

MNT AEROSPACE PIPELINE GUIDEBOOK

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MNT Developers

Institutions working to promote the discovery of and growth of Micro and Nano technologies, so they may be used effectively by others.

a. Laboratories/Research Institutions

The place where scientific research and experimentation is performed. These may be both public (the responsibility of and to the government), as well as, private (belonging to individual companies/organizations).

Asia Pacific

Biopolis

www.one-north.com

Institute of Microelectronics

www.ime.a-star.edu.sg

http://www.etri.re.kr/e_etri/index.php

iCurie Labs, Inc.

<http://www.icurie-lab.com>

-R&D lab specializing in high efficiency cooling materials

China

Harbin Institute of Science & Technology

<http://www.hit.edu.cn/V2/>

Ministry of Science and Technology (MOST)

<http://www.most.gov.cn/English/index.htm>

Taiwan

National Nano Device Laboratories (NDL)

<http://www.ndl.gov.tw/english/index.asp>

Science and Technology Information Center

<http://www.stic.gov.tw/English/index.htm>

Taiwan National Nano Device Laboratories

<http://www.ndl.gov.tw/english/index.asp>

Japan

Astro Research Corporation

<http://www.astro-r.co.jp/>

Institute of Space and Astronautical Science (ISAS)

www.isas.ac.jp/e

JAXA (Japanese Aerospace Exploration Agency)

http://www.jaxa.jp/index_e.html

Ministry of Education, Science and Technology
National Institute for Materials Science

<http://www.nims.go.jp/>

Nanotechnology Research Institute

<http://unit.aist.go.jp/nanotech/>

National Industrial Research Institute of Nagoya (NIRIN)

<http://www.nirin.go.jp/indexE.html>

NEC Fundamental Basic Research laboratory

<http://www.labs.nec.co.jp/Eng/index.html>

NTT Basic Research Laboratory

<http://www.brl.ntt.co.jp/E/index.html>

The Nanotechnology Institute, Ministry of International Trade of Industry (MITI)

<http://www.nano.org.uk/appendices.htm>

Europe

Belgium

Interuniversity MicroElectronics Center (IMEC)

http://www.imec.be/ovinter/static_general/start_en.shtml

-Europe's leading independent research center in the field of microelectronics, nanotechnology, enabling design methods and technologies for ICT systems

Denmark

Danish Space Research Institute

<http://www.dsri.dk/>

-conduct space research

-knowledge centre for space instrumentation and technology

Finland

Tekes

<http://www.tekes.fi/>

-main public funding organization for research and development

VTT Technical Research Centre

<http://www.vtt.fi/vtt/inbrief/>

-contract research organization

-provide technology and applied research services

Korea

Korea Advanced Institute of Science & Technology (KIST)

<http://www.kaist.edu/>

Korea Research Institute of Standards and Science (KRISS)

<http://krissol.kriss.re.kr/kriss99/english>

Electronics and Telecommunications Research Institute (ETRI)

France

CEA-LETI

<http://www-leti.cea.fr/uk/index-uk.htm>

- help companies increase their competitive position through technical innovation
- transfer technical know-how to industry

CEMES – Nanomaterials Group

http://www.cemes.fr/r7_english/r2_rech/r2_sr4_nmat/index.htm

- study materials to develop new devices and instrumentation

French Atomic Energy Commission

www.cea.fr

IEMN – ISEN

<http://www.isen.fr/isen-lci/quest/partners/iemnisen.html>

- emerging field: nanoscience/nanotechnology correlated to nearfield microscopy

Institute of Microtechnology of Franche-Comté

http://www.imfc.edu/index_an.php

- supply equipment to and coordinate among researchers in the microtechnology lab

International Space University

<http://www.isunet.edu/>

Laboratory for Analysis and Architecture of Systems (LAAS)

<http://www.laas.fr/laasve/index.htm>

- research: micro and nano-systems, automatic control, computer science and engineering

Laboratoire de Physique des Matériaux Industriels (LPMI)

<http://www.univ-pau.fr/LPMI/anglais/predetan.htm>

Laboratoire des Sciences et Matériau pour l'Electronique et d'Automatique (LASMEA)

<http://www.lasmea.univ-bpclermont.fr/>

Minatec

www.minatec.com

TIMA Laboratory

<http://tima.imag.fr/>

- basic research in field of electronics
- transfer research results to industry

Germany

Center for Microtechnologies

<http://www.zfm.tu-chemnitz.de/profile.php>

Fraunhofer Institute for Reliability and MicroIntegration

<http://www.pb.izm.fhg.de/izm/index.html>

- one of the leading experts on microelectronics and Microsystems packaging

Fritz-Haber-Institut

www.fhi-berlin.mpg.de

Institut für Mikrotechnik Mainz

<http://www.imm-mainz.de/>

- research and development in microtechnology

- develop microdevices and systems

Institute of New materials, Saarbruecken

[http://www.inm-](http://www.inm-gmbh.de/htdocs/home/frame_en.htm)

[gmbh.de/htdocs/home/frame_en.htm](http://www.inm-gmbh.de/htdocs/home/frame_en.htm)

- involved in development of chemical nanotechnology

Institute for Physical High Technology

<http://www.ipht-jena.de/indexe.html>

Institute of Physics of New Materials Aachen

http://ia.physik.rwth-aachen.de/index.htm.en?menu_id=4&language=english

Max-Planck Institute

<http://www.mpg.de/english/portal/index.html>

Microsensor & Actuator Technology Berlin

<http://www-mat.ee.tu-berlin.de/>

PolyApply

www.polyapply.org

Semiconductor and Microsystems Technology Lab.

<http://www.tu-dresden.de/>

Tuebingen University, Institute of Physical and Theoretical Chemistry (IPC)

http://www.ipc.uni-tuebingen.de/index_eng.html

- surface analysis; development and characterization of sensors

Walter Schottky Institute

<http://www.wsi.tu-muenchen.de/>

Netherlands

DELFT University of Technology

<http://www.tudelft.nl/index.cfm/site/TU%20Delft%20Portal/pageid/66142C30-8C71-EDEB-0B3DAB237F2A7EDD/index.cfm>

MESA+

<http://www.mesaplustwente.nl/>

SRON National Institute for Space Research

<http://www.sron.nl/www/code/home/default.php>

- national center of expertise for the development and exploitation of satellite instruments in astrophysics and earth system science

Spain

Centre Nacional de Microelectonica

www.cnm.es/

- largest public microelectronics research and development centre in Spain

- develop process technologies focused toward Microsystems, power devices and systems, nanotechnologies etc.

