A	atomicity, consistency, isolation, and durability (ACID) 308
accounting information system (AIS) 569 ACID (see atomicity, consistency, isolation, and durability) active browsing 13, 21 adoption 347, 622 Advanced Labs for Bioinformatics Agencies (ALBA) 69 after-tax margin 599 agile development 702 software development 141, 152 Agreement on Trade-Related Aspects of International Property (TRIPS) 338 AHP (see analytical hierarchy process) AIS (see accounting information system) ALBA (see Advanced Labs for Bioinformatics Agencies) analytical hierarchy process (AHP) 695 anarchism 362 anarchy 354 Apache 146, 217 HTTP server 152 Software Foundation (ASF) 145, 217 application -development ideology 479 -selection ideology 479 -use ideology 479 service provider (ASP) 344	auditing 569 author -function 12, 13, 22 /owner 396 availability 262, 264, 418 B back door 267 Berkeley Software Distribution (BSD) 632 License 188 beta release 637 version 267 bioinformatics 69, 78 Book Burro 13, 22 BPM (see business performance management) BSA (see Busines Software Alliance) BSD (see Berkeley Software Distribution) business intelligence analytics 531 model 504, 531, 554, 589, 605 performance management (BPM) 308 strategy 605 Business Software Alliance (BSA) 162, 166 C
architectural constraints 273 architecture governance 481 ASF (see Apache Software Foundation) ASP (see application service provider) asset 493 turnover ratio 602 assimilation 311, 325	CAL (see client access license) capability maturity model (CMM) 209, 481, 693 capstone project 679 cascading style sheets (CSS) 694 CASE (see computer-aided software engineering) case study 80, 91, 280 CCIDNET 114 CC licenses 385 CDS (see closed data standards)

central processing unit (CPU) 245 CGI program 630 change process management 622 client -server infrastructure 242 access license (CAL) 246, 252 closed	copyright 338, 349, 367–372, 441 /patent 396 protection 328 core competency 589 developers 171 cost
data standards (CDS) 310 proprietary software 626 source software (CSS) 195, 309, 351 CMC (see computer-mediated communication)	avoidance 295 savings 105 sharing 295 COTS
CMM (see capability maturity model)	(see commercial off-the-shelf)
CMS (see content management system)	integration 140
co-production 531	CPU (see central processing unit)
code 362	Creative Commons (CC) 382–393
quality 270	licenses 392
coding standard 702	critical success factor (CSF) 155, 166
collaborative	CRM (see customer relationship management)
software design 127	cross-functional integration 569
technologies 111, 114	CSF (see critical success factor)
collective invention 228, 238	CSS (see closed source software)
commercial	CUI (see customer and user involvement)
off-the-shelf (COTS) 134	current ratio 599
common warehouse model (CWM) 488	customer
communitarianism 6, 11	and user involvement (CUI) 522, 531
community 169–183, 182–183, 199, 209, 347	relationship management (CRM) 531, 559
-based innovation 230	customers' lock-in 423
customer 514, 520	CVS (see concurrent versioning system)
of practice (CoP) 231, 611, 623	CWM (see common warehouse model)
participation 508	cybercollaboratories 127
support 203	cybercrime 475
competitive strategy 589 component (see also module)	cyberterrorism 475
computational costs 240	D
computer	-
-aided software engineering (CASE) 679, 690	data
-mediated communication (CMC) 639	analysis 283, 293
science (CS) 672	mining 283, 293
computing practices 102	standard 309, 325
concurrent versioning system (CVS) 263, 267	database 308
connection manager 252	management system (DBMS) 295, 569
constructivist 689	DBM (see database management system) DBMS (see database management system)
content management system (CMS) 255-268	denial of service (DoS) 475
context 280	dependency 458
factors 274	deployment 310, 325
contract 240, 252	derivative work 397
convergent technologies 114	derived works 188
cooperative	design
information systems 70, 78	for appropriation 467
services 70	phase 157
CoP (see community of practice)	desktop 85, 91
copyleft 1, 4, 11, 187, 195, 356, 362, 366–372, 372, 384, 392	OSS 154–167, 167

destructive application ideologies 479	Office 338
developing countries 94, 101, 103	evaluation 540, 647
