

The US Government and E-Government: Two Steps Forward, One Step Backwards?

Peter Hemon^a and Robert E. Dugan^b

^aGraduate School of Library and Information Science, Simmons College, 300 The Fenway, Boston, MA 02115-5898, USA

^bSawyer Library, Suffolk University, 8 Ashburton Place, Boston, MA 02108, USA

Q5

During the 1990s, electronic government, commonly known as e-gov, materialized “as a dynamic concept,” but one having “varying meaning and significance” (Relyea, 2003, p. 379). Various policy instruments have shaped this concept and its application. Such instruments seek to promote the use of new IT [information technology] by government entities with a view to improving the efficiency and economy of government operations, as well as to ensure the proper management of these technologies and the systems they serve, their protection from physical harm, and the security and privacy of their information (Hernon *et al.*, 2002, p. 380).¹

Rather than identifying and discussing those instruments, this chapter will provide an overview of e-government primarily with reports on observations gathered through monitoring the US government’s presence on the World Wide Web (Web) since the late 1990s. That scrutiny has involved the monthly use of link-checking software to track any changes in the addresses of nearly 1000 government home pages and resources. By late 2003, that software had tracked more than 1600 government Web addresses.

The findings from those observations should be factored into further revisions of existing policy instructions, especially those emanating from the Office of Management and Budget (OMB) as it oversees the accomplishment of the E-Government Act of 2002 (P.L. 107-347). Other

¹For a discussion of policy instruments, see Relyea, 2003, pp. 369–394; McClure and Sprehe, 2001, pp. 255–292.

43 government entities (e.g., departments, agencies, individual courts, and
44 congressional committees) should reflect on these observations and make
45 some adjustment in the continued development of their home pages so that
46 future improvements do not compromise progress (two steps forward)
47 with movement in the opposite direction (one step backwards), through the
48 creation of more complex and ever-changing universal resource locators
49 (URLs), more dense Web pages, dead links, the need to insert
50 Flash (Macromedia) graphics on computers to navigate government sites,
51 having to rely on high-speed links to access the content of various
52 government sites, sites that are not readily amendable for use by those with
53 disabilities, and the discovery of pages that are extremely slow to load. In
54 short, a government entity should ensure that those planning documents
55 submitted to Congress under the Government Performance and Results
56 Act (P.L. 103-62) reflect a commitment to achieving the goals set for
57 e-government.

58 In recent years, government entities have discontinued the printing of
59 numerous publications, relied on the Web as the primary method of information
60 dissemination, treated the Web as more than a mechanism for information
61 dissemination, adapted some features commonly associated with libraries, let
62 their libraries in some instances provide the public with virtual reference service,
63 and have at times treated depository library programs as a complementary
64 method of information dissemination. For example, the Department of Housing
65 and Urban Development (HUD) organizes frequently-requested Web pages
66 according to topics or “bookshelves,” while the Patent and Trademark Office
67 encourages users of its home page to be familiar with the collections and services
68 of its depository libraries because patent and trademark searching often requires
69 special expertise. As this chapter illustrates, the Web and e-government have
70 altered the traditional role that libraries play in assisting the public in identifying
71 and retrieving government information. Now, libraries can help their users
72 obtain services and communicate directly with the government, as the public
73 participates in the shaping of public policy. E-government definitely presents
74 both opportunities and challenges to libraries, both depositories and non-
75 depositories.

76 77 78 **I. Overview**

79
80 In the early 1970s, a report of the Commission on the Year 2000 of the
81 American Academy of Arts and Sciences recognized “the conditions
82 contributing to the e-government phenomenon.” (Relyea, 2003, p. 379)
83 It suggested that in the new millennium, “despite the growth in the size
84 and complexity of federal programs, the technological improvement of

the computer, closed-circuit TV, facsimile transmission, and so on, will make it possible for the federal bureaucracy to carry out its functions more efficiently and effectively than it can today, with no increase in total manpower.” (Capron, 1971, p. 307) The report maintained that the use of IT would not be confined to the executive branch. Congress needed “the tools of modern information technology...to create policy and to oversee the Executive.” IT would also assist members of Congress in communicating with their constituents and in conducting “up-to-the-minute” polling of public opinion (Brademus, 1971, pp. 319–321).

As policy analyst Relyea (2003, pp. 379–380) notes, the ability of new information technologies to improve government performance and communication did not originate with the dawning of the computer age. Similar predictions were made when the telephone was introduced.

In the 1980s and the early 1990s, national networking—a network of computer networks—emerged. As educator Charles R. McClure and some of his colleagues at Syracuse University wrote,

while some of the benefits of national networking are difficult to predict, it is clear that the design and implementation of some type of national, coordinated, high-speed network is essential if the United States is to maintain a leadership role in high-performance computing and electronic networking and increase its overall national productivity and competitiveness. (McClure *et al.*, 1991, p. i)

The Clinton administration, through its National Performance Review, advanced the concept of e-government as a way to link the reinvention of government with information and communication technologies (including Internet applications) for the purpose of enhancing access to and delivery of government information and services, improving the internal effectiveness and efficiency of the federal government, and encouraging the entrepreneurial spirit. The administration also supported electronic commerce both within the United States and globally.

Figure 1, which represents a graphic depiction of e-government, shows that it has six parts:

1. Assisting in governance;
2. Supporting emergency response;
3. Engaging in e-commerce;
4. Providing access to information, including records;
5. Delivering services; and
6. Supporting procurement operations.

Each part might extend to one or more of the following audiences: other federal government entities as well as those at a subnational level, the business

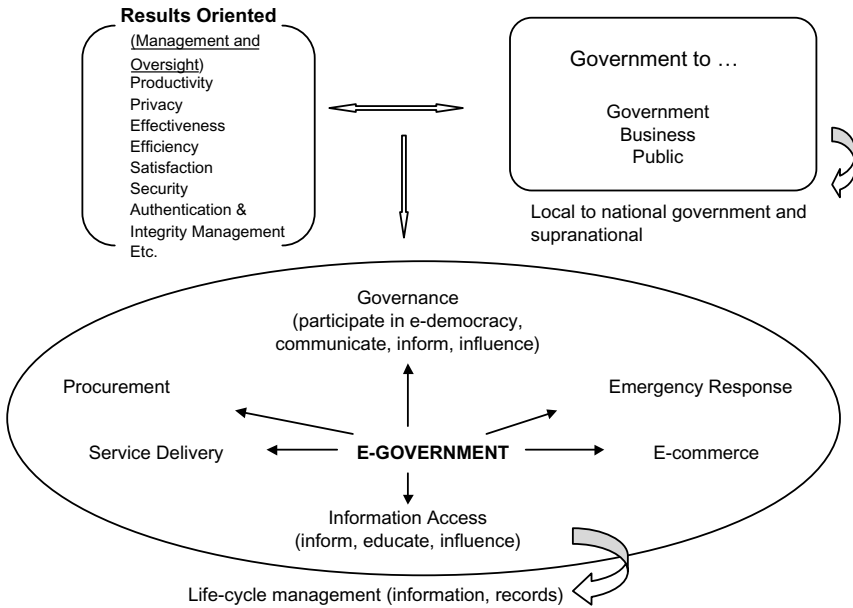


Fig. 1 Depiction of e-government.

community, and the public. The public might range from the nation’s youth to senior citizens, as well as to librarians, researchers, publishers, and others. For each of these audiences, the intention of government is to be results oriented, to ensure the security of e-commerce transactions, to offer an efficient channel for providing access to government information, and so on.

