

List of acronyms, abbreviations and units of measure

ABS	Acrylonitrile butadiene styrene
AFFOA	Advanced Functional Fabrics of America
AFRC	Advanced Forming Research Centre
AI	Artificial intelligence
AIDS	Acquired immune deficiency syndrome
AIM	Accelerated Insertion of Materials
AMNPO	Advanced Manufacturing National Program Office (United States)
AMP	Advanced Manufacturing Partnership
AMRC	Advanced Manufacturing Research Centre
ANSSI	Agence nationale de la sécurité des systèmes d'information
API	Application programming interface
ARM	Advanced Robotics Manufacturing
ARMI	Advanced Regenerative Manufacturing Institute
ASEAN	Association of Southeast Asian Nations
ASCPM	Advanced Sensing, Control, and Platforms for Manufacturing
ATE	Advanced Technology Education
ATI	Aerospace Technology Institute
ATJ	Alcohol-to-jet
ATP	Advanced Technology Programme
BDC	Business Development Bank of Canada
BEA	Bureau of Economic Analysis (United States)
BLS	Bureau of Labor Statistics (United States)
BMBF	Federal Ministry of Education and Research (Germany)
BMS	Business management system
BRICS	Biological Robustness in Complex Settings
BRIICS	Brazil, the Russian Federation, India, Indonesia, China and South Africa
BSE	Bovine spongiform encephalopathy
CAD	Computer-aided design
CAGR	Compound annual growth rate
CASA	Center for Applied Simulation and Analytics
CCEMC	Climate Change and Emissions Management Corporation
CCEMF	Climate Change and Emissions Management Fund
CEO	Chief executive officer
CER	Comparative effectiveness research
CES	Current Employment Statistics
CFRP	Carbon fibre-reinforced polymer
CIRP	International Academy for Production Engineering (France)
CLA	Contributor License Agreement

CLAD	Construction laser additive directe
CLEEN	Cluster for Energy and Environment (Finland)
CLIP	Continuous liquid interface production
CMOS	Complementary metal oxide semiconductor
CNC	Computer-numeric-control
CNN	Convolutional and deep neural network
CNT	Carbon nanotube
COI	Centers of Innovation
COMAC	Commercial Aircraft Corporation of China
CPI	Centre for Process Innovation
CPPCC	Chinese People's Political Consultative Conference
CPU	Central processing unit
CREATE	Campus for Research Excellence and Technological Enterprise
CRMI	China Regenerative Medicine International
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSIS	Center for Strategic and International Studies
CSTI	Centre for Science, Technology and Innovation
DARPA	Defense Advanced Research Projects Agency (United States)
DDI	Data-driven innovation
DFE	Design for environment practices
DFG	German Research Foundation
DLP	Digital light processing
DMD	Direct metal deposition
DMDII	Digital Manufacturing and Design Innovation Institute
DMLS	Direct metal laser sintering
DNA	Deoxyribonucleic acid
DNN	Deep neural network
DT	Data technology
EC	Ethical concern
EDF	Electricité de France
EEMS	Exploiting the Electromagnetic Spectrum
EERE	Energy Efficiency and Renewable Energy
EFFRA	European Factories of the Future Association
EFMN	European Foresight Monitoring Network
EFSA	European Food Safety Authority
EIB	European Investment Bank
ELSI	Ethical, legal, and social issue
EPEAT	Electronic Product Environmental Assessment Tool
EPO	European Patent Office
EPR	Extended Producer Responsibility
ERP	Enterprise resource planning
ERPP	Environmentally responsible public procurement
ERS	Economic Research Service
ESRC	Economic and Social Research Council
EU	European Union
FAQ	Frequently asked question
FDA	Food and Drug Administration (United States)

FDI	Foreign direct investment
FDM	Fused deposition modelling
FFF	Fused filament fabrication
FLAMEL	From Learning, Analytics, and Materials to Entrepreneurship and Leadership
FMD	Floating Mobile Data
FoF	Fund of Funds
FOREN	Foresight Regional Development Network
FYP	Five-Year Plan
g/cm³	Grammes per square centimetre
GBAORD	Government Budget Appropriations or Outlays for Research and Development
GDP	Gross domestic product
GHG	Greenhouse gas
GIS	Geographic information system
GM	Genetically modified
GMC	Genetic modification of crops
GMO	Genetically modified organism
GNSS	Global navigation satellite system
GPS	Global positioning system
GPT	General-purpose technology
GPU	Graphics processing unit
GVA	Gross value-added
GVC	Global value chain
HFEA	Human Fertilisation and Embryology Authority (United Kingdom)
HGP	Human Genome Project
HIT	Human intelligence task
HMIS	Hazardous Materials Identification System
HND	Higher National Diplomas
HVM	High Value Manufacturing
IaaS	Infrastructure-as-a-service
IACMI	Institute for Advanced Composites Manufacturing Innovation
IAR	Industries and Agro-Resources
ICME	Integrated Computational Materials Engineering
ICT	Information and communication technology
IDC	International Data Corporation
IEA	International Energy Agency
IEEE	Institute of Electrical and Electronics Engineers
IMF	International Monetary Fund
IMSI	International mobile subscriber identity
IoT	Internet of Things
IP	Intellectual property
IPO	Intellectual Property Office (United States)
IPR	Intellectual property right
IR	Industrial robot
IRAP	Industrial Research Assistance Program
IT	Information technology
ITO	Indium tin oxide
IVF	In vitro fertilisation