development	criteria 647
practices 284, 293	framework 284
software life cycle (DSLC) 679	process 274
digital	team creation 275
economy 445	extensible businessr reporting language (XBRL) 569
right management 441	external
Digital Commons 47–67, 60	network 120
Directory of Open Access Journals (DOAJ) 699	observer 117, 125
dissipation 238	extraction transform and load (ETL) 483
distribution license 215	extreme programming (XP) 142
DOAJ (see Directory of Open Access Journals)	extrinsic motivations 230, 238
documentation 204, 209, 264	T
project 222	F
domain model 702	F/OS
DoS (see denial of service)	(see free/open source)
drug discovery 69, 78	FAQ (see frequently asked question)
DSLC (see development software life cycle)	FDD (see feature-driven development)
E	feature-driven development (FDD) 142
L	final
e-	evaluation 276
administration law 431	release 142, 149, 152
experiment 69, 78	Firebird 298
learning 638, 647	firm 508
science 69, 78	flexibility 105, 342, 418
EAI (see enterprise application integration)	FLOSS (see free/libre open source software)
earning platform (LP) 639	research 282–293
earnings 605	fork (software development) 45
per share (EPS) 536, 598, 605	forking 267
Eclipse Public License (EPL) 188	formal specification 702
economic regulation 424	forum 211, 226
editing macros (EMACS) 40, 45	frame analysis 467
educational knowledge portal (EKP) 638	framework 117, 125
efficiency in the public sector 418	free
EKP (see educational knowledge portal)	/libre open source software (FLOSS) 30, 33, 45, 51,
electronic dissemination 657	60, 94, 101, 230, 240, 282, 394, 460, 590
EMACS (see editing macros)	/open source (F/OS) 412
empirical evaluation 280	access 373–381
engine 267	to law movement 373
enhanced competition 418	and open source software (FOSS) 91, 681, 689
enterprise	cash flow 605
-scale business systems 559	distribution 270
application integration (EAI) 488	educational book 222
system 560 EPC (and European Patent Convention)	redistribution 187 rider 521
EPC (see European Patent Convention)	
epistemic community 231	software (FS) 1–11, 24, 33, 60, 94, 101, 186, 195,
EPO (see European Patent Office) EPS (see earnings per share)	293, 363–372, 372, 452, 577, 647 movement 48, 60
	Free Software
equivocality 128, 140 essential facility 424	Foundation (FSF) 40, 94, 186, 363, 372, 383, 394,
ETL (see extraction transformation and load)	409, 542
European Patent	/GNU project 222
Convention (EPC) 338	French e-administration 441
Contonición (El C) 330	Transma administration and

frequently asked questions (FAQs) 489	I
FS (see free software)	ICT (see information and communication technology)
FSF (see Free Software Foundation)	IDE (see integrated development environment)
functionality 205, 647	IDE (see integrated development environments)
functional requirements 272	Ikea economics 523
G	immaterial labour 50, 60
gateway 241, 252	impact analysis 485
generally recognized as	implementation phase 157
mature (GRAM) 561	information (ICT) 70 114 (CO
safe (GRAS) 561	and communication technology (ICT) 79, 114, 660
General Public License (GPL) 11, 40, 45, 187, 195, 33	diffusion 418
3, 348, 362, 363, 372, 577	system 240
geographic information system (GIS) 446	technology (IT) 625, 671
gift economies 497	governance 481 technology infrastructure library (ITIL) 491
GIS (see geographic information system)	infrastructure 252, 625, 637
GLW (see GNU/Linux-Windows)	initial
GNU 114, 267, 362, 372	public offering (IPO) 533
/Linux-Windows (GLW) 240, 252	requirements analysis 275
General Public License (GNU GPL) 308, 542	integrated
GPL (see GNU General Public License)	development environment (IDE) 119
Lesser General Public License (LGPL) 188	development environments (IDE) 697
goal-question-metric (GQM) 272, 280	integration 206
governance 493	intellectual property (IP) 214, 226, 331, 396, 541
GPL (see General Public License)	terms 396
GQM (see goal-question-metric)	intellectual property right (IPR)
GRAM (see generally recognized as mature)	240, 332, 349, 424, 537
graphical user interface (GUI) 308	interactive relay chat (IRC) 120
design 121	interdependence 118
GRAS (see generally recognized as safe)	internal
Greasemonkey 13, 22	control 569