Electronic rulemaking is a good example of the role of e-government in assisting in governance. Each year, government entities issue

thousands of regulations that can affect almost every aspect of citizens’ lives—from allowing a fireworks display over the Columbia River...to registering food facilities in light of the potential for bioterrorism. The public can play a role in the rules that affect them through the notice and comment provisions of the Administrative Procedure Act of 1946, as amended. In fact, involvement of the public in rulemaking has been described as possibly “the most complex and important form of political action in the contemporary American political system.” However, in order to be involved in rulemaking effectively, the public must be able to (1) know whether proposed rules are open for public comment, (2) prepare and submit comments to relevant decision makers, and (3) access regulatory supporting materials (e.g., agencies’ economic analyses) and the comments of others so that their comments can be more informed and useful. (General Accounting Office, 2003a, p. 1)

With this in mind, the General Accounting Office (GAO) examined Regulations.gov (<http://www.regulations.gov/>), which enables individuals to

169 search, view, and comment on proposed regulations issued by any federal
170 entity, and it compared Regulations.gov's coverage to that of selected
171 agencies' home pages. GAO found great variation, with Regulations.gov
172 providing the best—but not complete—coverage of regulations open for
173 public comment. Most often, agency sites did not even mention Regula-
174 tions.gov “as a commenting option.” Another problem was that the location
175 of public comment for regulations could be difficult to locate on a home page.
176 (General Accounting Office, 2003a, pp. 8–18) Although the intent of section
177 206 of the E-Government Act, which requires agencies, to the extent
178 practicable, to accept public comments on proposed rules “by electronic
179 means,” has not been fully met, online rulemaking enables citizens to
180 participate in public policy discussions and the shaping of the resulting
181 decisions.

182 Returning to Fig. 1, within a country, e-government might span local,
183 state or provincial, and regional governments, as well as the national
184 government. E-government also occurs at the supranational levels, such as
185 through services provided by the European Union. As well, information
186 access must be viewed within the context of the information or record's life
187 cycle, which covers the stages from creation to demise or preservation.²
188 Clearly, a diverse set of information policies and policy instruments are
189 results oriented, seek to advance e-government and each part of the figure,
190 and establish a framework for better management of information resources
191 and accountability of IT and e-government.

192 Privacy and security are issues that cut across all six parts. In the fall,
193 2003, OMB directed agencies to conduct privacy-impact assessments before
194 developing or changing information systems. Those assessments review how
195 information is collected and used in the organization, and the results of those
196 assessments more than likely will be linked to future funding of a project. In
197 addition, OMB directs agencies to

198
199
200 develop a plan to make their Web site privacy policies machine-readable—meaning that
201 they automatically provide notification when the site doesn't cover visitors' privacy
202 protection. Agencies must tell Web site visitors when it's voluntary to submit information,
203 how to grant consent for an agency to use voluntary personal data and what their rights are
204 under the Privacy Act. (Michael, 2003, p. 11)

205 A. Strategy of the Bush Administration

206
207 President George W. Bush's fiscal year 2002 management agenda envisions
208 e-government as a way to serve better the public (including persons with
209

210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

disabilities); make government more efficient and effective; reduce government operating costs as well as the expense and difficulty of doing business with the government; and enable the government to become more transparent and accountable. (Willemssen, 2003, p. 4) To achieve these goals, the Bush administration envisioned an expansion of e-government as part of its government-wide reform effort and as being guided by three principles: the federal government should be (1) citizen-centered, (2) results-oriented, and (3) market-based. (Presidential Memo)³ Citizen-centered addresses four segments:

1. Individuals: “Building easy to find one-stop shops for citizens—creating single points of easy entry to access high quality government services [and information];”
2. Businesses: “Reduce burden on businesses through use of Internet protocols and by consolidating myriad redundant reporting requirements;”
3. Intergovernmental: “Make it easier for states to meet reporting requirements, while enabling better performance measurement and results, especially for grants;” and
4. Internal efficiency and effectiveness: “Reduce costs for federal government administration by using best practices in areas such as supply chain management and financial management, and knowledge management.” (Forman, 2001)

Twenty-five cross-agency initiatives have been selected to achieve both the goals and the guiding principles (General Accounting Office, 2003b).⁴ For example, the E-Authentication E-Government Initiative seeks to develop a comprehensive policy applicable across government entities for authentication and identity management. The goal is to eliminate an inconsistent and agency-unique authentication and identity management infrastructure.

The definition of records, as stipulated at 44 *United States Code* 3303, includes agency documents used “in connection with the transaction of public business” and otherwise constitute “evidence of the...functions...operations, or other activities of the Government or because of the information value of data in them.” This definition could be applied to all of the material available on government Web sites, a large percentage of which has no print counterpart. The number of digital records that the government produces most likely exceeds the number of records originating in paper form. As well,

³For additional discussion of e-government as “a critical element in the management framework,” see section 2, E-Government Act 2002 (P.L. 107-347, 116 Stat. 2899).

⁴General Accounting Office (2003b) also contains a list of GAO reports related to e-commerce and e-government. See also *Implementing* (2003).

253 a number of electronic records were created decades ago but were never sent
254 to the National Archives and Records Administration (NARA) for
255 preservation and public access. These records “may pose challenging
256 preservation problems owing to their age (media deterioration, loss of
257 documentation and other metadata, and obsolesce of data types).”¹⁶

258 Another initiative, the Electronic Records Archive (ERA) is a program
259 intended to preserve and make available today’s information for future
260 generations; the goal is to ensure that the problem of electronic records
261 management does not remain unresolved.¹⁷ ERA would be enhanced through
262 coordinated efforts with organizations (e.g., OCLC and depository libraries)
263 that “share common interests in digital preservation.”¹⁸ One such partnership
264 involves the Government Printing Office (GPO), which would have
265 “responsibility for public access and preservation of the records available
266 on...GPO Access.”¹⁹ In essence, GPO becomes an “affiliated archive”²⁰ as it
267 retains electronic records, such as copies of the *Federal Register* and the *Code of*
268 *Federal Regulations*; however, NARA still retains legal custody.

270

271 B. The Impact of Terrorism on E-Government

272 Since the unfolding of US government on the Web under the Clinton
273 administration, greater amounts of government information have become
274 publicly available. Anyone with a computer or access to one can browse vast
275 storehouses of information and select the few items most relevant to his or her
276 needs, without having to disclose personal information. By using publicly
277 available terminals, it is possible to hide one’s identity at least for a while.
278 However, following the terrorist attacks of 9/11, the government reevaluated
279 a number of its Web sites and, in some instances, removed content and
280 reorganized the site.²¹ The question is, “At what point does the removal of
281 information from the public domain—what information and for what
282 purposes—inhibit democracy and the accountability of government to the
283 public?” As policy analyst L. E. Halchin notes, “the removal, or withholding,
284 of what was once considered public information from agency Web sites may
285 thwart the promise of e-government...[T]he ongoing debate over the
286 removal of information might detract from the luster of e-government.”²²

287 When removal extends to scientific information unrelated to security
288 matters, it should be remembered that “science is a collective endeavor...
289 [and] Science increasingly...[is] an international endeavor.”²³ “Restraining
290 scientific publication and the international exchange of information could
291 adversely affect public health by inhibiting scientific research and medical
292 progress.”²⁴ Thus, removal of information from the Web, scientific and
293 other, involves a delicate balance between providing a means to retard
294

295 terrorist activities and the continuing advancement of research, progress, and
296 knowledge.