Sweden

Swedish Institute of Space Physics

<http://www.irf.se/>

- governmental research institute
- basic research, education and associated observatory activities in space physics, space technology and atmospheric physics

Switzerland

FSRM – Swiss Foundation for Research in Microtechnology

<http://www.fsrn.ch/e/>

Institute of Quantum Physics (ETH)
Physical Electronics Laboratory

<http://www.iqe.ethz.ch/pel/Welcome.html>

- research activities re: CMOS-based microsystem technology and microsensors

Paul Scherrer Institute

<http://www.psi.ch/>

- conduct basic research (public financing)
- solid state physics; materials sciences, etc.

Swiss Center of Electronics and Microtechnologies (CSEM)

<http://www.csem.ch/>

- private company
- applied research; product development; and prototype & low-volume production

The Experimental Physics Institute

Federal Polytechnics School of Lausanne

<http://www.epfl.ch/Eplace.html>

University of Neuchatel, Institute of Microtechnology The Sensors, Actuators, and Microsystems Laboratory

<http://www.samlab.unine.ch/home.htm>

Zurich Research Laboratory

<http://www.zurich.ibm.com/>

UK

CCLRC 8

<http://www.clrc.ac.uk/>

Centre for Nano-Device Modelling

<http://www.maths.leeds.ac.uk/cndm/>

Centre for Molecular and Nanoscale Electronics

<http://www.dur.ac.uk/molecular.electronics/>

Codicote Innovation Centre

<http://www.codicote.org/>

- services to SMEs

National Physical Laboratory

www.npl.co.uk

Wellcome Trust Sanger Institute

www.sanger.ac.uk

North America

Canada

Canada Centre for Remote Sensing

<http://www.ccrs.nrcan.gc.ca/ccrs/homepg.pl?e>

- receive, process, and archiving Earth observation data; developing geospatial info. applications, etc.

Canadian European Research Initiative on Nanostructures (CERION)

http://www.imec.be/cerion_2/

Canadian Microelectronics Corp.

www.cmc.ca

The Canadian Institute for Advanced Research (CIAR)

<http://www.ciar.ca>

C-CORE

www.mun.ca/ccore/

- (applied engineering research)

Centre for Large Space Structures and Systems

www.cls3.ca

Centre de Recherche en Calcul Appliqué (CERCA)

www.cerca.umontreal.ca/

NanoQuebec

<http://www.nanoquebec.ca/en>

- not-for-profit joint federal/provincial
- network university community

National Institute for Nanotechnology

www.nint.ca

National Research Council – Institute for Aerospace Research

http://iar-ira.nrc-cnrc.gc.ca/main_e.html

- national aerospace laboratory
- R&D: design, manufacture, performance, use, and safety of air and space craft

PENCE Inc. National Business Centre

www.pence.ca

US

Ames Laboratory

www.external.ameslab.gov/index.html

Battelle Memorial Institute

www.battelle.org

Carnegie Mellon University

<http://www.cmu.edu/>

Center for Nanomaterials and Nanocoatings

www.nanocenter.org

Girvan Institute of Technology

www.girvan.org

IBM – Nanoscale Science and Technology Group

www.research.ibm.com/nanoscience/index1.html

Institute for Defense analyses

www.ida.org

Institute for Soldier Nanotechnology

www.web.mit.edu/isn

Intelligent Automation Inc.

www.i-a-i.com
Internet2
www.internet2.edu
Ludwig Institute for Cancer Research
www.licr.org
MCNC Research & Development Institute
www.mcnc-rdi.org
Microelectronics Advanced Research Corp -
Focus Center Research Program
[http://www.fcrp.org/member/centers/nmat/about.
asp?bhcp=1](http://www.fcrp.org/member/centers/nmat/about.asp?bhcp=1)
MITRE Corp. – Nanosystems Group
<http://www.mitre.org/tech/nanotech/index.html>
National Energy Technology Laboratory
www.netl.doe.gov
National Institute of Health – National Cancer
Institute
www.nci.nih.gov
National Institute of Standards and Technology
http://www.nist.gov/public_affairs/nanotech.htm
National Nanotechnology Infrastructure Network
www.nnin.org

National Technology Transfer Center
www.nttc.edu
Naval Research Laboratory
www.nrl.navy.mil
Oregon Nanoscience and Microtechnologies
Institute
www.onami.us
Pacific Northwest National Laboratory
www.pnl.gov/nano/
Riverside Regional Technology Transfer Center
www.nttc.edu
The Aerospace Corp.
www.aero.org
The Cleveland Clinic
<http://www.lerner.ccf.org/bme/biomems/>
Washington Technology Center
www.watechcenter.org
World Technology Evaluation Center Inc.
www.wtec.org

b. Academic Institutions

Universities with departments and programs dedicated to the study of micro and nano technology. These institutions are often the breeding grounds of the basic technology and scientists contributing to the proliferation of micro and nano technology.

Asia Pacific

China

Beijing University

<http://www.pku.edu.cn/ehomepage.htm>

Chinese Academy of Science

<http://english.cas.ac.cn/Eng2003/page/home.asp>

China Academy of Engineering Physics

http://www.fas.org/nuke/guide/china/facility/mia_nyang.htm

Chinese University of Hong Kong

<http://www.cuhk.hk/en/>

East China University of Science & Tech.

<http://www.ecust.edu.cn/english/Introduction/overview.htm>

Fudan University

<http://www.fudan.edu.cn/english/about/research/about.html>

Hong Kong University of Science & Tech

<http://www.ust.hk/en/index.html>

Harbin Institute of Science & Technology

<http://www.hit.edu.cn/V2/>

Nanjing University

<http://www.nju.edu.cn/cps/site/NJU/njue/profile/>

Northwestern Polytechnical Uni. (NWPU)

<http://218.30.21.29/en/html/introduction.html>

Tsinghua University

<http://www.tsinghua.edu.cn/eng/>

University of Science and Technology of China

<http://www.its.caltech.edu/~ustcalum/>

Japan

Graduate School of Hokkaido Institute of Tech.