grid computing 69, 78, 308	network 121
gross	rate of return (IRR) 563
domestic product (GDP) 114	International Data Corporation (IDC) 114
margin 599 GUI (see graphical user interface)	Internet service provider (ISP) 82
GOT (see graphical user interface)	interoperability 70, 78, 259, 264, 321, 418, 441,
H	458, 637
	interoperable software 679
hacker 35, 45	intrinsic
community 4, 11	motivations 230, 238
culture 35, 46	inventory
Hacktivism 479	management 485
Hacktivismo 475	turnover ratio 599
HCI (see human computer interface)	investments 118
high-fidelity prototypes 126	IP (see initial public offering) IPO (see initial public offering)
human-computer interface (HCI) 185	IPO (see initial public offering) IPR (see intellectual property right)
hybrid business model 513	IPRs (see intellectual property rights)
infrastructure 244, 247	IRC (see interactive relay chat)
Hypercard 689	IRR (see internal rate of return)
hypertext markup language (HTML) 694	ISP (see Internet service provider)
hypothesis markup language (111 ML) 074	issue tracking 214, 226

IT business value 531 iteration planning 275	M
iterative	mailing list 211, 226
development 142, 147	maintenance cost 106
prototype development 275	managed learning environment (MLE) 639
software development 280	maturity model 209, 493
ITIL (see information technology library)	meta-model 493
	metadata 493
J	Microsoft Academic Alliance (MSDN AA) 669
Java Carriet 10 22	migration 155, 309, 326
JavaScript 19, 22	mission sensitive nonprofit open source Applications 479
journal management software 657	MIT License 188
jurisdiction 380	MLE (see managed learning environment)
L	modularity 206
	module (see also component)
L-PEST model 451	Mono 669
labor politics/economics 467	morality 27, 33
LAMS (see learning activity management system)	Mozilla 147, 152, 449
LAN (see local area network)	Public License (MPL) 188
law 374, 380	mutuality 118
LDC (see less developed countries)	MySQL 298, 548
learning	N
activity management system (LAMS) 629	1
management systems (LMS) 638	Napster 20, 22
platform (LP) 639	national security 105
support system (LSS) 639	net present value (NPV) 563
legal	Netscape Public License (NPL) 188
environment 452	network
information institutes (LIIs) 375	effect 323, 325
services community 340	studies 125
Legal Services Corporation (LSC) 341, 347	NGOs (see nongovernmental organizations)
less developed countries (LDC) 79, 92	non-functional requirements 273
liberalism 11	nonexcludability 228
license 202, 209, 380, 393	nongovernmental organizations (NGOs) 447, 602
/contract 397	nonprofit 347
agreement 240	organization 505
compatibility 393	nonrivalry 228
management 637	NOS (see network operating system)
manager 252	NPV (see net present value)
Linupy 107, 114	(*************************************
Linux 372, 623, 668	0
distribution 623	OAI (and Ones Annes Initiation)
liquidity ratios 605	OAI (see Open-Access Initiative) OASIS (see Organization for the Advancement of
local	` •
area network (LAN) 594	Structured Information Standards)
e-administration 441	object-relational database management system
localization 458	(ORDBMS) 299, 308
lock-in 321, 325	Object Management Group (OMG) 488, 671
longevity 201–210	ObjectWeb 220
low-fidelity	OCM (see original component manufacturing)
prototypes 128	ODS (see open data standards)
prototyping 128	off-the-shelf
LSC (see Legal Services Corporation)	option (OTSO) 271
LSS (see learning support system)	products 625

offering 554	Organization for the Advancement of Structured
office automation 310, 326	Information Standards (OASIS) 310
OJS (see Open Journal System)	original component manufacturing (OCM) 548
OLAP (see online analytical processing)	OS (see operating system)
OMG (see Object Management Group)	OSD (see Open Source Definition)
online analytical processing (OLAP) 296, 308	OSI (see Open Source Initiative)
Open	OSMM (see open source maturity model)
-Access Initiative (OAI) 649, 657	OSS (see open source software)
Journal System (OJS) 654	candidate selection 275
Source	OST (see Open Source Template)
Definition (OSD) 187, 255, 384, 542	OTSO (see off-the-shelf option)
Eclipse plug-in 117	outsource 680
Initiative (OSI) 187, 383, 394, 409, 542, 632,	n.