297 Another complication is that different executive branch entities have
298 removed their coverage of the Freedom of Information Act (FOIA) from a
299 prominent place on the opening site of their Web site. In some instances, the
300 information seeker must check the site map or conduct a search of the site to
301 locate coverage of the Act and any declassified records that the agency
302 displays for public consumption. The entities have reviewed the types of
303 declassified records they release through their home page.

304 Unrelated to the terrorist attacks of 9/11, in December 2001, a federal
305 district court judge ordered the Department of Interior to shut down its
306 Web sites, including that of the Bureau of Indian Affairs (BIA). The shut
307 down was related to the department's mismanagement of funds intended
308 for American Indians. The department's home page was reopened in 2002,
309 but that of the BIA remains closed to date (March 2004). Consequently,
310 contact with the BIA and its resources depends on channels other than
311 the Web.

312
313

314 **C. The Evolution of Web-based Government Information**

315 Section 205 of the E-Government Act of 2002 instructs federal courts to
316 provide access to certain types of information, including contact information,
317 local rules, standing or general orders, docket information, written opinions,
318 documents filed in electronic format, and other information that a court
319 deems "useful to the public." The Web environment also provides access to
320 more government information resources (e.g., publications, images, records,
321 and datasets) than were available in a paper environment. At the same time,
322 federal government entities deliver online services (e.g., agency library
323 collections and reference services online, subscription and e-mail notification
324 services, online retail, online forms and instructions, and enabling people to
325 arrange for the receipt of benefits) and facilitate the procurement of online
326 goods and services, as well as the efficient exchange of information, goods,
327 and services with subnational governments. Online retail, for instance,
328 generates millions of dollars annually.

329 Those responsible for improving and maintaining publicly-accessible
330 federal Web sites are presenting more content by means of Web applications
331 and services first deployed by the private business sector, such as
332 Macromedia-based Flash animations and Java language-based modules.
333 JavaScript-based rollovers are commonly deployed on federal Web sites,
334 which may provide a site search engine to facilitate navigation. The intent is to
335 enrich the public's visit to the Web site with attractive presentations and
336

337 easily accessible content. Dynamic HTML is common; deployment of XML
338 is increasing, which is intended to improve the sharing and delivery of content
339 among government entities, with commercial and industrial contractors and
340 organizations, and with consumers. For example,

341
342 Beginning in 1997, the House and the Senate, along with the other Legislative Branch
343 agencies, began an investigation of the use of SGML and later XML as a data standard for
344 the exchange of legislative documents. By December 2000, the Committee on House
345 Administration and Senate's Rules Committee adopted XML as the primary standard for
346 the exchange of legislative documents between the House, Senate, and other legislative
347 branch agencies. The Legislative Branch including the House, Senate, Government
348 Printing Office, Library of Congress, Congressional Budget Office, and the General
349 Accounting Office maintain coordination in terms of the Common Tag Library for
legislative documents.²⁵

350 Therefore, the government, through agencies such as the National
351 Institute for Standards and Technology (NIST) is not just a convener and
352 steward of electronic standards and guidelines; it is also a consumer.

353 354 355 1. Portals

356 Realizing that access to Web-based government information is comparable to
357 finding one's way through a maze of undeterminable size and shape, the
358 Clinton administration sought to create a single search engine designed to
359 integrate nearly all federal government home pages. That search engine,
360 WebGov, evolved into the portal FirstGov; a portal is a multifunctional Web
361 site that usually includes Web directories, indexes, constituent services, and
362 links to other appropriate Web-based resources. In essence, a portal guides
363 users through that maze by creating sites that, it is hoped, provide one-stop
364 shopping.²⁶ Because "at least 70 percent of FirstGov visitors are citizens, and
365 most of these visitors are looking for help with services such as applying for
366 social security or changing an address," the portal has made the citizen tab
367 into its default home page.²⁷ This change to the portal reflects the
368 administration's *three clicks to service or information strategy*, which stipulates
369 that users of FirstGov should only have to follow three links to find the
370 information or service they seek.

371
372 Reporter Ed McKenna notes that, by "hosting various enterprise
373 applications for both public and internal use, providing tools for
374 online collaboration, and serving as user-friendly front ends to vast stores
375 of distributed information, portals are becoming mission critical for
376 many agencies."²⁸ These portals might convey service initiatives, provide
377 information resources, and further the accomplishment of e-governance.
378 Examples of such portals are

- 379 • Recreation (<http://www.recreation.gov/>), which offers a single point of
- 380 access to information about parks and government recreation areas;
- 381 • Gov On-line Learning Center (<http://www.golearn.gov/>), which provides a
- 382 single source for online training of federal employees;
- 383 • Recruitment One-Shop (<http://www.usajobs.opm.gov/>), which assists
- 384 applicants in finding employment in the federal government;
- 385 • Geospatial One-Stop (also known as the geodata.gov portal; [http://www.](http://www.geodata.gov/)
- 386 [geodata.gov/](http://www.geodata.gov/)), which stores data collected by federal, state, and local
- 387 governments so that users of geographic information systems (GIS) can
- 388 readily find data and then combine, enhance, and analyze those data;
- 389 • Grants.gov (<http://www.grants.gov/>), which provides cross-departmental
- 390 and agency access to federal grants;
- 391 • FEDSTATS (<http://www.fedstats.gov/>), which provides access to statisti-
- 392 cal data from more than 100 federal agencies; and
- 393 • GPO Access (<http://www.gpoaccess.gov/>), which “has an average of 32
- 394 million documents [that are] downloaded each month, and that number is
- 395 growing.”²⁹

396 In addition, a number of agencies, as well as courts, have developed
 397 electronic dockets, which “are formal inventories of materials making up the
 398 record in a proceeding...[and] as a practical matter the docket defines the
 399 record.”³⁰ Such dockets encourage greater dialogue or communication
 400 directly among stakeholders, citizens and other user groups, and agencies at
 401 national and subnational levels. Both e-governance and e-services might have
 402 an outreach and education component. Government entities might maintain
 403 electronic mailing lists to provide announcements as well as access to new
 404 publications and policy changes.