Dept. of Mechanical Systems Engineering

<http://www2.neweb.ne.jp/wd/microsat/Index.htm>

Graduate School of Kyushu University

Dept. Aeronautics and Astronautics

<http://ssdl-www.aero.kyushu-u.ac.jp>

Institute of Physical and Chemical Research

<http://www.riken.go.jp/engn/index.html>

Kyushu University

www.kyushu-u.ac.jp/english/index-e.htm

Kyushu Tokai University

<http://www.ktokai.u-ac.jp>

Nihon University

School of Engineering

<http://forth.aero.cst.nihon-u.ac.jp/projects>

Osaka Prefecture University

Dept. Aerospace Engineering

<http://www.osakafu-u.ac.jp/>

Soka University

Kuroki Laboratory

<http://kuro.t.soka.ac.jp/>

Tohoku University

Space Robotics Laboratory

<http://www.astro.mech.tohoku.ac.jp>

Tokyo Institute of Technology

<http://www.titech.ac.jp>

University of Tokyo

Intelligent Space Systems Lab.

<http://www.space.t.u-tokyo.ac.jp>

Waseda University

http://www.rise.waseda.ac.jp/index_e.html

South Korea

Sejong University – Science and Technology

Institutes

www.sejong.edu/06_res/02_tech.html

Taiwan

National Tsing-Hua University

www.nthu.edu.tw/

The National Taiwan University

www.ntu.edu.tw/English

Academia Sinica

www.sinica.edu.tw/

National Cheng Kung University

www.ncku.edu.tw/english

Europe

Belgium

Interuniversity MicroElectronics Center (IMEC)

<http://www.imec.be>

- Europe's leading independent research center in the field of microelectronics, nanotechnology, enabling design methods and technologies for ICT systems

Denmark

Danish Technical University

www.dtu.dk/index_e.htm

University of Copenhagen, Niels Bohr Institute
<http://www.fys.ku.dk/afg/NyAFG/frame.asp?afd=NBI>

University of Aarhus
Interdisciplinary Nanoscience Center
<http://www.inano.dk/sw174.asp>

Italy

University of Catania
<http://www.unict.it/>
University of Genoa – Biophysics Dept.
<http://www.ibf.unige.it/>
University of Rome "La Sapienza", Department
of Physics
<http://www.phys.uniroma1.it/DipW/home.html>

Finland

Tampere University of Technology
<http://www.tut.fi/public/index.cfm?siteid=32>
University of Jyväskylä
<http://www.jyu.fi/tutkimus/english.htm>
-provide information on national and
international research funding
University of Oulu
<http://www.oulu.fi/Welcome.html>
University of Joensuu
<http://www.joensuu.fi/englishindex.html>
Helsinki University of Technology
<http://www.hut.fi/English/>

France

University of Orleans
<http://www.univ-orleans.fr/recherche/>

Germany

Chemnitz University of Technology
<http://www.tu-chemnitz.de/tu/sprachen/engl/>
Stuttgart University
<http://www.uni-stuttgart.de/index.en.html>
Technical University of Berlin
<http://www.tu-berlin.de/eng/>
Technical University of Munich
http://www.tu-muenchen.de/jshpchooser_en.tupl
Tuebingen University, Institute of Physical and
Theoretical Chemistry (IPC)
http://www.ipc.uni-tuebingen.de/index_eng.html

Netherlands

DELFT University of Technology
<http://www.tudelft.nl/index.cfm/site/TU%20Delft%20Portal/pageid/66142C30-8C71-EDEB-0B3DAB237F2A7EDD/index.cfm>

Spain

University of Barcelona

<http://www.ub.es/>

Sweden

Chalmers University of Technology
<http://www.chalmers.se/Home-E.html>
Gothenburg University
<http://www.gu.se/English/default.html>
Linköpings University
<http://www.liu.se/en/>
Lund University
<http://www.lu.se/lu/engindex.html>
Uppsala University
<http://www.uu.se/>

Switzerland

University of Neuchâtel, Institute of
Microtechnology
<http://www-imt.unine.ch/>
-foci: microelectronics, sensors, & actuators;
applied optics; physical electronics;
electronics and signal processing; pattern
recognition

UK

Cranfield University
www.cranfield.ac.uk/
Herriot-Watt University
www.hw.ac.uk/
Royal Academy of Engineering
<http://www.raeng.org.uk/>
Southampton University, Dept. of Electronics
and Computer Science
<http://www.mems.ecs.soton.ac.uk/title.htm>
University of Birmingham
Nanoscale Physics Research Laboratory
<http://nprl.bham.ac.uk/>
University of Bristol
Scanning Probe Microscopy Group
<http://spm.phy.bris.ac.uk/>
University of Durham
www.dur.ac.uk/
University of Sussex
www.sussex.ac.uk/

North America

Canada

Carleton University
www.carleton.ca
Concordia University, Montreal
www.concordia.ca
Dalhousie University
www.dal.ca
Laval University
www.ulaval.ca/
McGill University

www.mcgill.ca
 McMaster University
www.mcmaster.ca
 Queen's University
www.queensu.ca
 Royal Military College of Canada
www.rmc.ca
 Simon Fraser University
www.sfu.ca
 University of Alberta
www.ualberta.ca
 University of British Columbia
www.ubc.ca
 University of Calgary
www.ucalgary.ca
 University of Manitoba
www.umanitoba.ca
 University of Montreal
www.umontreal.ca
 University of Toronto
www.utoronto.ca
 University of Waterloo
www.uwaterloo.ca
 University of Western Ontario
www.uwo.ca
 CIPI, University of Laval
<http://www.cipi.ulaval.ca>
 York University - Centre for Research in Earth
 and Space Science (CRESS)
www.cress.yorku.ca

