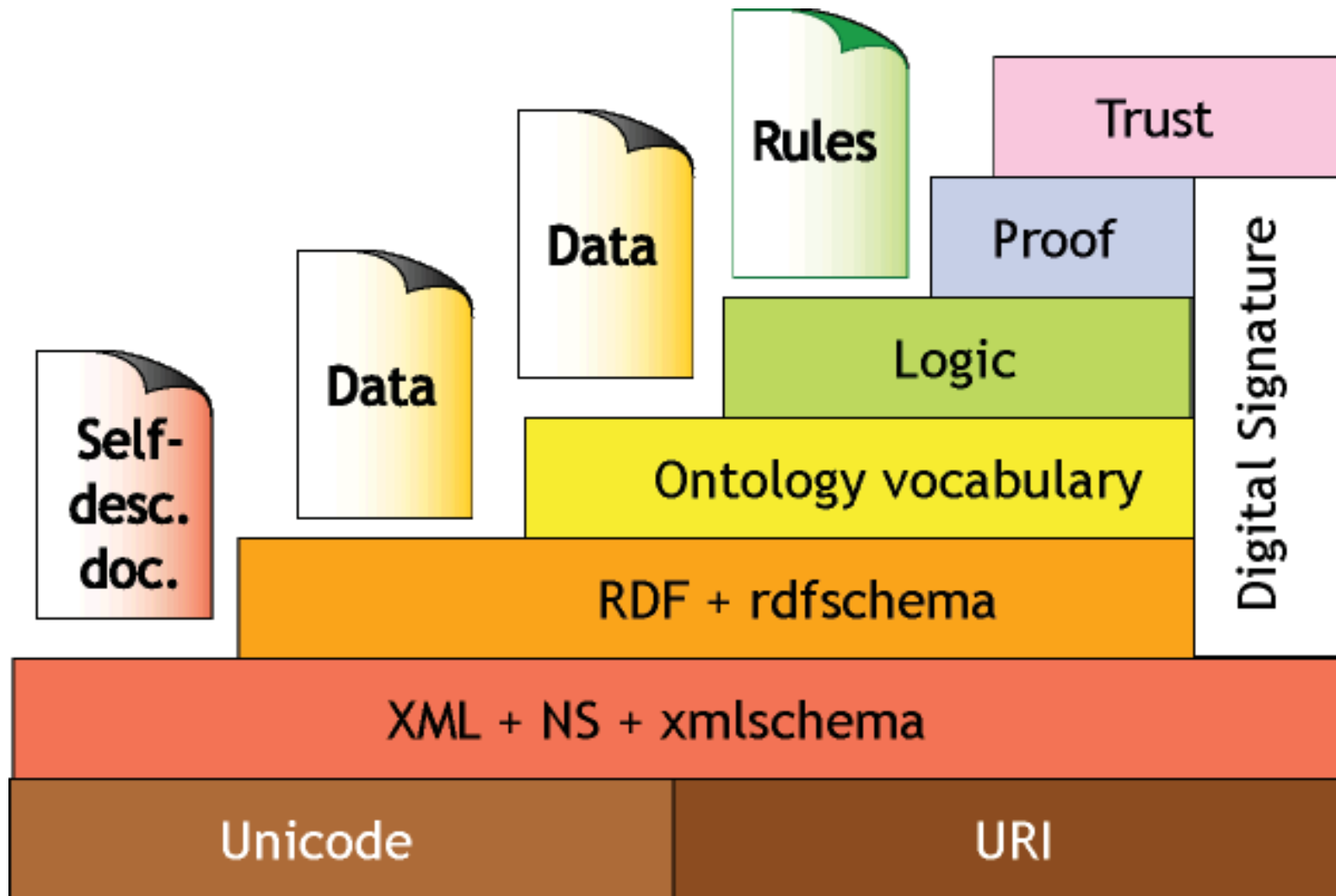
Reasons for Pessimism

- The problem is large and growing: more and more records are being created in digital form
- There are very few proven methods for preserving digital information assets
 - Most of the proven methods apply to fairly simple formats which are relatively infrequent
- We face a moving target which is getting more and more complex.
- The resources required to address the challenges are very large
 - The archival profession alone cannot solve this problem
 - People who might be able to solve it don't know much about archives and records
- Technical Problems of Processing, Preserving and Providing Access to Electronic records distract us from more fundamental challenges

Reasons for Optimism

- There is no technological barrier which would prevent successful solutions from being developed
 - Computer scientists and engineers are creative and love challenges
- Increasing interdisciplinary collaborations addressing the problem
- Recognition of the importance of the challenge is growing
- More and more resources are being devoted to solving the problem
 - NARA 's Electronic Records Archives Program currently funded at \$ 36 M per year
 - LoC NDIIPP program authorized of \$100 M total
 - Australian electronic records standards initiative funded at \$ AUS 6 M
 - Et al.