407 2. Redesigning Home Pages

408 Many government home pages contain a link to FirstGov and have been
 409 redesigned to resemble that portal and to make it easier for the public to
 410 navigate the wealth and diversity of available information. For example, the
 411 Small Business Administration, which launched its home page in 1992, has
 412 served more than 1.2 million visitors to its site each week; a site that offers
 413 more than 50,000 publications! The redesign involved removing “excessive
 414 jargon and confusing terminology while “adding tutorials and training to
 415 help users learn how to do business with the federal government,” and
 416 creating specific “information categories designed to guide users through
 417 the small-business process: starting a business, financing a business,
 418 managing and growing a business, business opportunities, and disaster
 419 assistance.”³¹

421 In an attempt to simplify access to its Web resources, the National
422 Aeronautics and Space Administration (NASA), which “has more than 3000
423 Web sites hosting 4 million pages of information,” has begun consolidating
424 content from a number of those sites into its main site, <http://www.nasa.gov/home/index.html>.³² Consequently, users will not have to navigate
425 so many sites or know which specialized sites contain the information
426 they want.
427

428 As a result of such efforts, some government Web sites “score high on
429 user satisfaction survey[s].” The National Women’s Health Information
430 Center of the Department of Health and Human Services (<http://www.4women.gov/>) scored the highest among government sites on one satisfaction
431 survey. In fact, that site “scored higher than several prominent private sites
432 and on a par with Amazon.com.”³³
433
434
435

436 **D. Blurring the Role Between the Public and Private Sectors: Government** 437 **Expands Web Dissemination**

438 E-government is forging partnerships and alliances with the private sector
439 and government agencies (even those at subnational levels of government). As
440 a result, more, better organized, and better displayed government infor-
441 mation and services are readily available. Furthermore, a number of entities
442 tailor access on their home pages to specialized audiences, such as teachers,
443 businesses, publishers, and youth.
444

445 Although the information and records provided are mostly current,
446 they might also be historical. For example, the predecessors to the
447 *Congressional Record* are available digitally up to 1873 and the *Congressional*
448 *Record* is available on government portals since the early 1990s. That gap
449 from 1873 to the early 1990s is one for the private sector to close, if it so
450 chooses. The State Department series, the *Foreign Relations of the United*
451 *States*, provides declassified foreign policy records back to 1861; more
452 recent volumes in this series are also available digitally through the
453 department’s home page (<http://www.state.gov/>). Agency Web sites might
454 also contain specialized software to make some machine-readable
455 information produced decades ago available to whoever wants it. For
456 example, the US Geological Survey (USGS) offers GEODE (<http://dss1.er.usgs.gov/>) and the Environmental Protection Agency’s (EPA) Office of
457 Science and Technology provides BASINS (Better Assessment Science
458 Integrating Point and Nonpoint Sources, <http://www.epa.gov/epahome/gis.htm>).
459
460

461 Government entities are cognizant that their Web visitors use a variety of
462 workstation platforms (Intel and Apple), browsers (Netscape and Microsoft

Internet Explorer), and Internet access speeds (telephone, cable, and digital subscriber line (DSL)), as well as modems and local area networks, and workstation-installed software productivity applications (e.g., Microsoft and Corel office suites). As a result, government Web sites strive to meet individual user needs by providing users with alternatives and choices for viewing information and downloading files based on the speed of their Internet connection and installed viewer. An example is the “Space Research” page of NASA’s Office of Biological and Physical Research (http://spaceresearch.nasa.gov/fun_learning/robot.html), which provides visitors with the option of downloading video clips via dial-up or broadband. Dial-up video clip files are usually smaller and have less resolution than the larger, higher resolution broadband files.

Portals cannot provide access to all information, records, and services that the government offers or plans to offer. Furthermore, there is great variation among government entities about which information resources and services they provide. E-government users must often explore different sites in the pursuit of relevant information, records, and services. As they navigate government on the Web, they will find examples such as the following:

- A fully-functional advanced search with options (search by article or book title, the search term in an abstract, keywords, authors, etc.) (Department of Transportation, Bureau of Transportation Statistics, *TRIS Online*, <http://tris.bts.gov/sundev/search.cfm>).
- An opportunity for users to establish a customized version of Export.gov—the US Government Export Portal—so that they may receive information concerning exports, international markets, and international trade (need to set up a password, Export Gov Community Registration, <http://ita-webhost1.ita.doc.gov/soap2/register.jsp>).
- An online guide for installing GEODE that assists users through a difficult procedure (USGS, <http://dss1.er.usgs.gov/help>).
- An excellent explanation of what a.pdf file is (Library of Congress, <http://thomas.loc.gov/tfaq15/pdfhelp.html>).
- Access to “a searchable library of transportation specifications from across the country. It includes emerging specifications in the areas of quality assurance, performance-related, warranty specifications, and other innovative specifications. The site features a discussion forum to enhance communication and feedback among the community of users” (Federal Highway Administration, <http://fhwapap04.fhwa.dot.gov/index.jsp>).
- Access to PURLs (persistent uniform resource locator) for free and convenient access to full-text and bibliographic records of Department of Energy research and development reports in physics, chemistry,

505 materials, biology, environmental sciences, energy technologies, engineer-
506 ing, computer and information science, renewal energy, and other subjects
507 (Office of Scientific and Technical Information, [http://www.osti.gov/
508 bridge/](http://www.osti.gov/bridge/)).

509 A noteworthy development occurred in October, 2003, when the
510 National Institutes of Health accepted 14 grant applications electronically.
511 By October 2004, it expects to handle its R-01 grants in a similar manner.

512 Other examples of what government entities are doing on their home
513 pages include *webcasting*, or audio and video sent through the Web. A popular
514 type of webcast is *streaming*. When an audio and/or video file is *streamed*, it
515 means that the user can hear or see the file without having to wait for the
516 entire file to download. Congressional committees often engage in
517 webcasting as does HUD when it provides live coverage of training and
518 public events through its home page.
519

520 Government Web sites also provide users with more interactive
521 functionality, enabling them to create, modify, or customize available
522 government information to meet their specific and individual needs. For
523 example, the *National Atlas Online* (USGS, [http://www-atlas.usgs.gov/
524 atlasvue.html](http://www-atlas.usgs.gov/atlasvue.html)), which uses Shockwave, requires that frames be enabled so
525 that users can customize maps interactively within a user's Web browser.
526 *Dumptown Game* (EPA, <http://www.epa.gov/recyclerity/gameintro.htm>),
527 which employs Macromedia's Shockwave, enables users to watch the image
528 move and change as they interact with the program as the hypothetical city
529 manager of Recycle City. The EPA also has *EnviroMapper* ([http://maps.epa.
530 gov/enviomapper/](http://maps.epa.gov/enviomapper/)), which provides users with interactive GIS functionality
531 using EPA spatial data for the conterminous United States.
532

533 II. Issues

534 This section highlights five issues: (1) restructuring and consolidating a major
535 educational program; (2) Web privacy; (3) the extent of use, misinformation,
536 and disinformation; (4) data quality; and (5) section 508 compliance. While
537 these issues tend to represent progress, or steps forward, some readers might
538 see certain aspects as impeding the furtherance of
539

- 540 • public participation in e-government and the availability of information
541 (providing accountability, informing the public, and enabling people to
542 lead better and more productive lives); and
- 543 **Q3** • the creation of new services (serving the public better and in new and create
544 ways).
545
546

A. ERIC Restructuring

Despite the innovations highlighted in the previous section, there is some concern that not all of the services that the government provides online actually advance e-government; in fact, they might represent steps backwards. A good example occurred in spring 2003 when the Department of Education announced a massive restructuring of the Educational Resources Information Center (ERIC) by eliminating the clearinghouse and many of its user services. The department also announced its intent to change the content of, and the number of journals covered by, ERIC's database. Since the announcement these clearinghouses have been consolidated under one contractor and that contractor manages the electronic publishing, dissemination, and archives collection. The contractor is also designing a Web site that will "make information accessible in a user-friendly, timely, and efficient manner."³⁴ "Many researchers conceded that the current system has redundancies and can be difficult to navigate electronically. But some worry that the proposed streamlining would involve elimination of valuable services, materials, and expertise." Furthermore, some of the material deleted from coverage in ERIC may not be readily accessible elsewhere, thereby "curtailing access to information."³⁵ As is evident, educators and others will monitor the new ERIC to determine if it represents a step forward or backwards.