USA

Arizona State University, Nanostructures
 Research Group
<http://www.eas.asu.edu/~nano/>
 Brown University, Nano & Micromechanics
 Laboratory
<http://www.engin.brown.edu/facilities/nanomicro/>
 California Institute of Technology,
 Nanofabrication Group
<http://nanofab.caltech.edu/>
 Clemson University, Laboratory for
 Nanotechnology
<http://www.ces.clemson.edu/comset/research/nanotech.htm>
 Columbia University, Materials Research
 Science and Engineering Center
<http://research.radlab.columbia.edu/mrsec/>
 Cornell University, Nanobiotechnology Center
<http://www.nbtc.cornell.edu/mission.htm>
 Cornell Nanofabrication Facility
<http://www.cnf.cornell.edu/2001cnfra/2001cnfra.html>
 Dartmouth College, Dartmouth Molecular
 Materials Group

<http://www.dartmouth.edu/~dmmg/>
 Duke University, Eom Research Group Thin
 Films Laboratory
http://www.duke.edu/~eom/research_description.shtml#epitaxial_nano
 Georgia Institute of Technology, Nanostructure
 Research Laboratory
http://www.duke.edu/~eom/research_description.shtml#epitaxial_nano
 John Hopkins University – Applied Physics
 Laboratory
<http://www.jhuapl.edu>
 MIT, Nanostructures Laboratory
<http://nanoweb.mit.edu/>
 MIT, Space Nanotechnology Laboratory
<http://nanoweb.mit.edu/>
 Middle Tennessee State University, Materials
 Theory and Molecular Design Project
<http://www.mtsu.edu/>
 New Jersey Institute of Technology, Nonlinear
 Nanostructures Laboratory
<http://megahertz.njit.edu/~vijaya/nanopage.html>
 North Carolina State University
<http://www.ncsu.edu/>
 North Western, Institute for Nanotechnology
<http://www.nanotechnology.northwestern.edu/>
 Ohio State University – MicroMD Laboratory
<http://www.micromd.org>
 Pennsylvania State University, Center for
 Molecular Nanofabrication and Devices
<http://www.cmnd.psu.edu/>
 Princeton University, Nanostructures Laboratory
<http://www.ee.princeton.edu/~chouweb/>
 Purdue University
 Rice University, The Center for Nanoscale
 Science and Technology
<http://cnst.rice.edu/>
 Stanford University, Nanofabrication Facility
<http://snf.stanford.edu/>
 Stanford University, Space Systems
 Development Laboratory
<http://ssdl.stanford.edu/>
 State University of New York, Thermal Spray
 Laboratory
<http://www.matscieng.sunysb.edu/tsl/index.html>
 University of Albany, Albany NanoTech
<http://www.albanynanotech.org/>
 University of Arizona, Dept. of Physics
<http://newton.physics.arizona.edu/~stafford/>
 Physical Sciences Inc.
<http://www.psicorp.com/laboratories.shtml>
 - modelling and simulation (ie. flow-
 modeling for re-entry vehicles)

II. Early Stage Companies/Organizations

Micro-Nano-Technology companies that are in their earliest stage of development. These are typically small and medium sized companies involved in the creation of micro and nano technologies, seeding the growth of related applications.

Materials

North America

US

CarboLex Inc.

<http://www.carbolex.com/>

-single-walled nano-tubes

Nanomaterials Research

<http://www.nrcorp.com/>

Nanophase Technologies Corporation

<http://www.nanophase.com/>

-nanocrystalline materials

innovator/manufacturer

NanoPowders Industries

<http://www.nanopowders.com/>

-nanosized metal powders

NanoProducts Corp.

www.nanoproducts.com

-manufacturing and delivery of nanoscale materials, dispersions etc.

Nanotechnologies

<http://www.nanoscale.com/technanogy.asp>

-custom-engineered nanopowders

NexTech Materials Ltd.

<http://www.nextechmaterials.com/>

-develop fuel cell materials

Zyvex

<http://www.zyvex.com/>

-delivers nano-additives and enhance materials

-provide certification/management of nano-tube supply chain

Asia Pacific

Japan

Bridgestone Corp.

<http://www.bridgestone.co.jp/english/index.html>

-developed material for electric display panels

Daiken Chemical Co., Inc.

<http://www.daiken-chem.co.jp/index-e.htm>

-designs and develops custom-made electrode materials

Mitsubishi Chemicals

www.mc-chemicals.ne.jp

fullerene producer

Nanotec Corporation

<http://www.nanotec->

[jp.com/www_nanotec/english/nanotec.html](http://www.nanotec/english/nanotec.html)

-thin-film materials for tool coating

nGimat

<http://www.microcoating.com/>

-manufacturer of nanomaterials

-deals with nanopowders, thin films, and devices

China

Daheng Corp.

<http://www.cdhecorp.com>

-manufacturer of optical components

Korea

Advanced Nano Products Co., Ltd.

<http://www.anapro.com>

-manufacturing & supplying chemically process nanocrystalline materials for coating and powder processing applications

iCurie Labs, Inc.

<http://www.icurie-lab.com>

-R&D lab specializing in high efficiency cooling materials

Iljin Nanotech Co., Ltd.

<http://www.iljinnanotech.co.kr>

-develop carbon nanotubes

LG Chem

<http://www.lgchem.com/>

-provider of industrial materials, chemicals & polymers, and information & electronic materials

MAT Science Tech. Co., Ltd.

<http://www.matst.com>

-nanotube provider

Nano Co., Ltd.

<http://www.nanoin.com>

-specialize in ceramic nano technologies

Nanopac

<http://www.nano-pac.com>

-nanopowders, provide nano semiconducting photocatalyst

Nanotech

www.nanopowder.co.kr

-developed new process to realize nano-composite powders

NanoTechnics Co., Ltd.

<http://www.nano21c.com>

-produce nanofibers

Sukgyung A.T.

www.sukgyung.com/english/main.html

-nano sized organic pigments, nanoparticles

Taiwan

Power Strategy Integrated Marketing Corp.

<http://www.psimc.com.tw>

Europe

Belgium

Agfa-Gevaert N.V.

<http://www.agfa.com>

-produce Universal Instant dry Photograde Paper (nano-porous tech.)