A Vision of the Future: W3C



Architecture of the Semantic Web – Tim Berners Lee

A Future Which is Already Here



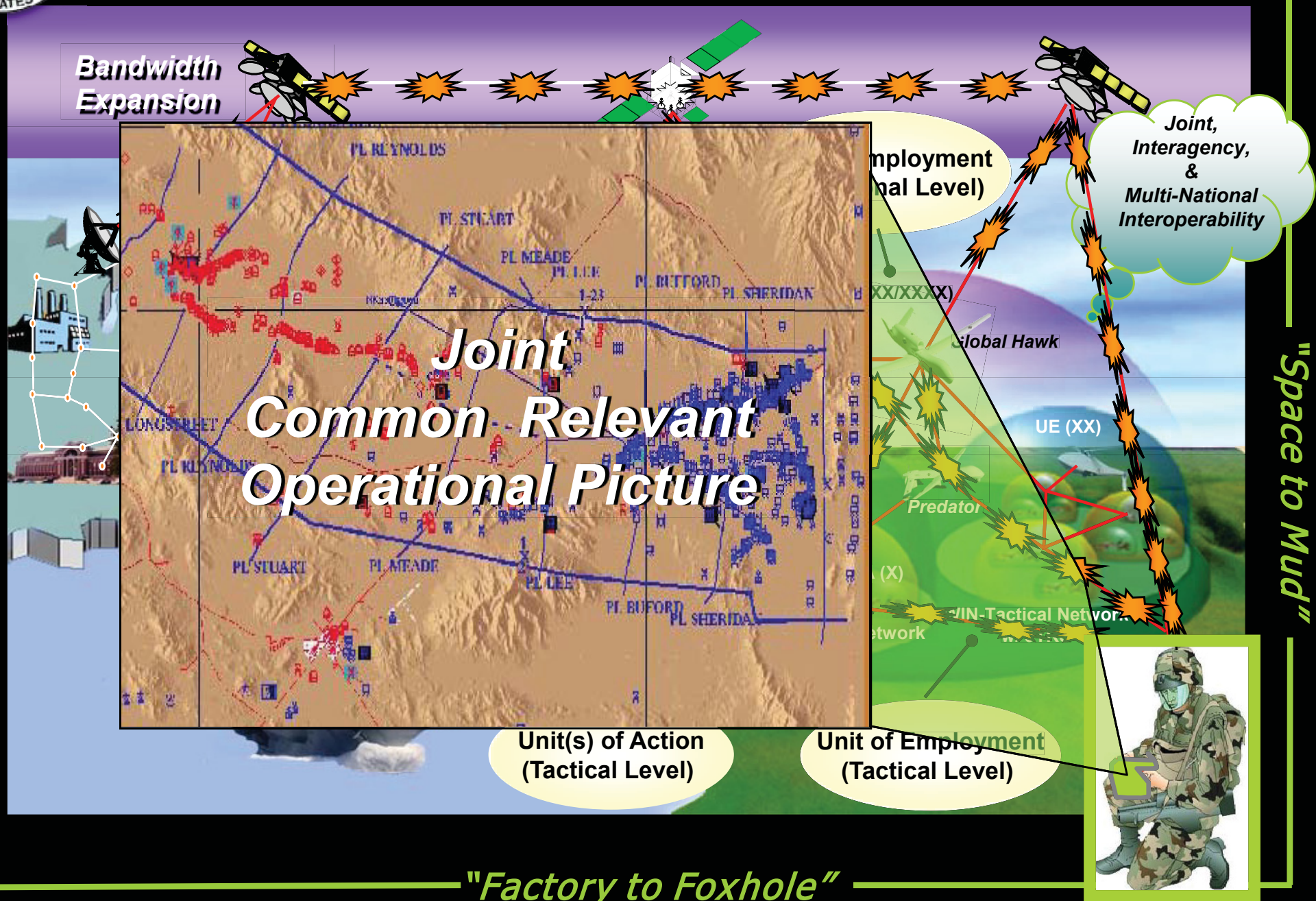
The Internet

Where are the records?

Where are the archives?



Another Vision of the Future

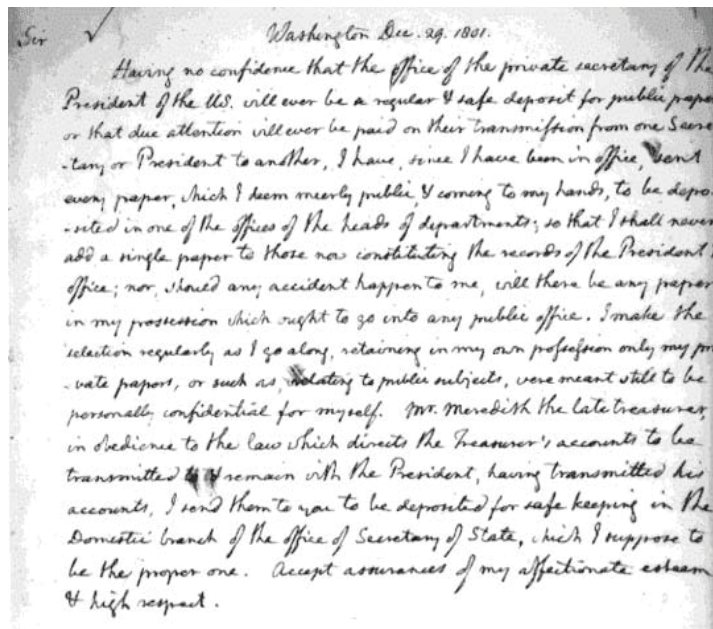


Authenticity

- An authentic record is one which
 - is what it purports to be and
 - is free from corruption.
- InterPARES 1

Authenticity

- The criteria for authenticity are a function of the identification and characterization of the object deemed authentic.
 - E.g., what is an authentic copy of Thomas Jefferson's writing?



Washington Dec. 29, 1823.

Having no confidence that the office of the private secretary of the President of the U.S. will ever be a regular & safe deposit for public papers or that due attention will ever be paid on their transmission from one Secretary or President to another, I have, since I have been in office, sent every paper, which I deem merely public, & coming to my hands, to be deposited in one of the offices of the heads of departments; so that I shall never add a single paper to those now constituting the records of the President's office; nor, should any accident happen to me, will there be any papers in my possession which ought to go into any public office. I make the relation regularly as I go along, retaining in my own possession only my private papers, or such as, relating to public subjects, were meant still to be personally confidential for myself. Mr. Meredith the late treasurer in obedience to the law which directs the Treasurer's accounts to be transmitted to remain with the President, having transmitted his accounts, I send them to you to be deposited for safe keeping in the Domestic branch of the Office of Secretary of State, which I suppose to be the proper one. Accept assurances of my affectionate esteem & high respect.

"The people, especially when moderately instructed, are the only safe, because the only honest, depositaries of the public rights, and should therefore be introduced into the administration of them in every function to which they are sufficient; they will err sometimes and accidentally, but never designedly, and with a systematic and persevering purpose of overthrowing the free principles of the government."

--Thomas Jefferson to M. Coray, 1823. ME 15:483

The unanimous Declaration of the thirteen united States of America.

When in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to this separation.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life Liberty and the pursuit of Happiness That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, — That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such Principles, and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experienced men here, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by overthrowing the forms to which they are accustomed. But when a long train of abuses and usurpations pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security. — Such has been the patient Sufferance of these Colonies, and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To prove this, let facts be brought to a light.