639, 671, 680	P
Template (OST) 340, 347	paid support 203
open	pair programming 702
access publishing 389, 393	paper prototyping 128, 140
content 393	patchwork prototyping 126, 126–140, 140
data standards (ODS) 309	patent 338
source 362, 533, 680	law protection 329
community 125, 521	payback period (PB) 563
customer relationship management 521	PB (see payback period)
development 142	PC (see personal computer)
environment 486	PDA (see personal data assistance)
journal management software 649	PDA (see personal data assistant)
learning 689	pedagogy 637
maturity model (OSMM) 198-210, 482, 561, 628	peer
meta-model 489	production 48, 60
movement 511	review 172, 182
project 117, 125, 521	peer-to-peer
repository 484	infrastructure 242
software (OSS) 23, 33, 48, 60, 69, 93, 101,	network 522
102–115, 116, 126, 152, 154, 168–183, 184–	production 531
196, 195, 198, 211–226, 227–239, 269–281,	PERL (see practical extraction and reporting language)
280, 293, 308, 332, 352, 373–381, 431, 495,	per server license 246
533, 541, 555, 570, 577, 590, 610, 623,	personal
625, 648, 659, 669, 681, 690	computer (PC) 155, 257
evaluation 197–210	data
evaluation literature 197–210	assistance (PDA) 491
licenses 382–393, 393	assistant (PDA) 396
market 197	piracy 104
support licenses 410	/copyright infringement 458
Web portals 211–226	PiTR (see point-in-time recovery)
source's social value equation 479	planning phase 157
source software (OSS)	point-in-time recovery (PiTR) 302
development (OSSD) 690	PORE (see procurement-oriented requirements
standard 680	engineering)
technology 228	PostgreSQL 299
operating	power relations 118
margin 599	PPP (see public-private partnership)
system (OS) 368–372, 669	practical extraction and reporting language (PERL) 630
operational maintenance process 517	pragmatism 25, 33
ORDBMS (see object-relational database management	primary materials 374, 376, 381
system)	problem exploration 142. 152

procurement-oriented requirements engineering (PORE) 271	request for proposal (RFP) 564, 569
production community 170–183, 182–183	research and development (R&D) 454
productivity 170–163, 162–163	residual income (RI) 565
paradigm change 680	resource mobilization 467
software 92	resources 554
professional development 637	restrictive license 261
profitability ratios 605	retention ratio 601
properties 117, 125	return on
property rights 228	assets (ROA) 601
proprietary 540	average common equity (ROE) 601
software (PS) 26, 33, 94, 101, 154, 185, 196, 240,	investment (ROI) 155, 458, 486, 563
283, 424, 577, 626, 659	investment (ROT) 155, 456, 466, 565 investment capital (ROC) 601
prototype 274	reusable asset specification (RAS) 488
prototyping 269–281, 281	reuse 493
PS (see proprietary software)	revenue model 546, 554
public	RFP (see request for proposal)
-private partnership (PPP) 429, 436, 441	RI (see residual income)
access 381	rights 240, 252
good 637	ROA (see return on assets)
legal information 374, 381	ROC (see return on investment capital)
license 260	ROE (see return on average common equity)
Public Knowledge Project 654	ROI (see return on investment)
Python scripting language 121	KOT (see return on investment)
1 ymon scripting language 121	S
Q	C
OA (and quality aggregate)	Samba 241, 252
QA (see quality assurance)	scholarly journals 657
QFD (see quality function deployment)	schools 637
QIP (see quality improvement paradigm)	SCORM (see sharable courseware object reference
quality 702	model)
assurance (QA) 199	SDK (see software development kit)
function deployment (QFD) 695	secondary 374
improvement paradigm (QIP) 272, 281	materials 381
quantitative methods 293	security (see also stability)
quasi open source licenses 410	seed company 540
quick ratio 600	serial pricing crisis 657
R	service-oriented
N.	architecture (SOA) 485