Nanocyl S.A.

<http://www.nanocyl.com/>

-produce carbon nanotubes for associated labs and private industrial partners

Denmark

Haldor Topsøe A/S

<http://www.haldortopsoe.com>

-production of heterogeneous catalysts

France

Nanoledge

<http://www.nanoledge.com>

-production of carbon nanotubes
-processing of nanotubes into high-tech materials

Germany

AlCove Surfaces

<http://www.alcove.de>

Devices

US

Coventor

<http://www.coventor.com/>

-provides software tools for design, optimization, and analysis of micro-scale devices

Nanolab

<http://www.nano-lab.com/>

-develop nano-scale devices

Japan

Crestec Corporation

<http://www.crestec8.co.jp/sub50.htm>

-thermal field emission high resolution electron beam lithography systems, etc.

Elionix Inc.

<http://www.home.elionix.co.jp/>

-Ion & electron beam equipment for nanometer precision capabilities

Nanocoat-TS Co., Ltd.

<http://www.nanocoat-ts.com/>

-modification of surfaces using plasma treatment
-sales/manufacturing of PVD equipment and instruments for measuring surface cleanliness and Tribology

Nano Corporation

<http://www.nanowave.co.jp/jp/en/index.htm>

nGimat

<http://www.microcoating.com/>

-developed innovative liquid atomizer for use in liquid-source combustion process for manufacture of thin films and nanopowders

RIBM

<http://www.ribm.co.jp/index.htm>

-measurement services, development of special purpose SPM probes

Tsukuba Nanotechnology

<http://tsukuba-nano.co.jp/>

-compact hybrid nanocluster sources, time-of-flight surface analysis microprobe

Korea

Daewoo Electronics Co., Ltd.

<http://www.dwe.co.kr/eng/>

-nanodevices

MAT Science Tech. Co., Ltd.

<http://www.matst.com>

-nanotube provider

Nano Packaging Technology, Inc.

http://nanopac.koreasme.com/index.company_e.html

-packaging for optical and electrical fields

Taiwan

Nano-Architect Research Corporation

<http://www.narc.com.tw/english.htm>

-thin-film process equipment for semi-conductor industry

Europe

Denmark

Capres A/S

<http://www.capres.com>

-MEMS devices

Danish Micro Engineering A/S

<http://www.dme-spm.dk>

-atomic force microscopes; scanning nearfield optical microscopes; scanning tunnelling microscopes

Finland

DCA Instruments Oy

<http://www.dca.fi>

-design and manufacture UHV thin film process systems and components

Nanocomp

<http://www.nanocomp.fi>

-develop and manufacture nanoscale structured devices

France

PHS MEMS

<http://www.phsmems.com>

-provider of MEMS devices and services
-designs/manufactures Microsystems for wireless & optical communications markets

Germany

AMO

<http://www.amo.de>

Sensors

North America

Nanomix Inc.

<http://www.nano.com/>

-nanoelectronic sensors

Synkera Inc.

www.synkera.com

-chemical sensors & sensor arrays, light amplification devices, and ceramic membranes

Europe

Germany

ATOS

<http://www.atos-online.de>

Switzerland

NanoSensors

www.nanosensors.com

Asia Pacific

Japan

Photonics Inc.

<http://www.photonics-jp.com/index.html>

-production/marketing of positional detectors for steppers with nanometer precision

Tokyo Instruments Ltd.

http://www.tokyoinst.co.jp/english/index_e.htm

-in-house product: nanofinder system
-import/export of opto-scientific instruments
-design of optoscientific instruments

Taiwan

Nano-Trend Technology Co., Ltd.

<http://www.nano-trend.com>

-supply high-end sensors etc.

Europe

Denmark

Heptagon

<http://www.heptagon.fi>

-manufacture diffractive and refractive micro-optical products (ie. Optical sensors)

Life Support/Medical

North America

Keweenaw Nanoscience Center

<http://www.nanosciencecenter.com>

-R&D for lifesciences, optics etc.

Europe

Denmark

Liplasome Pharma A/S

<http://www.liplasome.com>

-technologies based on lipid-based drug transporting nano-particles

France

Spinelix Ltd.

<http://www.spinelix.com>

-specialized in human diagnostics

Asia Pacific

Japan

NanoCarrier Co., Ltd.

http://www.nanocarrier.co.jp/index_e.html

-drug delivery systems based on nanoparticles

Shimadzu Corporation

<http://www.shimadzu.com/>

-analytical lab technologies; testing & inspection machines; life science lab instruments; medical systems and equipment; industrial equipment and aircraft equipment

China

Daheng Corp.

<http://www.cdcorp.com>

-manufacturer of optical components

Korea

Digital Bio Technology Co., LTD.

<http://www.digital-bio.com>

-develop experimental and medical diagnostic/analysis systems based on Bio-MEMS

III. Sub-System Integrators

Companies working to combine the basic technologies into sub-units that , in turn, can be used for the creation of end-use products. Although subsystems may be used independently, they are most often a part of a greater, more complex system.

North America

Canada

COM DEV International

www.comdev.ca

-designer/manufacturer of space hardware subsystems

Communications and Power Industries

www.cpii.com

-design/manufacture subsystems (underlying technology)

-radar/satellite communications/terrestrial communications/broadcast/defense/medical/scientific/industrial

David Florida Laboratory (DFL)

www.dfl.space.gc.ca

-spacecraft assembly, integration, testing centre

US

NanoWave

<http://www.nanowave.com>

Scanning probe position encoder

NanoLogic, Inc.

<http://nanologic.com>

Hyperion Catalysis International, Inc.

<http://www.fibrils.com/>

Carbon Nanotechnologies Inc.

<http://www.cnanotech.com/>

CALMEC (California Molecular Electronics Corporation)

www.calmec.com/company.htm

-supply intellectual property & technical services

Lockheed Martin - Sandia National Laboratories

NANOSCIENCE & NANOTECHNOLOGY

<http://nano.sandia.gov/>

Asia Pacific

Japan

RIBM

<http://www.ribm.co.jp/index.htm>

-measurement services, development of special purpose SPM probes

Korea

MAT Science Tech. Co., Ltd.