He has refused his assent to laws, the most excellent and necessary for the public good. He has forbidden his Governors to pass laws of immediate and pressing importance, unless suspended in their operation till he should assent, and when so suspended, he has refused to assent to them. He has refused to pass the most necessary and equitable laws for the accommodation of large districts of people, unless those districts would relinquish the right of Representation in the Legislature, a right inestimable to them and pernicious to all others. He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their Public Records, in order to fatigue them and interrupt the business of the Government. He has refused to pass laws for the encouragement of the most useful Arts, Manufactures, and Commerce. He has refused to pass laws for the relief of the poor, and for the encouragement of the husbandry. He has refused to pass laws for the relief of the distressed. He has refused to pass laws for the relief of the distressed. He has refused to pass laws for the relief of the distressed.

along time after such legislation, to cause such a result, whereby the Legislative Power is capable of Annihilation, have desired to the Right at large for their exercise. He has drawn within the mean time exposed to all the dangers of invasion from without, and convulsions within. He has endeavored to prevent the population of these States; by that purpose securing the Law for Naturalization of Foreigners; requiring before others to encourage their migration either, and raising the conditions of new Appropriations of Land. He has established the Administration of Justice, by requiring the Oath to new for establishing Judiciary Power. He has made Justice dependent on his law, for the future of their lives, and the amount

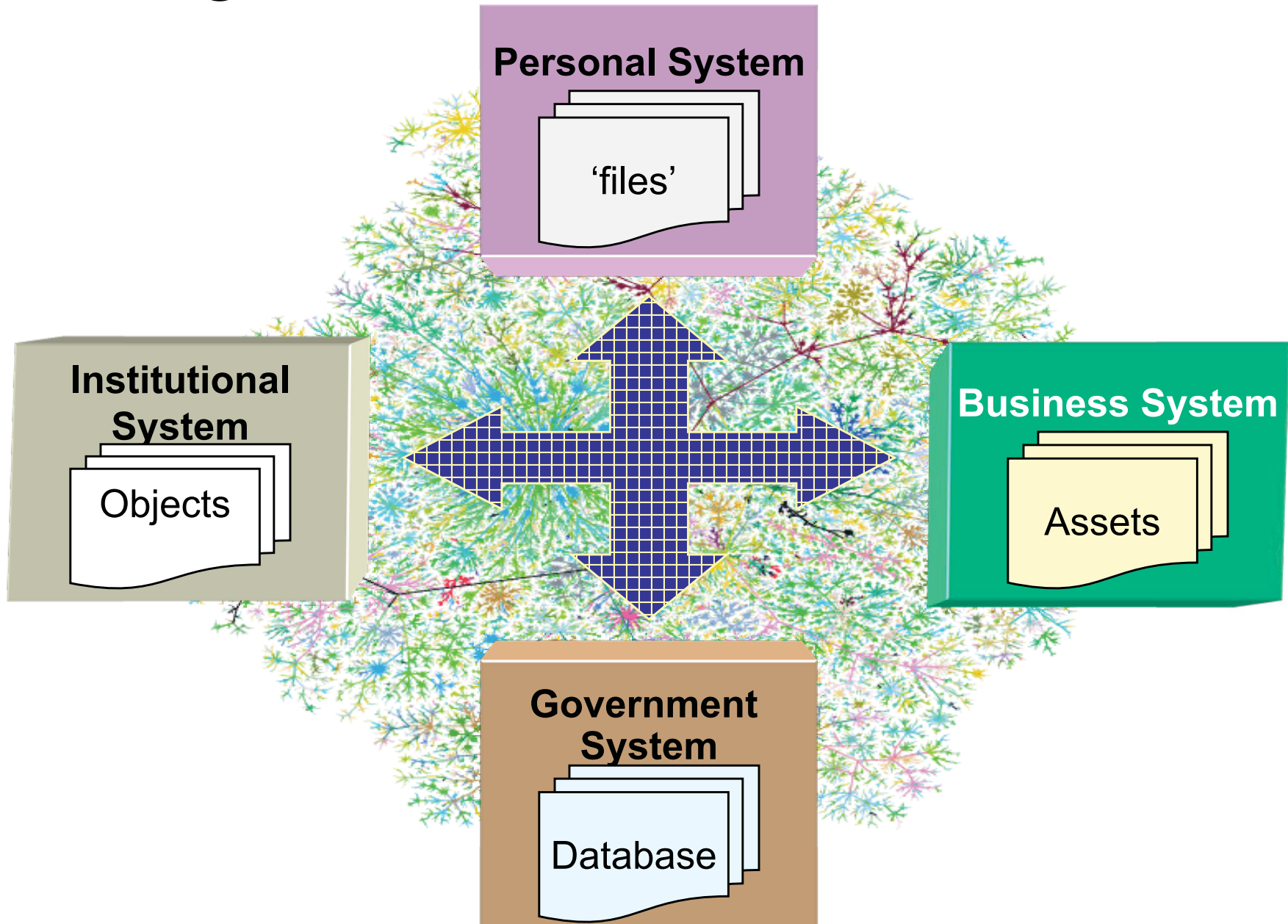
and payment of their salaries. — He stated a multitude of New Grievances, and most noble persons of color & having our people, and cut out their throats. — He has kept among us in times of peace standing beside the Council of our Legislature. — He has invited to visit the Military independent of and superior to the Civil power. — He has convinced us that those trifling us to a population foreign to our constitution, and unacknowledged by our laws, giving the Olfant to their title of Imperial Legislature. — He has quarrelled large bodied armed troops among us. — He has predicted that by a new Slave, from Annihilation for any Mankind which they should commit on the Subjects of these States. — He has called on our State with all sorts of civil war. — He has imposed taxes on us without our Consent. — He has deprived us in many cases of the benefits of Trial by Jury. — He has hindered us from due trial with impartial Juries. — He has abolished the free System of English Slave in a neighbouring Province, abolishing them in Arbitrary government, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies. — He has borne away our honors, abolishing our most valuable land and others forming the basis of our Government. — He has suspended our own Legislature, and declaring themselves invested with power to legislate for us in all our civil and criminal cases. — He has nullified Government acts, by declaring us out of their Obedience and waging this against us. — He has plundered our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people. — He has thus time hindering these claims of human Mankind to combat the works of death, desolation, and terror, already begun, with circumstances of cruelty to our whole people.

happily furnished in the most abundant ways, and is daily answering the need of a civilized nation. We are constrained now follow Christ to the high seas, where African nations, their country, become the associates of their friends and relatives, to help themselves by their hands. We have secured countless information amongst us, and have endeavored to bring in the wisdom of our forefathers, the wisest African sages, whose wisdom and piety, in an undisturbed situation, of all ages, gave us wisdom. The every page of our Scriptures, the sacred Ritual of the Church, in the most humble forms, our spiritual fathers have been generous, and their injury. (Amen, whose character is thus marked by every page of the Bible, is unjust to the rule of a people.) Now have we been wanting in attention to our British brethren. We have warned them from time to time of attempts by their legislators to act in an unchristian manner, and the jurisdiction over us. We have unrolled them of the circumstances of our emigration and settlement here. We have appealed to their native piety and magnanimity, and we have convicted them by the rise of our common enemies to dissolve these false positions, which would so violently interrupt our connections and correspondence. They too have been deaf to the voice of justice and of humanity. We would, therefore, excise in the new bible, which denounces our separation, and hold them as we hold the use of our bible, in our Bible, in our Bible, in our Bible.