JBPA	Japan BioPlastics Association
JRA	Junior Research Associate
KAIST	Korea Advanced Institute of Science and Technology
KBC	Knowledge-based capital
KET	Key Enabling Technology
KPI	Key performance indicator
KRIBB	Korea Research Institute of Bioscience & Biotechnology
KTN	Knowledge Transfer Network
km	Kilometre
kV	Kilovolt
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-cycle analysis
LCIA	Life-cycle impact assessment
LEED	Leadership in Energy and Environmental Design
LIFT	Lightweight Innovations for Tomorrow
LLNL	Lawrence Livermore National Laboratory
M&A	Mergers and acquisition
MAFF	Ministry of Agriculture, Forestry and Fisheries (Japan)
MAPI	Manufacturers' Association for Productivity and Investment
MBA	Masters of business administration
MEP	Manufacturing Extension Partnership
MES	Manufacturing execution system
MGI	Materials Genome Initiative
MII	Manufacturing innovation institute
MIT	Massachusetts Institute of Technology
MJ/kg	Megajoule per kilogramme
MOOC	Massive open online course
MPa	Megapascal
MTA	Manufacturing technology area
MTC	Manufacturing Technology Centre
NACFAM	National Council for Advanced Manufacturing
NAE	National Academy of Engineering (United States)
NAMII	National Additive Manufacturing Innovation Institute
NAMRC	Nuclear Advanced Manufacturing Research Centre
NASA	National Aeronautics and Space Administration (United States)
NASS	National Agricultural Statistical Service (United States)
NC	North Carolina
NCC	National Composites Centre
NCIIA	National Collegiate Inventors and Innovators Alliance (United States)
NEC	National Economic Council (United States)
NFTTC	National Fund for Technology Transfer and Commercialization (China)
NGO	Non-governmental organisation
NIFU	Nordic Institute for Studies in Innovation, Research and Education (Norway)
NIMS	National Institute for Materials Science (Japan)
NISE	Nanoscale Informal Science Education
NIST	National Institute of Standards and Technology (United States)
nm	Nanometre

NNI	National Nanotechnology Initiative (United States)
NNMI	National Network for Manufacturing Innovation (United States)
NPC	National People's Congress (China)
NRC	National Research Council (Canada)
NREL	National Renewable Energy Laboratory (United States)
NSF	National Science Foundation (United States)
NSTC	National Science and Technology Council (United States)
NTU	Nanyang Technological University
NUS	National University of Singapore
OEE	Overall equipment effectiveness
OEM	Original equipment manufacturer
OpenKIM	Open Knowledgebase of Interatomic Models
OpenMTA	Open Material Transfer Agreement
OSS	Open-source software
OSTP	Office of Science and Technology Policy (United States)
PaaS	Platform-as-a-service
PACITA	Parliaments and Civil Society in Technology Assessment
PBH	Power by the hour
PCAST	Penetration of advanced manufacturing technologies
PEA	Printed Electronics Arena
PESTLE	Political, economic, social, technological, legal and environmental
PET	Polyethylene terephthalate
PHA	Polyhydroxyalkanoate
PIAAC	Programme for the International Assessment of Adult Competencies
PIC	Photonics-integrated circuit
PIE	Production in the Innovation Economy
PISA	Programme for International Student Assessment
PLC	Programmable logic controller
PPP	Public-private partnership
PTC	Production tax credit
PV	Photovoltaic
R&D	Research and development
RAM	Roadmap for Additive Manufacturing
RAPID	Rapid Advancement in Process Intensification Deployment
RCT	Randomised control trial
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
REMADE	Reducing Embodied Energy and Decreasing Emissions
RFID	Radio-frequency identification
RoHS	Restriction of Hazardous Substances
ROI	Return on an investment
RRI	Responsible research and innovation
RTO	Research and technology organisation
S&T	Science and technology
SaaS	Software-as-a-service
SAM	Subcommittee on Advanced Manufacturing
SBIR	Small Business Innovation Research
SCADA	Supervisory control and data acquisition

SCM	Supply chain management
SiN	Silicon nitride
SIP	Strategic Innovation Promotion Program
SLA	Stereolithography
SLM	Selective laser melting
SLS	Selective laser sintering
SMEs	Small and medium-sized enterprises
SOE	State-owned enterprise
SRG	Steel Research Group
SSRN	Social Science Research Network
STEM	Science, technology, engineering and mathematics
STI	Science, technology and innovation
STM	Scanning tunnelling microscope
SWOT	Strengths, weaknesses, opportunities and threats
TEP	Technology Foresight Programme
TRL	Technology readiness level
UN	United Nations
UQ	Uncertainty quantification
USB	Universal serial bus
USDA	US Department of Agriculture
US DoD	US Department of Defense
US DoE	US Department of Energy
USPTO	US Patent Office
UV	Ultraviolet
VIDM	Visualization, informatics and digital manufacturing
VOC	Volatile organic compound
WBDF	Water-based digital fabrication
WEEE	Waste electrical and electronic equipment
WIP	Work-in-progress
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



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