<http://www.matst.com>

-nanotube provider

IV. System Level/ Manufacturers

Companies that combine sub-system materials/devices/products into end-use products developed for a specific purpose.

North America

Canada

ABB Bomem

<http://www.abb.com/ptb>

-power and automation technologies allowing utility/industry customers to improve performance while minimizing environmental impact

ACSION Industries (EB Tech)

www.acsion.com

-developer/provider of electron beam treated products and services
-target aerospace, healthcare, and agri-food customers

AEROCORP (telepresence tech)

www.aerocorp-tech.com

-development and commercialization of telerobotic systems

APEX Technologies (machining/manufacturing)

www.apexindustries.com/

-expertise in heavy custom fabrication, general machining, precision machining

APS

www.apphysic.com/

(Supply optical assemblies and components)

Atlantic Nuclear Services Ltd.

www.ansl.ca

(reactor safety & licencing CANDU reactors)

Atlantis Scientific Inc. (ASI)

www.atlsci.com

(data acquisition/remote sensing/imaga analysis)

Bristol Aerospace Ltd.

www.bristol.ca

(manf. Aeroengine/aerostructure components & sub-systems)

Brooke Ocean Technology Ltd. (BOT)

www.brooke-ocean.com

(hardware, syst. Eng., R&D to marine/naval/offshore)

CMC Electronics Inc.

www.cmcelectronics.ca

-design, manufacture, sales and support of high-tech electronics for aviation/infrared sensing/global positioning/space electronics

CS Communication and Systems Canada Inc.

www.c-s-canada.ca

(enabling solutions to aerospace industry)

Cametoid Advanced technologies

www.cametoid.com

(R&D – advanced coatings/mtrls. For aerospace/space/industrial manf.)

Composites Atlantic Ltd. (CAL)

www.compositesatlantic.com

(design/manf. Advanced composites for aerospace/space/defense)

DCM

www.dcmaeronautique.com

-design/manufacture aircraft ground support equipment etc

Dy 4 Systems

www.dy4.com

-provide harsh environment, high-performance processing solutions for real-time, embedded applications

Derlan Aerospace Canada

www.derlanaero.com

(designer/manf. High tech metal based products)

DragonWave Inc.

www.dragonwaveinc.com

-high capacity broadband wireless networking systems

Dynacon

www.dynacon.ca

(systems integration, analysis & simulation, software development, etc.)

-applying automations and robotics technology for laboratory and aerospace markets

EMS Technologies Inc.

www.ems-t.com

(provide wireless, satellite, broadband communications products/solutions)

Enfotec

www.enfotec.ca

(develop/design shipboard navigation technologies and info)

US

Nanotechnology Systems

<http://www.nanotechsys.com/>

Nanometrics Inc.

<http://www.nanometrics.com/>

Nanomat Inc.

<http://www.nanomat.com/>

MITRE

<http://www.mitre.org/>

-systems for aviation and defense

Nanochip Inc.

<http://www.nanochip.com/>

NanoPierce Technologies Inc.

<http://www.nanopierce.com>

eSpin Technologies

<http://www.espintechologies.com/>

NanoPac

<http://www.nanopac.com/>

Northrop Grumman – Poly Scientific

<http://www.polysci.com>

-motors, drives, fiber optic switches

Asia Pacific

China

Daheng Corp.

<http://www.cdhcorp.com>

-manufacturer of optical components and custom design optoelectronic systems

Japan

Crestec Corporation

<http://www.crestec8.co.jp/sub50.htm>

-thermal field emission high resolution electron beam lithography systems, etc.

Elionix Inc.

<http://www.home.elionix.co.jp/>

-Ion & electron beam equipment for nanometer precision capabilities

Nanocoat-TS Co., Ltd.

<http://www.nanocoat-ts.com/>

-modification of surfaces using plasma treatment
-sales/manufacturing of PVD equipment and instruments for measuring surface cleanliness and Tribology

Nano Corporation

<http://www.nanowave.co.jp/jp/en/index.htm>

-ball screws, stages, and servers with nanometer precision

Nanotec Corporation

http://www.nanotec-jp.com/www_nanotec/english/nanotec.html

-manufacture PVD equipment for thin-film deposition

Nikkiso Co. Ltd.

www.nikkiso.co.jp

-manufacture and sales for: fluid technologies, particle solutions, industrial equipment, medical equipment, composite technologies, etc.

Shimadzu Corporation

<http://www.shimadzu.com/>

-analytical lab technologies; testing & inspection machines; life science lab instruments; medical systems and equipment; industrial equipment and aircraft equipment

V. Buyers/End-Users

Purchasers of the products developed using micro and nano technologies.

North America

Canada

CAE Electronics Ltd.

www.cae.ca

-astronaut training facility, simulators

Canada Centre for Remote Sensing (CCRS)

www.ccrs.nrcan.gc.ca/

-receiving/processing/archiving Earth observation data

-coordinating national research programme

-developing geospatial information applications

Canadian Hydrographic Service

<http://chswww.bur.dfo.ca/chs/index.html>

-sale/maintenance of official marine navigation charts

Canadian Space Agency

www.space.gc.ca

Cancom (Canadian Satellite Communications Inc.)

www.cancom.ca

-provider of satellite-based broadcast & comm. Services

Canpolar East Inc.

www.canpolar.com

-vision and tactile sensor systems

Compusult Ltd.

www.compusult.nf.ca

-data management solutions

Devel-Tech

www.develtech.ca

-geo-information managers

Dendron

www.dendron.com

-geomatics applications

FELLFAB

www.fellfab.com

(manf. Engineered textile products, use CAD/CAM tech.)