We, therefore, the Representatives of the united States of America, in general Congress assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Great Britain, is, and ought to be totally dissolved; and that as Free and Independent States, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do. And for the support of this Declaration, with a firm reliance on the protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.

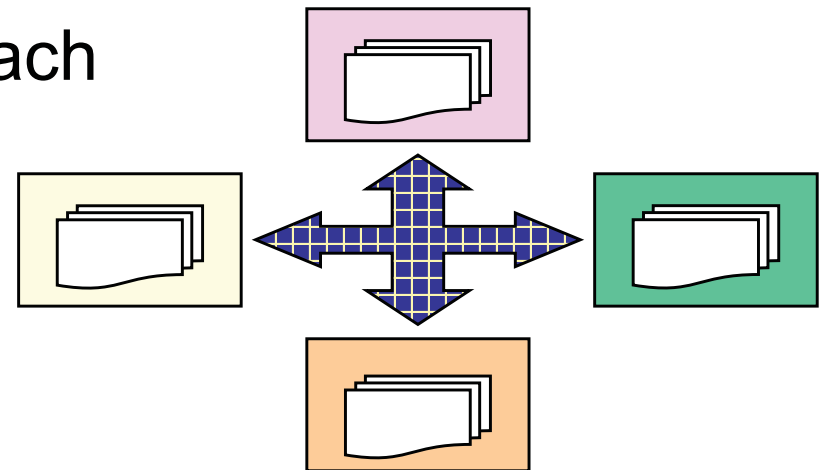
Nathan Greenleaf
 Lyman Hale
 Geo. Waller
 John Rogers
 Joseph Buves
 Oliver Pearson
 Edmund Clarke
 Wm. Reed
 Thos. Stone
 Geo. Lind. Fitzgerald
 George W. Smith
 Geo. Taylor
 James Wilson
 Wm. Tappan
 Isaac Combs
 Garrison
 Thomas Knapp
 Wm. Briggs
 George W. Lee
 Charles Brantton
 John Adams
 Wm. Phillips
 John Adams
 John Wallcut
 George Henry
 Hor. Hoppkins
 William Ellery
 Roger Sherman
 John W. Huntington
 Wm. Brewster
 Oliver Wolcott
 Asa Allen
 Asa Allen
 Wm. Phillips
 John Adams
 John Wallcut
 George Henry
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 Roger Sherman
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Doing Business over the Internet

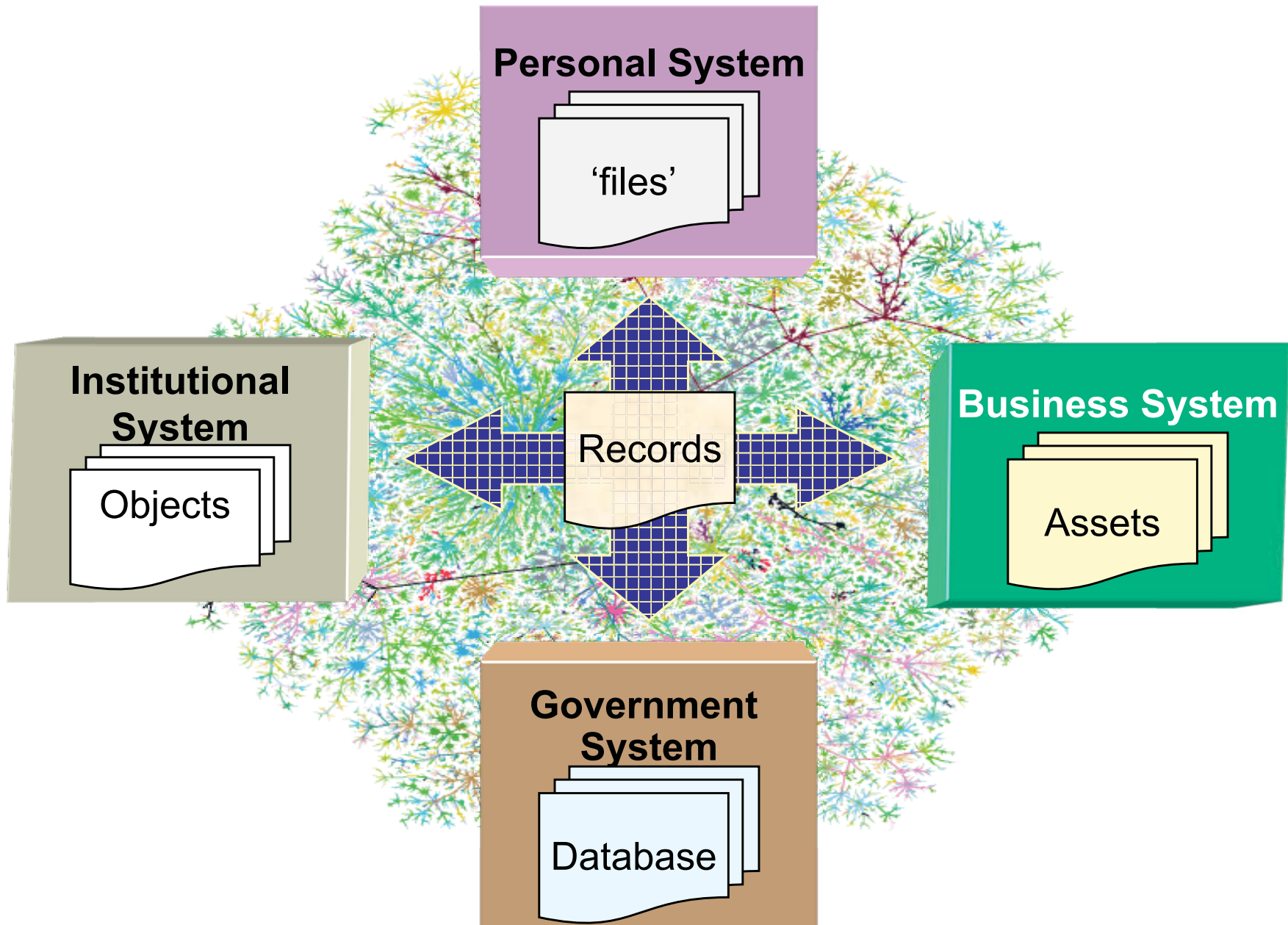


E-transactions: basic assumptions

- Different systems interact in conducting e-transactions.
- The only thing one system needs to know about another system is that it can use the same intermediary.
- Anything which must be true about an information asset in one system must be true about that asset in another system involved in the e-transaction.
 - What is involved in a transaction (Ontology)?
 - What rules govern the transactions?
 - What brings parties to trust each other to conduct business over the Internet?