B. Privacy

Government entities might gather and store data on individuals who use their home pages; however, any data collected should not impinge on the public's right to privacy as recognized in the Bill of Rights and existing statutes and regulations. Any analysis that government entities do with the data they collect should be at the aggregate, not individual, level. Furthermore, any data that these entities collect should not monitor individuals' repeated use of a Web site or Web page. When those entities use cookies—small computer files placed in a Web site visitor's hard disk that track that person's travels on the Web to determine who visited the site recently and how that person got there—those files should not gather invasive information about people and their online use, nor should they track search behavior without user consent.

OMB lets government entities use *session cookies* that expire once the user closes the Web browser at the end of an online session, but prohibits them from employing *persistent cookies* that only expire after a specific time. Thus, it is important for government entities to explain their policy about any use of cookies and the type used on the opening screen of their home page. Many do not do this, however. Thus, does the use of cookies represents a step forward or backwards?

589 In Memorandum M-00-13 issued on June 22, 2000, OMB reminded each
590 agency of its requirement “to establish clear privacy polices for its web
591 activities and to comply with those policies.”³⁶ Furthermore,

592
593 Particular privacy concerns may be raised when uses of web technology can track the
594 activities of users over time and across different web sites. These concerns are especially
595 great where individuals who have come to government web sites do not have clear and
596 conspicuous notice of any such tracking activities. “Cookies”—small bits of software that
597 are placed on a web user’s hard drive—are a principal example of current web technology
598 that can be used in this way. The guidance issued on June 2, 1999, provided that agencies
599 could only use “cookies” or other automatic means of collecting information if they gave
clear notice of those activities.

600 Because of the unique laws and traditions about government access to citizens’
601 personal information, the presumption should be that “cookies” would not be used at
602 Federal web sites. Under this new Federal policy, “cookies” should not be used at Federal
603 web sites, or by contractors when operating web sites on behalf of agencies, unless, in
604 addition to clear and conspicuous notice, the following conditions are met: a compelling
605 need to gather the data on the site; appropriate and publicly disclosed privacy safeguards for
606 handling of information derived from “cookies”; and personal approval by the head of the
607 agency. In addition, it is federal policy that all Federal web sites and contractors when
608 operating on behalf of agencies shall comply with the standards set forth in the Children’s
609 Online Privacy Protection Act of 1998 with respect to the collection of personal information
online at web sites directed to children.³⁷

610 Agencies have complied by making an effort to inform their visitors. For
611 example, NASA’s policy states that

612
613 NASA uses advanced technologies as part of its core mission to discover and inform. Cookie
614 technology may be implemented at some NASA Web sites. At no time is private
615 information you have given us, whether stored in cookies (persistent) or elsewhere, shared
616 with third parties that have no right to that information. If you do not wish to have
617 persistent cookies stored on your machine, you can turn them off in your browser. However,
618 this may impact the functioning of some NASA sites.

619 We may collect and store information for statistical purposes. For example, we may
620 count the number of visitors to the different pages of our Web site to help make them more
621 useful to visitors. This information does not identify you personally. We automatically
622 collect and store only the following information about your visit:

- 623 1. The Internet domain (for example, “xcompany.com” if you use a private Internet access
624 account, or “yourschool.edu” if you connect from a university’s domain) and IP address
625 (an IP address is a number that is automatically assigned to your computer whenever you
626 are surfing the Web) from which you access our Web site;
- 627 2. The type of browser and operating system used to access our site;
- 628 3. The date and time you access our site;
- 629 4. The pages you visit; and
- 630 5. If you visited this NASA Web site from a link on another Web site, the address of that
631 Web site.

The information that you provide on a NASA Web site will be used only for its intended purpose, except as required by law or if pertinent to judicial or governmental investigations or proceedings.³⁸

The US Mint's home page includes a link to its cookies policy by using an image of a chocolate chip cookie. However, in their posted privacy policies, the Web sites of most government entities (including NASA and the US Mint) clearly state that it is the responsibility of the visitor to either turn off the ability to accept cookies in their browsers, or, as in the case of the US Mint, to "delete any US Mint.gov cookies from your hard drive" after leaving the site.³⁹ Nonetheless, they fail to offer information about how to turn off the application or how to delete cookies from one's hard drive. This issue comes important if government entities, contrary to OMB's policy, use persistent cookies.

C. Extent of Use, Misinformation, and Disinformation

In its report, *The Rise of the E-Citizen: How People Use Government Agencies' Web Sites*, the Pew Internet & American Life Project estimated, for instance, that

- "68 million American adults have used government agency Web sites... They exploit their new access to government in wide-ranging ways, finding information to further their civic, professional, and personal lives. Some also use government Web sites to apply for benefits, engage public officials, and complete transactions such as filing taxes.
- 42 million Americans have used government Web sites to research public policy issues.
- 23 million Americans have used the Internet to send comments to public officials about policy choices.
- 14 million have used government Web sites to gather information to help them decide how to cast their votes.
- 13 million have participated in online lobbying campaigns.
- Most government Web site visitors are happy with what they find on the sites; 80% of them say they find what they are seeking on the Web sites."⁴⁰

Not surprisingly, when asked about any future terrorist attacks on the nation's homeland, those responding to different poll indicated that in such an eventuality they would rely on television and radio, not government Web sites, for up-to-date news coverage. They would also expect government to provide the media with reliable information for inclusion in its reporting.⁴¹

With so many people using US government on the Web, it would seem that they place trust in government and the resources provided. Furthermore,

673 with portals such as FirstGov providing access to resources across branch and
674 level of government, there is an effort to create transparency of government.
675 Finally, there is a belief that government Web users, more than other Internet
676 Q4 surfers, tend to be affluent and educated.”⁴² To change these demographics,
677 the number of government home pages containing resources in languages
678 other than English has increased over the past couple of years. As well, the
679 three branches of government have more than 70 sites aimed at primary and
680 secondary students, parents, and teachers.⁴³ Yet, some members of the public
681 now question the reliability of information presented on some executive
682 branch home pages and they charge that such information reflects the
683 conservative ideology of the Bush administration.⁴⁴ If the administration is
684 not careful, there could be an erosion of public trust in e-government.