US

Argonide Nanomaterial Technologies

<http://www.argonide.com/>

NanoPositioning Products

<http://www.lionprecision.com/qg.html>

Boeing - XSS Micro-Satellite

<http://www.boeing.com/defense-space/space/xss/index.htm>

Boeing – Microelectronics Manufacturing Center

<http://www.boeing.com/defense-space/infoelect/micro/>

Applications

Aviation/Aerospace Equipment

North America

Canada

MPB Communications Inc.
www.mpbc.ca

US

ADCO Circuits Inc.
www.adcocircuits.com
Amptek Inc.
www.amptek.com
Boeing
www.boeing.com
BP Petrochemicals
www.bpchemicals.com
Cessna Aircraft Co.
www.cessna.com
Coherent Technologies Inc.
www.ctilidar.com
Geneva Aerospace
www.genaero.com
Masi Aviation LLC
www.cgmasi.com/aviation
Microbotics Inc.
www.microboticsinc.com
Space Micro Inc.
www.spacemicro.com
TRW Inc. – Space & Electronics Group
www.trw.com
Unitech LLC
www.unishield.com
ZIN Technologies Inc.
www.zin-tech.com

Biomedical/Life Sciences : Diagnosis/Analysis

North America

US

Albright Technologies Inc.
www.albright1.com
ARLAZON Technologies Inc.
www.arlanzon-tech.com
Beckman Coulter Inc.
www.beckmancoulter.com
Boston Biomedica Inc
www.bbii.com
Centrex Inc.
www.centrexcorporation.com
Dionex Corp.
www.dionex.com
Exergen Corp.
www.exergen.com
GeneFluidics Inc.
www.genefluidics.com
geneOhm Sciences Inc.
www.geneohm.com
i-Stat Corp.
www.i-stat.com
iMMCO Diagnostics Inc.

www.immcodiagnosits.com
InLight Solutions Inc.
www.inlightsolutions.com
MetriGenix Inc.
www.metrigenix.com
Nanoprobes Inc.
www.nanoprobes.com
Xtrana Inc.
www.xtrana.com

Canada

Digital Optical Imaging Corp.
www.digiopt.com
IatroQuest Corp.
www.iatroquest.com
IBM Canada Ltd. – Life Sciences Division
www.ibm.com
Infectio Diagnostic Inc.
www.infectio.com
TM Bioscience Corp.
www.tmbioscience.com

Europe

Germany

FRIZ Biochem
www.frizbiochem.de
ibidi
www.ibidi.de
STEAG microParts
www.microparts.de
Virus Tracing Group
www.single-virus-tracing.com
XanTec bioanalytics
www.xantec.com

Energy/Earth Sciences : Alternate Power Sources

North America

Canada

Ballard Power Systems Inc.
www.ballard.com

US

Catalytica Energy Systems Inc.
www.catalyticaenergy.com
Electron Power Systems Inc.
www.electronpowersystems.com
Eltron Research Inc.
www.eltronresearch.com
GT Solar Technologies
www.gtsolar.com
Hydrocarbon technologies Inc.
www.htinj.com
Hydrogen Ventures LLC
www.hydrogen.la
Motorola Inc. – Energy Systems Group
www.motorola.com
Neah Power Systems Inc.
www.neahpower.com
Panasonic Technologies

www.panasonic.com
PolyFuel Inc.
www.polyfuel.com
PowerZyme Inc.
www.powerzyme.com
West Virginia Technology Advancement Corp.
www.wvtac.org

Europe

England

Adelan Co.
www.adelan.co.uk
British Nuclear Fuels
www.bnfl.com

Switzerland

VHF technologies
www.flexcell.ch

Asia Pacific

Japan

Hitachi Zosen
www.hitachizosen.com

Optical Equipment

North America

Canada

FISO Technologies Inc.
www.fiso.com

US

Aculight Corp.
www.aculight.com
Andorra Optics
www.andorraoptics.com
ASIP Inc.
www.asipinc.com
Bandwidth9 Inc.
www.bw9.com
Blue Sky Research
www.blueskyresearch.com
Brimcom Corp.
www.brimcom.com
Bruker AXS Inc.
www.bruker-axs.de
CamScan USA Inc.
www.camscan-usa.com
Canesta Inc.
www.canesta.com
Carl Zeiss SMT Nano Technology Systems Division
www.smt.zeiss.com/nts
CHEMICON International Inc.
www.chemicon.com
ChemImage Corp.
www.chemimage.com
Chorum Technologies
www.chorumtech.com
CIENA Corp.

www.ciena.com
Clark-MXR Inc.
www.cmxr.com
Coherent Inc.
www.cohr.com
Computer Optics Inc.
www.computeroptics.com
Continuum Photonics Inc.
www.continuumcontrol.com
Corvis Corp.
www.corvis.com
DiCon FiberOptics Inc.
www.diconfiberoptics.com
Digital Optics Corp.
www.doc.com
Eastman Kodak
www.kodak.com
EDAX Inc.
www.edax.com
EXFO Burleigh Products Group inc.
www.esfo.com
FLIR Systems Inc.
www.flir.com
GORCA Technologies America Inc.
www.gorcatech.com
Hitachi High Technologies America Inc.
www.hitachi-hta.com
Hitachi Ltd. – US Headquarters
www.hitachi.us
Hysitron Inc.
www.hysitron.com
Imago Scientific Instruments Corp.
www.imago.com
IMRA America Inc.
www.imra.com
Intellite Inc.
www.intellite.com
Leica Microsystems Inc.
www.leica-microsystems.com
Melles Griot
www.mellesgriot.com
Microcosm Inc.
www.microcosm.com
NanoTech America
www.nt-america.com
Nanoinventions
www.nanoinventions.com
New Wave Research
www.new-wave.com
Nion
www.nion.com
NovaScan Technologies
www.novascan.com
NOVELX Inc.
www.novelx.com
Oepic Inc.
www.oepic.com
Olympus America Inc.
www.olympusamerica.com
Optium Corp.
www.optiumcorp.com
Pixel Physics Inc.
www.pixelphysics.com
Polychromix inc.

www.polychromix.com
Princeton Optorionics Inc.
www.princetonoptronics.com
Raytheon Commercial Infrared
www.ratheoninfrared.com
Reynard Corp.
www.reynardcorp.com
Santec USA Corp.
www.santec.com
Silicon Light Machines
www.siliconlight.com
Solarius Development Inc.
www.solarius-inc.com
Technotrans America Inc.
www.technotrans.com
Ted Pella Inc.
www.tedpella.com
Translume
www.translume.com
TransOptix Inc.
www.transoptix.com
WITec Instruments Corp.
www.witec.de
Xidex Corp.
www.xidex.com