E-transactions: Where are the Records?





Color-Shifting Ink



Watermark

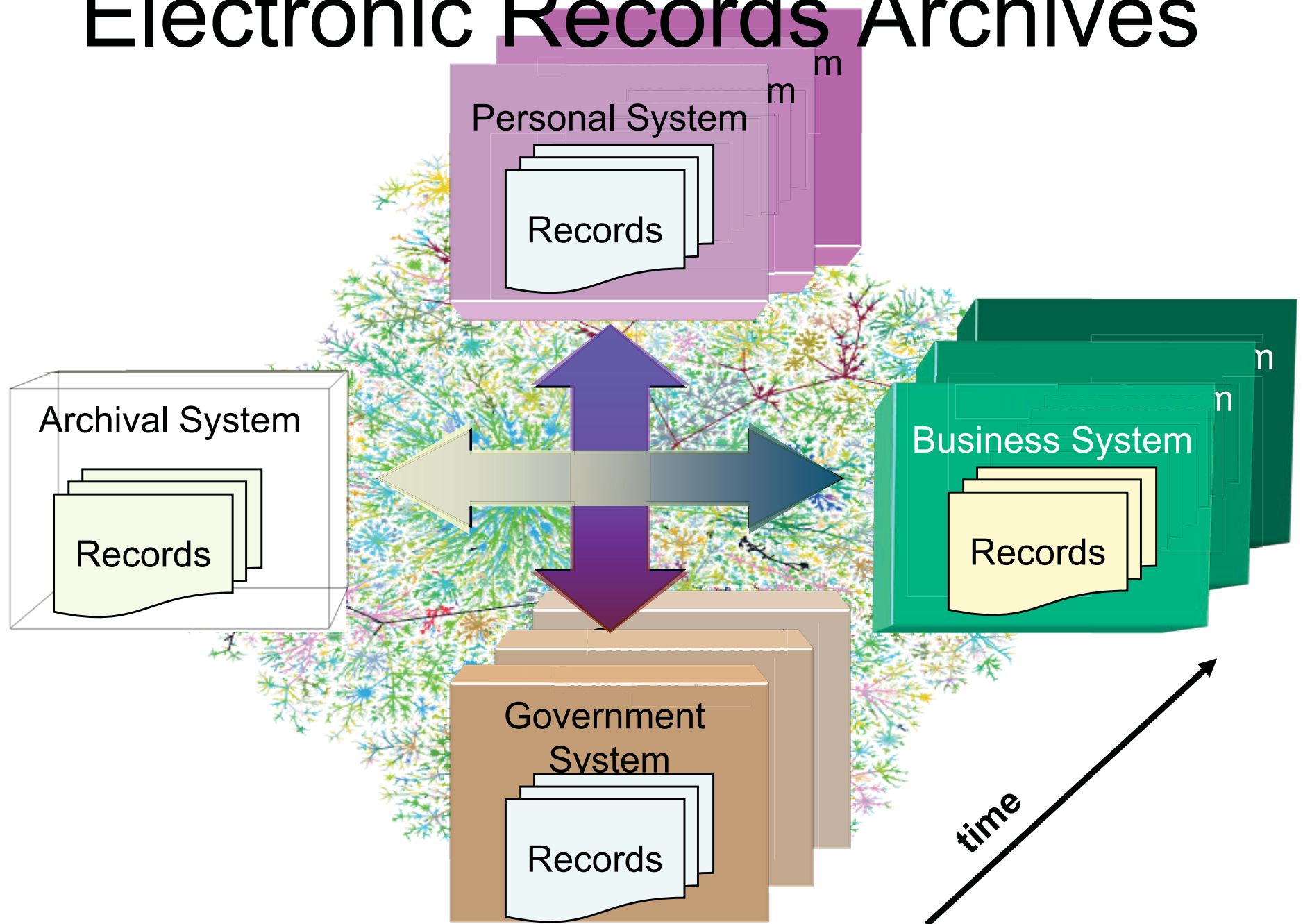


Security Thread



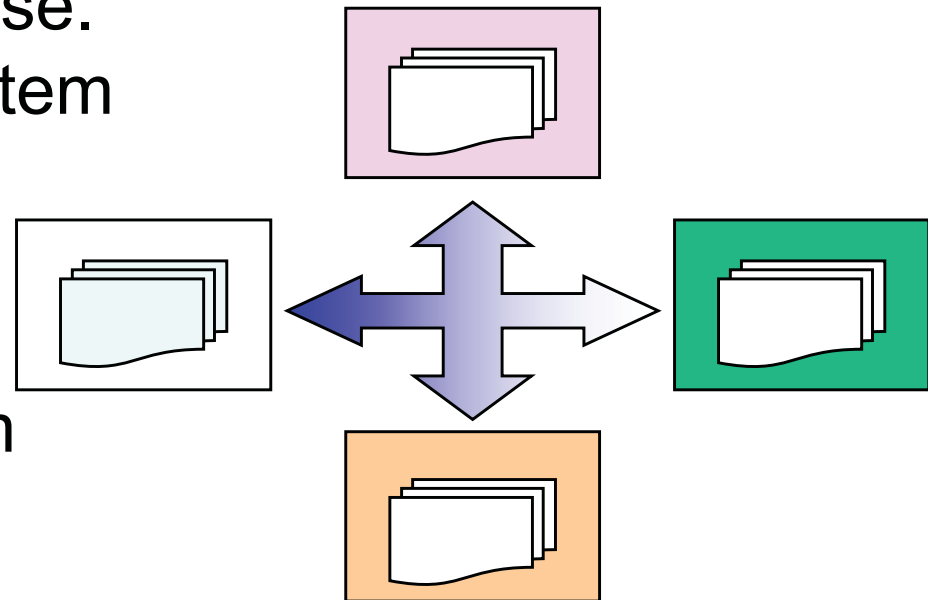
Federal Reserve Indicators

Electronic Records Archives

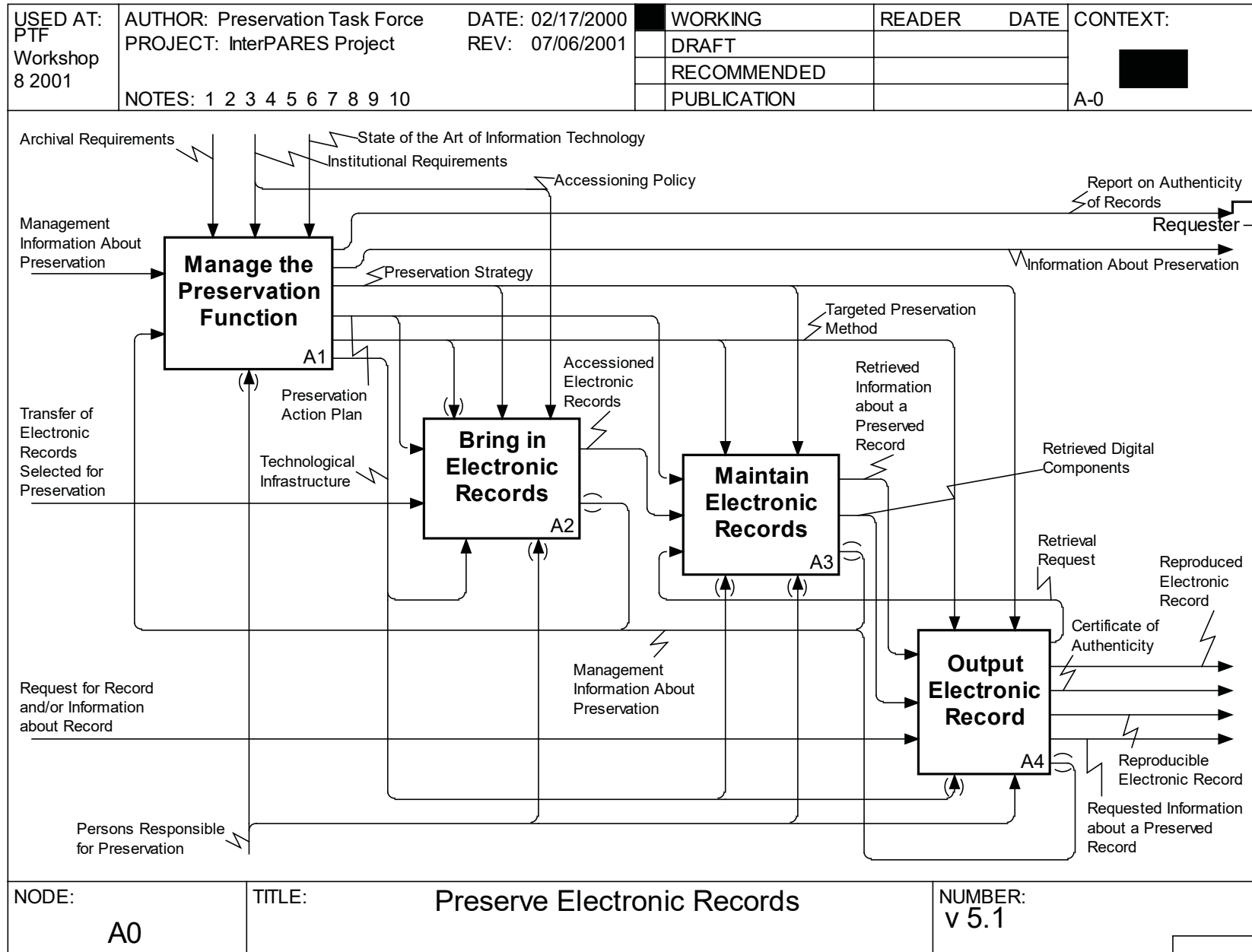


Electronic Records Archives: basic assumptions

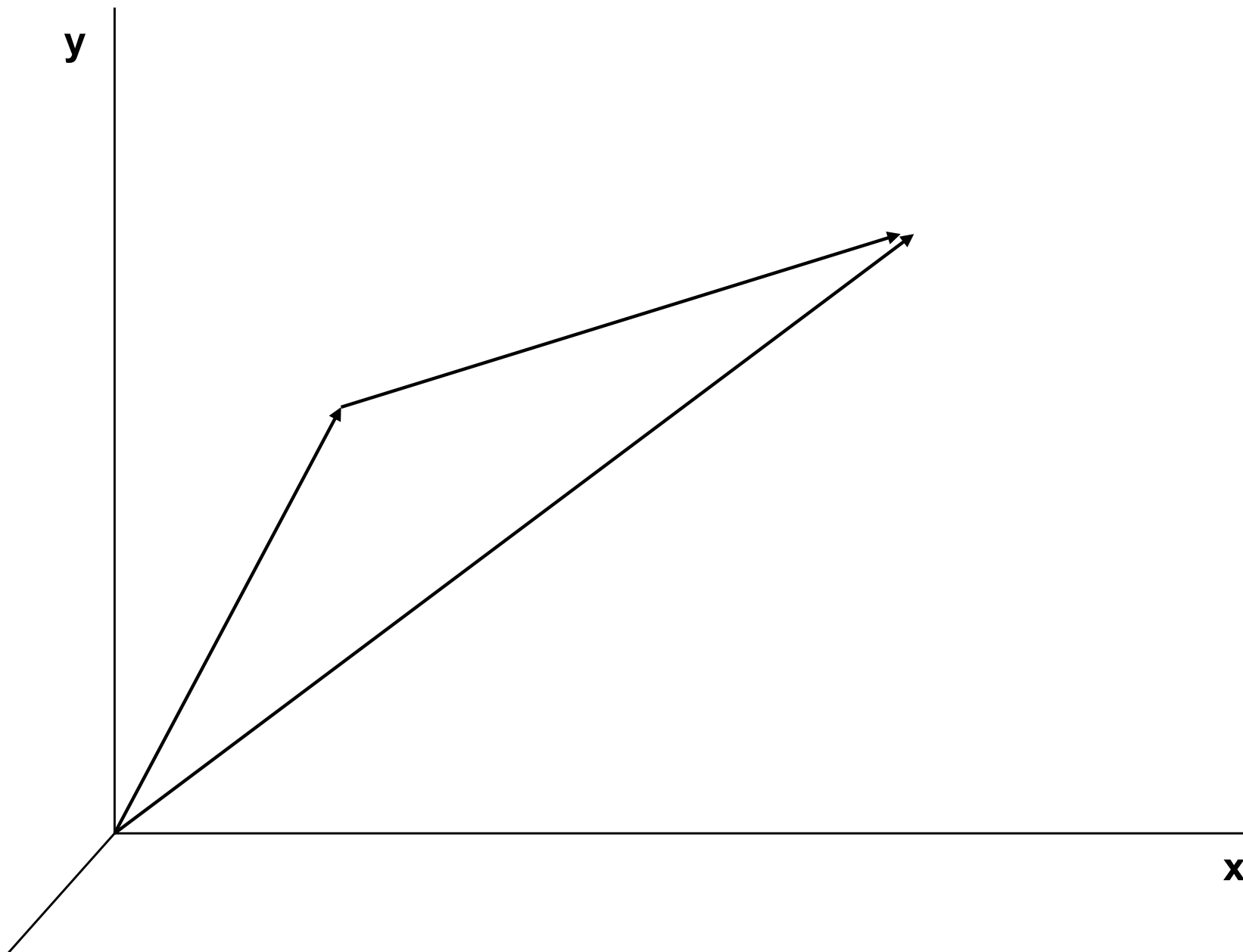
- The archives system must be able to interact with *different* systems.
- At any time, the only thing the archives system needs to know about another is that it can use the same intermediary.
- Over time, the archives system cannot know what mediators other systems will use.
- Any record in the archives system must be an authentic copy of that record.
- Any record delivered from the archives to another system must be an authentic copy.