685 Finally, misinformation applies to honest mistakes and information that
686 computer hackers post on government home pages, whereas disinformation
687 relates to the intent of government to deceive others, often governments
688 hostile to the United States and terrorist groups. Much government and other
689 information presented on the Web is unfiltered, and there may be a desire to
690 deceive or confuse—to shape and sway public opinion in the United States
691 and elsewhere. The Web is a means to convey information, data, and
692 messages—truthful, deceptive, or somewhere in between—to an audience.
693
694
695

696 D. Data Quality

697 The Treasury and General Government Appropriations Act (P.L. 106-554)
698 directed OMB to issue guidelines that ensure and maximize “the quality,
699 objectivity, utility, and integrity of information (including statistical
700 information) disseminated by Federal agencies in fulfillment [of]...the
701 Paperwork Reduction Act” (section 515). In 2001, OMB issued the
702 guidelines, which were then revised in September 2003. In response to
703 Q2 criticisms raised during the public comment period, OMB stated that “it does
704 not envision administrative mechanisms (appeals about the quality of specific
705 datasets) that would burden agencies with frivolous claims. Instead, the
706 correction process should serve to address the genuine and valid needs of the
707 agency and its constituents without disrupting agency processes.⁴⁵ Undoubt-
708 tedly, nobody would object to increased efforts to ensure that the government
709 only disseminates data of the high quality. However, charges of inferior
710 quality should neither inhibit public access to government information nor
711 interfere with existing rulemaking processes. Despite OMB’s assurance, there
712 is concern that the guidelines might be misused to delay, manipulate, and
713 influence the outcome of agency reviews.
714

E. Section 508 Compliance

Amendments to the 1973 Rehabilitation Act, enacted in 1986, created Section 508, which became operational in June 2001, and “requires federal departments and agencies to ensure that their development, procurement and maintenance of electronic and information technology allows people with disabilities—both employees and the public—to have access to information and data comparable to those without disabilities.”⁴⁶ At first, agencies did not understand their responsibilities under the new law. Many of them still “do not know how to comply with...[it].”⁴⁷ Yet, if people with disabilities cannot benefit from all six parts of e-government (as identified in Fig. 1), the resulting barrier represents one step backwards. Unless any redesign of government Web sites complies with Section 508, those with disabilities will not have access to the diverse content of government on the Web, thereby increasing the digital divide.

III. Definite Barriers to Information Access (One Step Backwards)

In preparing and updating the content of *US Government on the Web* (Libraries Unlimited, 1999; now in its third edition), we have identified a number of features on government Web sites that would further public access. However, there are significant inconsistencies among Web sites as to the presence of these features (e.g., site maps and search engines that permit advanced searching).⁴⁸ Barriers—be they physical, economic, or technological—impede e-governance and the flow of information and services to citizen, businesses, and national and subnational government. “These barriers may be actively imposed by government, or they may be allowed to continue simply through lack of action by government.”⁴⁹ Furthermore, these barriers hinder progress and, in some instances, are counterproductive—they clearly represent steps backwards.

By using link-checking software, we have monitored the extent to which Web addresses listed in *US Government on the Web* are unstable (see Table I). Dead links are URLs that no longer function, whereas, with redirected links, the URL has changed. However, the user is redirected from the old URL to the new one. Most redirected URLs are temporary, and later become dead links. Additionally, redirected URLs do not update browser bookmarks.

The numbers and percentages would be much more dramatic if we had included the number of changes made to URLs at the time of the page proof stage of production for each edition. Clearly, for whatever reason, government entities frequently revamp their Web sites and pages, and the

Table I
Dead and Redirected Links in *US Government on the Web* (Libraries Unlimited)

	Total links	Dead links	Redirected links	Percentage
From 1st edition (1999)	920	253	279	57.8
From 2nd edition (2001)	1272	99	234	26.2
From 3rd edition (2003) ^a	1668	16	80	5.8

^a These numbers are current as of December 3, 2004.

presentation of their digital information resources. The problem is that, over time (better measured in years than months), URLs change as government entities expand their Web-based content. This results in a revision of URLs on the Web pages within the site, changing content as government entities revise their mission (e.g., those entities impacted by homeland security) and as Web sites evolve in applications deployed (e.g., improved graphics and changes in standards applied, such as XHTML replacing HTML). Thus, as the content of the second and third editions ages, the percentages will become more dramatic and perhaps equal those of the first edition.

Table I suggests that there might be a need for government (in particular OMB) to develop performance measures to determine an acceptable percentage of dead and non-functioning redirected links. In some sectors, an error rate of 1% is acceptable. The percentages listed in **Table I** far exceed this. OMB, as charged by the E-Government Act of 2002, should investigate this issue as it considers the impact of changed URLs, dead links, and non-functioning redirected links on long-term public access to the content of Web sites. It would seem that dead, and non-functioning redirected, links pose the greatest barrier to public access.

As federal government Web sites evolve to include more information or attention-attracting features such as Flash (Macromedia) graphics, the complexity of Web addresses (URLs) increases. For example, many federal Web pages now end in extensions such as “.asp” and “.jsp” rather than the older and more common “.htm” or “.html” extensions. “JSP” extensions refer to Java Server Pages technology, while “ASP” refers to Active Server Pages. These modules are intended to extend the capabilities of a Web server to provide dynamic Web scripting/programming that offers platform independence, enhanced performance, ease of administration, and, most importantly, ease of use. However, to take advantage of these applications, the deployed Web address should include the extension in order to inform transparently the user’s browser of the need for specific plug-ins to execute the module.

799 Additionally, as federal Web sites increase in the number of pages
800 available and services offered, the URLs are becoming physically longer and
801 specific in an effort to provide easier navigation for the user to the specific
802 information wanted. While the intent is sound, the resulting URLs are
803 becoming increasingly long and undecipherable. Furthermore, the URLs
804 are often revised as government Web managers continue to reorganize their
805 sites to improve site navigation which is increasingly important as the Web
806 sites expand both in the content and presentation, and to improve site
807 management, including its reliability for user availability.
808
809

810 **IV. A Modest Research Agenda**

811
812 The research involved in the collection of data relevant to the analysis of
813 information policies, and the improvement and the delivery of services and
814 information, related to e-government has relied on multi-method data
815 collection. These methods include the use of survey, in-person and focus
816 group interviews, content analysis, transaction log analysis, usability studies,
817 obtrusive evaluation, eye tracking studies, and so forth. Additional research
818 might:

- 819 • Expand the tool chest of methods (e.g., use verbal protocols such as think
820 aloud/think after protocol).
- 821 • Investigate how individuals with disabilities navigate, select, and use
822 government Web sites and their content.
- 823 • Apply a revised SERVQUAL instrument from marketing to determine
824 citizen expectations of government services and information dissemination.
825 SERVQUAL deals with the gap between citizen expectations and the
826 actual delivery of services and information.
- 827 • Conduct more detailed examinations of users of government home pages,
828 their use patterns, preferences, and satisfaction. For example, who uses the
829 home pages of sites aimed at the nation's (or global) youth? To what extent
830 are resources in non-English languages used and by whom?
- 831 • Determine the extent of errors (e.g., broken links) on government Web
832 sites and compare the results to a study in the United Kingdom that found
833 UK sites "have, on average, 600 errors each."⁵⁰
- 834 • Investigate the principle of three-click access proposed by the Bush
835 administration. The Bureau of Economic Analysis claims, "everything [on
836 its home page] is reachable with two clicks of the home page."⁵¹ This claim,
837 as well as that for FirstGov that desired information or a service should be
838 reachable within three clicks, should be tested. Such claims could be con-
839 verted into performance or other measures that reflect a citizen perspective.
840

841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882

- Determine how many people currently use the GPO depository library program and for what purposes. How does the public use GPO Access to locate and retrieve information? When people seek access to government information remotely or off-site, do they use the depository home page? If yes, for what purposes? How satisfied are users with depository library services and electronic links? How do depository libraries help to advance e-government as depicted in Fig. 1?