rapid	computing (SOC) 69
application development (RAD) 128	sharable courseware object reference model (SCORM)
prototyping 126, 128, 140	629
RAS (see reusable asset specification)	shared software infrastructure program (SSIP) 670, 680
RDBMS (see relational database management system)	small
RDBS (see relational database server)	-scale business systems 558
registered users 215	to medium enterprise (SME) 602
relational	SMP (see symmetric multiprocessor)
database	SOA (see service-oriented architecture)
management system (RDBMS) 295, 308	SOC (see service-oriented computing)
server (RDBS) 548	social
data model 569	-technical approach to COTS evaluation (STACE) 271
relationships 554	mechanism 168, 182
release activity 200	movements 467
rent-seeking 511	order 168, 182
	participation 502, 508

software 52, 60 technologies 48, 60 socially constructed 637 informed algorithm 35, 46 sociotechnical system 127, 140 software development kit (SDK) 120 support 215 engineering (SE) 282, 293, 671, 672, 702 license 260, 264, 372 licensing 554 longevity 209 maturity models 481 migration 92 patent 368–372 pattern 702 project 222 protection 328–339 release activity 210 requirements 206 security 210 tool 680 softwarization 525 source code 93, 101, 184, 187, 196, 424, 554 publication 215 SQL (see structured query language)	participation 502, 509 technological knowledge 228 technology adoption 311 Technology Initiative Grant (TIG) Program 347 TEIs (see tertiary educational institutions) territorial e-administration 441 tertiary educational institutions (TEIs) 660 theory of customer and user involvement (CUI) 524 planned behavior (TPB) 611, 613 Tigris 219 TiVo 368–372 -ization 368–372 total cost of ownership (TCO) 98, 101, 155, 167, 416,
Server 297 SSIP (see shared software infrastructure program) stability (see also security) 106, 186, 262, 264 STACE (see social-technical approach to COTS evaluation) standards 206 startup company 540 strategic planning 569 structural demands/conditions 467 structured query language (SQL) 308, 548	tuXlab 669 U Ubuntu 605 UML (see unified modeling language) uncertainty 128, 140 unified modeling language (UML) 241, 671, 693 United States Patent and Trademark Office (USPTO) 338 usability 186
subsidized open-access journals 658 supercommunity 122 support 202 sustainability 233, 238 sustainable growth rate 601 symbiotic 467 symbolic Capital 467 symmetric multiprocessor (SMP) 303	user awareness 161 community 211, 231, 238, 261, 264 scripts 13, 22 training 161 users/consumers 467 USPTO (see United States Patent and Trademark Office) V
system 117, 125 T task management 226 TCO (see total cost of ownership) technical inbreeding 512	valuation 540 theory 534 value -added resellers (VAR) 563 chain 589

```
network 589
 proposition 589
values 637
VAR (see value-added reselllers)
VC (see venture capital)
vehicle relationship management (VRM) 526
vendor
 customer 514
 lock-in 459
venture
 capital (VC) 535, 540
 capitalist 534
versatility 262, 264
version control 142, 148, 152
 system 226
virtual
 laboratories 71
 learning environment (VLE) 639
VLE (see virtual learning environment)
volume license product key (VPK) 351
VPK (see volume licenses product key)
VRM (see vehicle relationship management)
\mathbf{W}
WAN (see wide area network)
Web
 portal 226
 service definition language (WSDL) 488
 services 69, 78
wide area networks (WANs) 594
Wiki 689
Wikia 689
Wikimedia Foundation 689
Wikipedia 689
World Trade Organization (WTO) 339, 451
WSDL (see Web service definition language)
WTO (see World Trade Organization)
X
XBRL (see extensible business reporting language)
XP (see extreme programming) 1
\mathbf{Z}
zone of proximal development (ZPD) 686, 689
zope 347
ZPD (see zone of proximal development)
```