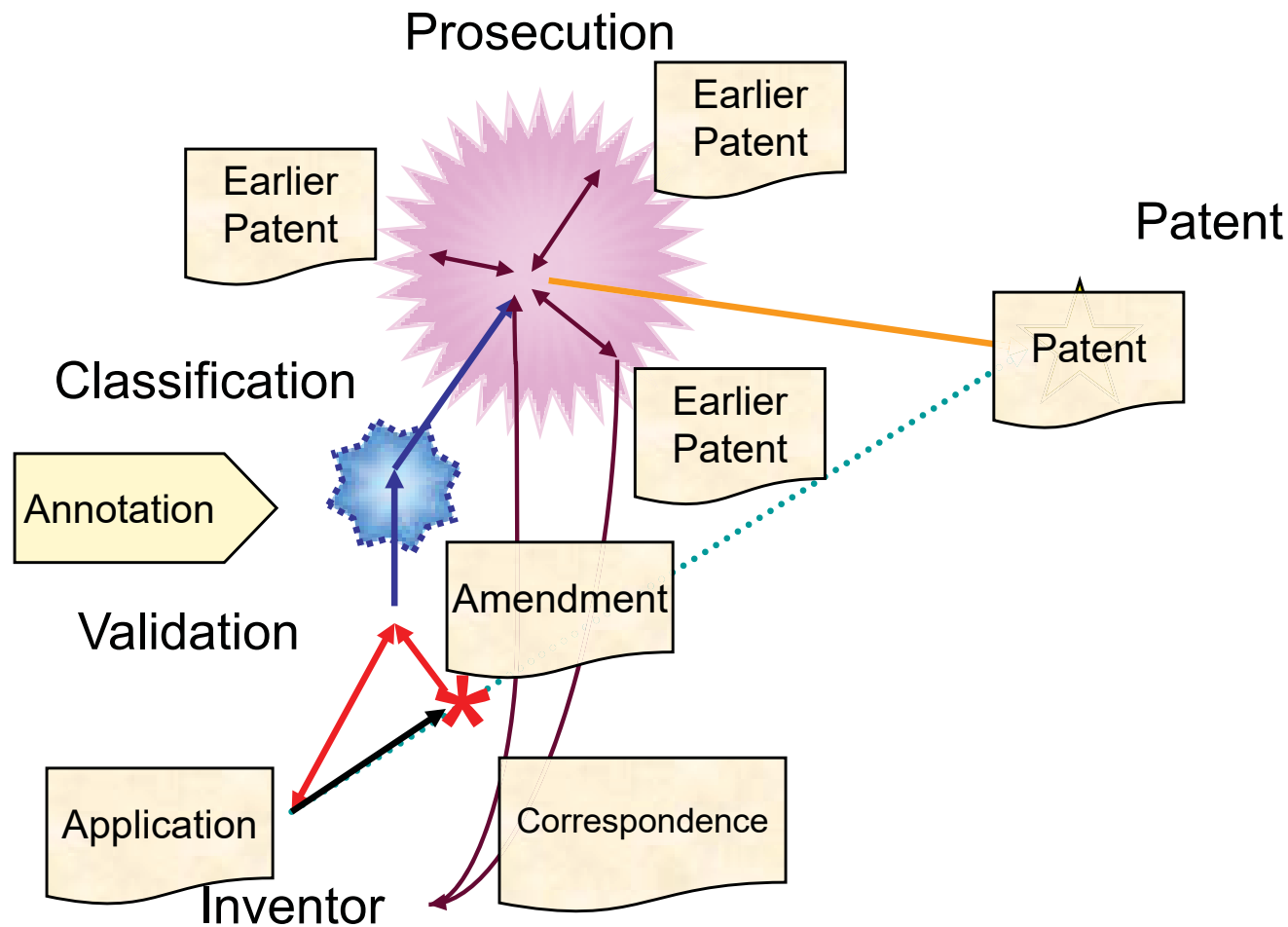
InterPARES Preservation Model



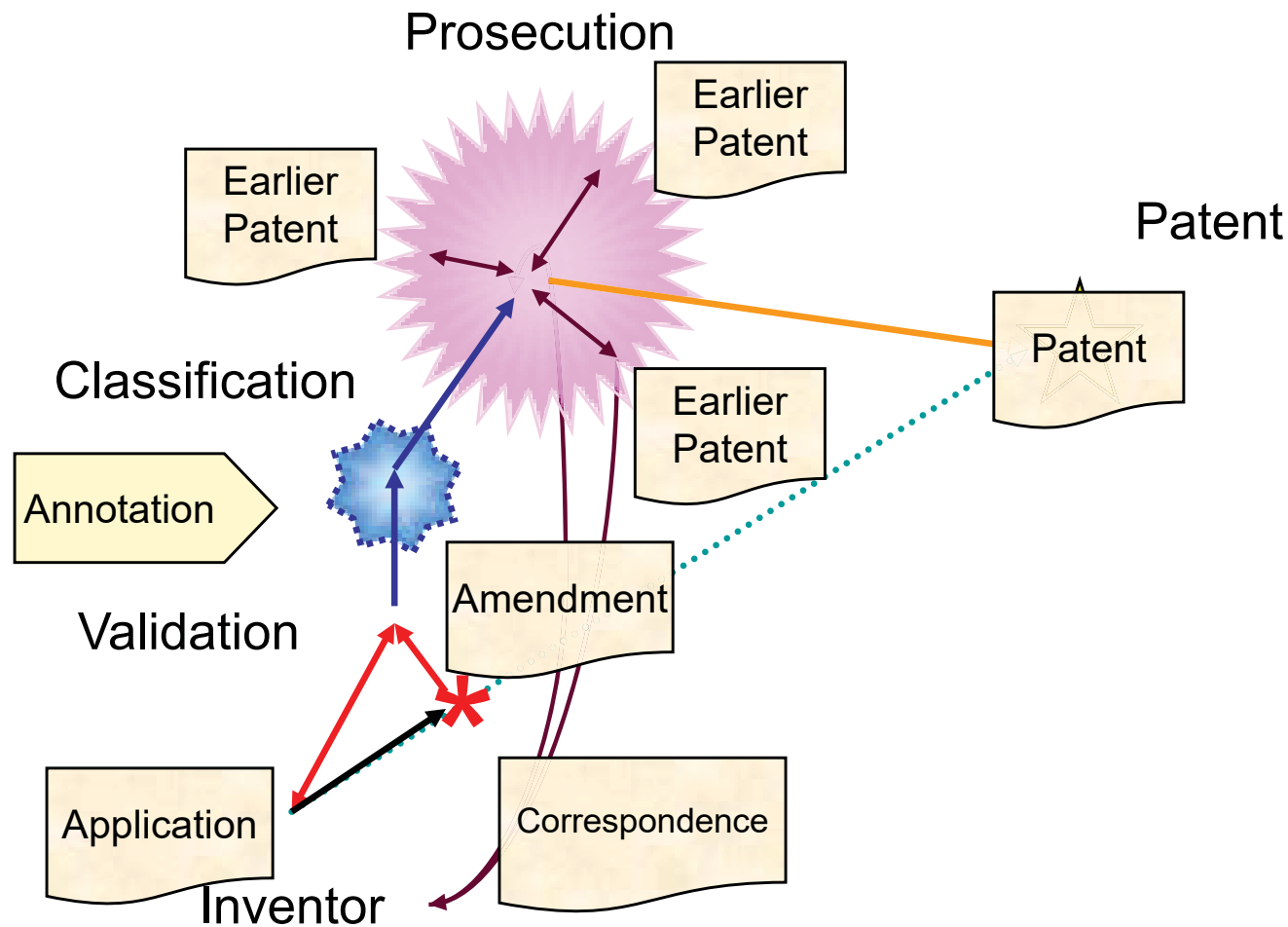
Vectors



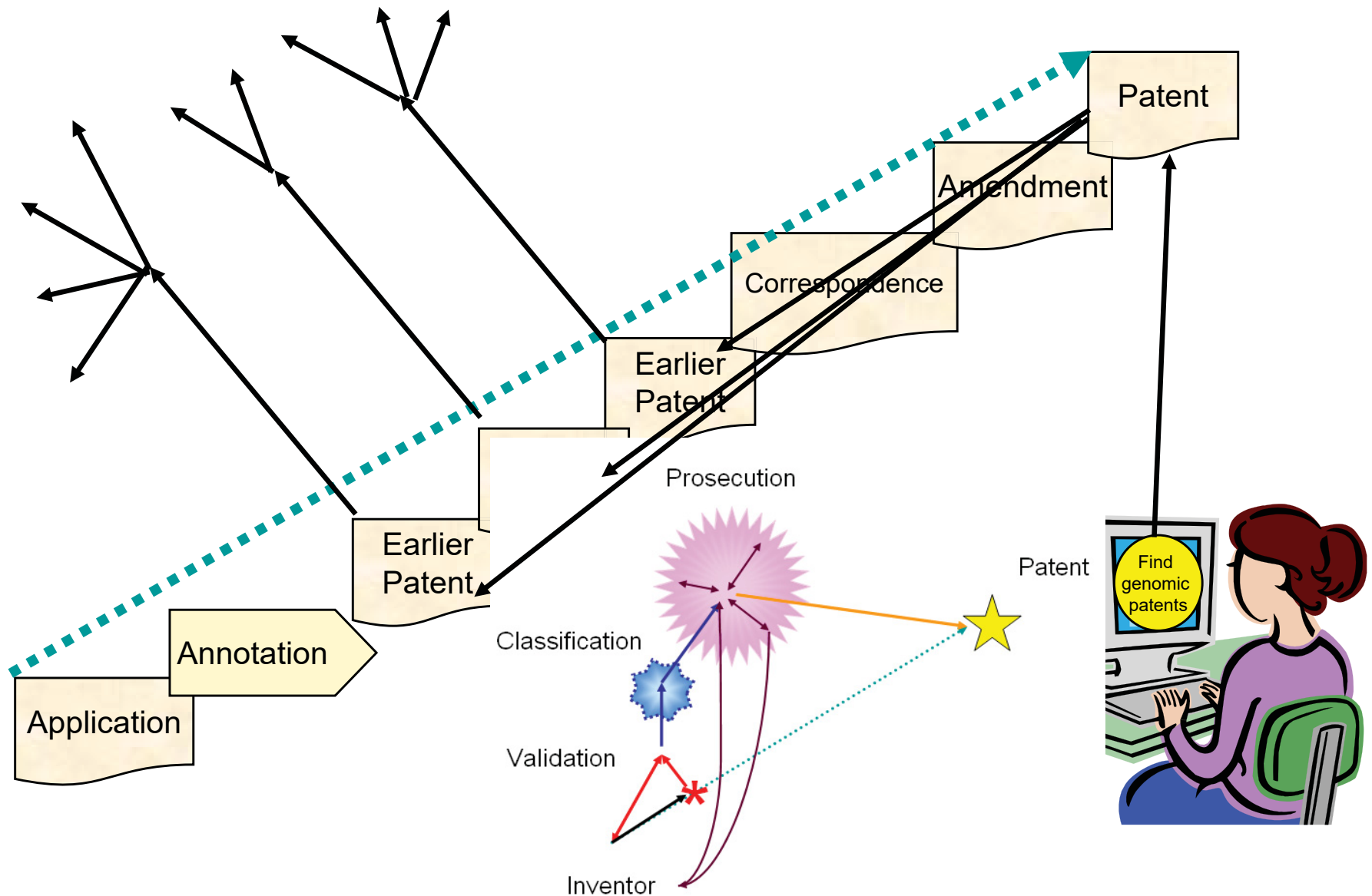
Intentional Vector Patent Application



Intentional Vector Patent Application



Intentional Vector Archival Search for Patents



Archival Basis for Affirming Authenticity