Government entities within all three branches of government place large quantities of statistical data on their Web sites as electronic tables in column format. Educators Gary Marchionini and Xiangming Mu examined how people use “highly compressed and highly structured” e-tables, and they designed and tested a Web-based browser to assist the public in using these tables. Figures 2–7 of their article plot eye movement for tasking a simple lookup, a comparison, and trend analysis.⁵² Eye movement studies, as well as other types of data collection, could be applied more broadly to electronic tables and to have people navigate government portals. If they encounter page after page of screen listings presumably relevant to their search, how do they decide which items to select? Do they use only the first screen (e.g., of FirstGov), or do they know how to read all of the entries (even if 500–1000 items are listed) and how to separate perishable (e.g., press releases) from other kinds of information resources (e.g., reports)? Also, what prototype interface tools can be developed to simplify information identification, retrieval, and use?

Accenture, a global management consulting and technology services company, has conducted a number of studies on e-government in the United States and elsewhere. Those studies provide comparative evidence of the emergence of e-government globally and suggest that e-government initiatives develop in five distinct stages: online presence, basic capability, service availability, mature delivery, and service transformation.⁵³ With more government entities apparently engaged in service transformation, are there additional stages? If Accenture’s characterization is correct, are there differences in the mature delivery and service transformation stages within the Web sites of a government entity, across entities, and across branches of government? If there are differences, what is their significance?

The Benton Foundation released a report, *Achieving E-Government for All*, which documents that

information on most government websites is skewed to the needs and abilities of highly educated English speakers. For low-literate populations, the Web remains an untapped resource. People with disabilities, such as those with visual impairments, continue to struggle with government websites that don’t address their needs.⁵⁴

883 Furthermore, “inaccessible, unreadable government websites affect real
884 people—those who often can no longer find what they need in the offline
885 world, as governments migrate critical information and services to cyber-
886 space.” The report also notes that “half of American are reading at the eight-
887 grade level or lower,” whereas many Web sites require an eleventh grade
888 Q4 reading level.” Regarding accessibility of Web sites, “47 percent of federal
889 sites satisfied the W3C [World Wide Web Consortium] standard of
890 accessibility [for priority level one]” and “22 percent...were in compliance
891 [with Section 508 guidelines].”⁵⁵

892 These statistics suggest that researchers might apply tools, such as the
893 online Bobby service (<http://bobby.watchfire.com>) to test different Web sites
894 within executive and legislative branches. For example, the White House
895 home page (<http://www.whitehouse.gov/>) “does not yet meet the require-
896 ments for Bobby AAA Approved status.” When home pages identify target
897 audiences (e.g., the general public and kids), and when pages provide
898 information in languages other than English, what is their rating and how
899 readable are they? How can the information compiled be used to improve the
900 rating of these sites?

901

902

903

903 V. Implications of E-Government to Libraries

904

905 The increasing emphasis of the federal government on e-government
906 initiatives and efforts results in a shift from being a limited distributor of
907 information products and services to being a 24/7/365 direct information
908 provider. In the past, the government has used (but not exclusively) the GPO
909 for printing services and depository library programs (e.g., those of the
910 GPO, Patent and Trademark Office, and the Bureau of the Census) to
911 provide the public with physical access to its information products. However,
912 e-government programs have decentralized the accessibility of government
913 information from fewer than 1500 GPO depository libraries and one physical
914 government bookstore to the millions of consumers with access to a
915 computer and the World Wide Web. E-government enables government
916 entities to be citizen-centered when it comes to information distribution and
917 dissemination. In fact, FirstGov was designed as a portal to e-government
918 enabling users to interact with a government information provider directly
919 through its Web site.

920 Such ubiquitous decentralization is not without its problems. Since
921 almost any federal entity can literally publish almost anything it compiles,
922 there may be a reduction in quality control concerning content and

923

924

925 presentation. Permanent accessibility to available information is questioned—
926 who is responsible for preserving the content if it is in electronic format and not
927 distributed to an appropriate source, such as a library, for physical accessibility
928 and archiving? Web pages and their content disappear without warning, and
929 Web-based addresses for documents and services are often revised without
930 proper re-direction. Web sites reflect the institutional and organizational
931 culture of their maintainers—navigation may become unnecessarily compli-
932 cated as the site’s content and services expand while the products and services
933 are inadequately indexed so as to be easily lost while using internal site search
934 engines. As a result, users are left with an increasing maze of navigation and
935 content that renders their information seeking frustrating and futile.

936 Web content does not necessarily adhere to the traditional model of the
937 life cycle of government information.⁵⁶ New information may never be
938 posted to an agency’s Web site; a document may be deemed to be “internal”
939 and not for public consumption, unavailable because of national security, or
940 not fitting with the politically driven image of the information producer/
941 provider. Flawed information may be quickly removed and not replaced.
942 Information may only be available for a short time on the Web, and its print
943 counterpart never produced. Information previously difficult to destroy
944 because of its distribution to a multiplicity of physical facilities may be
945 irretrievably lost with a few keystrokes.

946 Outsourcing of federal information becomes easier. Third parties seek to
947 protect their investments in adding value to federally produced information.
948 For example, in November 2002, the Department of Energy’s Office of
949 Scientific and Technical Information discontinued PubScience, an indexing
950 and abstracting service, because private-sector companies such as Scirus
951 (<http://www.scirus.com/>) and Infotrieve ([http://www4.infotrieve.com/index.
952 asp](http://www4.infotrieve.com/index.asp)) offered comparable, and competitive, services.

953 Libraries have always added value to federal information by acquiring,
954 cataloging, shelving, and otherwise preparing and maintaining federal
955 information for user accessibility. Value-added library services are necessarily
956 shifting from locator, shelver, and preserver to “access facilitator” as federal
957 information continually migrates from ink on paper to electronic formats.
958 Permanent preservation of information is certainly a long-term availability
959 issue that is important to future research needs, the individual user,
960 businesses, and government itself. However, the management surrounding
961 the federal government’s shift from a traditional information cycle to the
962 electronic cycle is a larger cultural, research and accessibility issue than
963 libraries alone can address.
964
965
966

967 VI. Conclusion

968 A. Information Policy

969 Given the complexity and the sheer size of the federal government, one
970 purpose of e-government is to be citizen-centered through the creation of
971 greater transparency or structures that allow the public, government, and
972 businesses to track issues, services, and information throughout the entire
973 organization and across organizations. As Robert D. Carlitz, Executive
974 Director of Information Renaissance (<http://www.info-ren.org/>), and
975 Rosemary W. Gunn, National Project Manager of Information Renaissance,
976 explain, transparency is “more than an E-government buzzword or a “good
977 government” goal”; for instance,
978

980 Regulated entities find it easier to do business when the process of regulation is more
981 predictable. Agencies themselves have a need to organize and access information across
982 internal agency boundaries. When information is not readily available, an agency is apt to be
983 less efficient in assessing and reacting to its environment, including its ability to defend or
984 enforce existing regulations, or to incorporate stakeholder viewpoints in new rules.⁵⁷

985 However, despite the improvements in government Web sites and the
986 intention to make government departments and agencies more accountable
987 for their results (see Fig. 1), e-government is not entirely a continuous or
988 unabated progression toward the goal of improved information access,
989 services, democracy and governance, and e-commerce. The numerous
990 changes in, and the length and complex of, URLs, complicate the location
991 and retrieval of needed information. There may be dead links and
992 typographical errors on Web sites. Other steps backwards include the fact
993 that efforts to simplify access to the information and records on a home page
994 may be counterproductive. Given the Bush strategy and its application by
995 some agencies, we might ask, “How much material can or should be retrieved
996 within three clicks of the mouse?”

997 The E-Government Act of 2002 established an Office of Electronic
998 Government (OEG) within OMB and charged it to work with the Office of
999 Information and Regulatory Affairs and other offices within OMB. OEG has
1000 a role in ensuring “access to, dissemination of, and preservation of
1001 Government information” (Section 3602(e)(5)) and in providing “overall
1002 leadership and direction to the executive branch on electronic Government”
1003 (Section 3602(f)(3)). Any steps backward should be labeled as one of the
1004 “disparities in access to the Internet” (Section 215) and corrected.

1005 Finally, the war on terrorism influences the extent to which all aspects of
1006 Fig. 1 can be achieved. Assuming the availability of sufficient funds, the full
1007 vision of e-government cannot be achieved as long as there is no attempt to
1008

1009 balance (or to discuss what the proper degree of balance is between) open and
1010 closed access. To what extent does scientific, economic, and technological
1011 progress, as well as an informed citizenry, necessitate an even-handed
1012 balancing of the scale? Does the war on terrorism serve as an excuse to expand
1013 the amount of information and records outside public scrutiny? Clearly,
1014 policy makers, together with concerned public interest groups, should enter
1015 into a discussion of Fig. 1 and the proper balance between open and closed
1016 access to government information and records.
1017
1018

1019 **B. Role of Library Community**

1020
1021 Despite the efforts of the government since the 1900s to make e-government
1022 more transparent, access to government information and services, and the
1023 range of topics covered in Fig. 1, can be very difficult. People searching for
1024 government information resources need a good understanding of how the
1025 government works, the structure of government, terminology (e.g., the
1026 difference between a *report* and *committee print*, a *record* and *information*, a
1027 *statute* and a *regulation*, and the *Statutes at Large* and the *United States Code*),
1028 the role that different agencies play (e.g., the GAO as the investigative agency
1029 for Congress), and the realization that government Web sites might end with
1030 an extension other than .gov or .mil.
1031

1032 Librarians, more than those serving in a depository collection, can play
1033 an important role in assisting the public in coping with such issues. However,
1034 those librarians must have a good understanding of how to navigate the Web
1035 given these issues. Yet, many librarians feel uncomfortable in dealing with
1036 government information; to them navigation of government information
1037 resembles having to cope with a “foreign language,” one for which they have
1038 received inadequate training. Even students in graduate programs in library
1039 and information science tend to avoid a course on government information.
1040

1041 Given the efforts of the national government to advance e-government,
1042 librarians should confront their reluctance and biases, and assume a major
1043 role in providing their constituent groups with knowledge about how to
1044 gain access to government information and services, and to participate in
1045 e-governance. The challenges are manifold, but there are numerous
1046 advantages given the fact that so many people now use e-government for
1047 one purpose or another, and the government is expanding the list of
1048 constituents it is trying to serve online. Most importantly, helping the
1049 communities they serve to participate fully and effectively in e-government
1050 falls within the scope of the missions that most academic and public libraries,
as well as their parent organizations, expound.

References

- 1051
1052
1053 Brademus, J. (1971). Congress in the year 2000, In *The Future of the U.S. Government: Toward the Year 2000*. (H. S., Perloff ed.) George Braziller, New York, NY.
- 1054
1055 Capron, W. M. (1971). The Executive Branch in the year 2000, In *The Future of the U.S. Government: Toward the Year 2000*. (H. S., Perloff ed.) George Braziller, New York, NY.
- 1056
1057 Forman, M.A. (2001). Associate Director for IT and E-Government, Achieving the Vision of E-government, Office of Management and Budget, Washington, DC (October 1, 2001), p. 4, available: <http://www.hpcc.gov/pitac/pitac-25sep011format.pdf>.
- 1060
1061 General Accounting Office (2003a). *Electronic Rulemaking: Efforts to Facilitate Public Participation can be Improved*, GA0-03-901, Washington, DC, September.
- 1062
1063 General Accounting Office (2003b). Electronic Government: Progress and Challenges in Implementing the Office of Personnel Management's Initiatives, testimony of Linda D. Koontz, Director, Information Management Issues, before the House Committee on Government Reform, Subcommittee on Technology, Information Policy, Intergovernmental Relations and the Census, General Accounting Office, Washington, DC.
- 1064
1065
1066
1067 Hernon, P. (1994). Information life cycle: its place in the management of U.S. government information resources. *Government Information Quarterly* **11**, 143–170.
- 1068
1069 Hernon, P., Relyea, H. C., Dugan, R. E., and Cheverie, J. F. (2002). *United States Government Information: Policies and Sources*. Libraries Unlimited, Westport, CT.
- 1070
1071 *Implementing the President's Management Agenda for E-Government: E-Government Strategy* (2003). Office of Management and Budget, Washington, DC.
- 1072
1073 McClure, C. R., Bishop, A. P., Doty, P., and Rosenbaum, H. (1991). *The National Research and Education Network (NREN): Research and Policy Perspectives*. Ablex, Norwood, NJ.
- 1074
1075 McClure, C. R., and Sprehe, J. T. (2001). Using U.S. information policies to evaluate federal web sites, In *Evaluating Networked Information Services: Techniques, Policy, and Issues*. (C. R., McClure and J. C., Bertot eds.). Information Today, Medford, NJ.
- 1076
1077 Michael, S. (2003). OMB Issues Privacy Guidance. *Federal Computer Week* **17**, 11 October 6.
- 1078
1079 Presidential Memo: The Importance of E-Government, Egov: The Official Web Site of the President's E-Government, http://www.whitehouse.gov/omb/egov/pres_memo.htm, retrieved May 29, 2003.
- 1080
1081 Relyea, H. C. (2003o). E-Gov comes to the federal government, In *U.S. Government on the Web: Getting the Information You Need*, 3rd ed., (P., Hernon, R. E., Dugan, and J. A., Shuler eds.). Libraries Unlimited, Westport, CT.
- 1082
1083 Willemssen, J.C. (2003). Managing Director, Information Technology Issues, Electronic Government: Success of the Office of Management and Budget's 25 Initiatives depends on effective management and oversight. Testimony before the Subcommittee on Technology, Information Policy, Intergovernmental Relations and the Census, House Committee on Government Reform, GAO-03-495T. General Accounting Office, Washington, DC, p. 4.
- 1084
1085
1086
1087
1088
1089
1090
1091
1092

1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134

Author Queries

JOB NUMBER: 7704

TITLE: The US Government and E-Government: Two Steps Forward,
One Step Backwards?

- Q1** Please check footnote citations 5–15 are not given in text and provide footnotes from 5 to 57.
- Q2** Please check starting double quotes does not have a end double quote.
- Q3** Please check sense of the sentence “new and create ways.”
- Q4** Please check end double quotes does not have a start double quote.
- Q5** Kindly note that the abstract has been deleted as per the style.