Europe

Germany

ACI Laser
www.aci-laser.de
ADVA Optical Networking
www.advaoptical.com
ALOTec
www.alotec.de
Atomic Force F&E
www.af-fe.de
Attocube Systems AG
www.attocube.com
DATRONIK Rolf Dachs
www.datronik.de
Docter Optics
www.docteroptics.com
Heidelberg Instruments
www.himt.de
JPK Instruments AG
www.jpk.com

Keindiek Nanotechnik
www.nanotechnik.com
Leyer & Kiwus Ultraschall
www.leyer-kiwus.de
Primes
www.primes.de
Reichmann Feinoptik
www.reichmann-feinoptik.de
Rofin Sinar Laser
www.rofin.com
Aiemens I-SFT
www.i-sft.com
Triple-O Microscopy
www.triple-o.de

England

Epigem Ltd.
www.epigem.co.uk
NanoSight Ltd.
www.nanosight.co.uk

Asia Pacific

China

Daheng Corp.
<http://www.cdhcorp.com>
manufacturer of optical components

Safety/Security: Military/Defense

US

General Dynamics Electric Boat
www.gdeb.com
Gentex Corp.
www.gentexcorp.com
Interstate Electronics Corp.
www.iechome.com
ITT Industries – Aerospace Communications
www.itt.com
United States Air Force research laboratory
www.afrl.af.mil
United States Army Aviation & Missile Command
www.redstone.army.mil
United States Department of the Air Force
www.pentagon.af.mil

SPACE

Astrodynamics

Deals with the motion of objects in space ie. satellites. Used to determine spacecraft trajectories (launch & atmospheric re-entry) and orbital maneuvers.

Europe

France

Office National d'Études et de Recherches
Aerospaciales (ONERA)

<http://www.onera.fr/>

Alcatel Space Industries

<http://www.alcatel.com/space/>

Centre National d'Études Spatiales (CNES)

<http://www.cnes.fr/>

Germany

ESA/ESOC

<http://www.esoc.esa.de/>

Italy

Institute of Information Science and Technologies
(ISTI)

<http://www.isti.cnr.it/>

Politecnico di Torino

<http://www.polito.it/>

University of Rome "La Sapienza"

<http://www.uniroma1.it/>

Netherlands

National Aerospace Laboratory (NLR)

<http://www.nlr.nl/>

Delft University of Technology

<http://www.tudelft.nl>

Portugal

Instituto Superior tecnico, Seccao de Mecanica
Aerospacial

<http://www.indeks.pt/mentorado/4.%20projectos.htm>

UK

Council for the Central Laboratory of the Research
Councils

<http://www.cclrc.ac.uk>

- provide large-scale facilities and expertise in support of research in UK
- gateway to international facilities

North America

Canada

McGill University, Faculty of Eng.

Dynamics & Control Lab, Prof. A.K. Misra

www.mcgill.ca/mecheng/research/dynamics/

USA

NASA, Jet Propulsion Laboratory

<http://www.jpl.nasa.gov/>

Naval Postgraduate School

www.nps.navy.mil/Research/institutes.html

Purdue University, School of Aeronautics and
Astronautics

<https://engineering.purdue.edu/AAE/>

Asia Pacific

China

China Academy of Space Technology

<http://www.fas.org/nuke/guide/china/contractor/cast.htm>

China National Space Administration

http://www.cnsa.gov.cn/main_e.asp

Japan

Institute of Space and Astronautical Science (ISAS),
Research division for Space Systems Engineering

<http://www.isas.ac.jp/e/about/edu/asso.shtml>

University of Tokyo, Dept. of Aeronautics &

Astronautics, Shinishi Nakauka, Ass.Prof.

<http://www.aerospace.t.u-tokyo.ac.jp/welcome-e.html>

Taiwan

Chung Shan Institute of Science & Technology

www.fas.org/nuke/guide/taiwan/agency/csist.htm

Earth Observations

Satellites : observation, communication; civil & military applications

International Facilities

European synchrotron Radiation Facility (ESRF)

<http://www.esfr.fr/>

- use beams of light produced by high-performance storage ring to study wide range of materials (Biomolecules to nanomagnets etc.)

Institut Laue-Langevin (ILL)

<http://www.ill.fr/>

- world leading facility in neutron science and technology

North America

Canada

RADAR SAT International

<http://www.rsi.ca/>

- provider of information solutions based on satellite-derived data

USA

The Aerospace Corporation

<http://www.aero.org/>

Alcatel Space Industries

<http://www.alcatel.com>

- provides end-to-end communications solutions

NASA Goddard Space Flight Center

Laboratory for Hydrospheric Processes

<http://neptune.gsfc.nasa.gov/>

Earth Resources Observation System (EROS) Data Center

<http://edc.usgs.gov/>

NOAA/NESDIS

<http://www.nesdis.noaa.gov/>

Science Applications Corp. (SAIC)

<http://www.saic.com/>

- provide information technology, systems integration and eSolutions to commercial and government customers

Europe

France

EADS Astrium

<http://www.astrium-space.com/corp/>

Centre National d'Etudes Spatiales (CNES)

http://www.cnes.fr/html/_php

Italy

Alenia Spazio S.P.A., Space Division

<http://www.aleniaspazio.com/>

Netherlands

TNO Institute of Applied Physics

<http://www.tpd.tno.nl/>

Materials & Structures

Europe

EADS Space

<http://www.space.eads.net/web1/home/index.asp>

- space transportation; orbital systems; satellites
- development & delivery of space programs

Germany

DLR – German Aerospace Centre

<http://www.dlr.de/dlr>

Aeronautics

<http://www.dlr.de/dlr/Luftfahrt>

Space Flight Management

<http://www.dlr.de/dlr/Raumfahrt/RF-Management>

Transportation

<http://www.dlr.de/dlr/Verkehr>

Energy

<http://www.dlr.de/dlr/Energie>

MAN Technologie AG, Systems Studies

http://www.man.de/unternehmen/tech1_e.html

- supplies equipment to aerospace, aviation, & defence

Launch Vehicles

Asia Pacific

China (Gov't owned)

China Academy of Launch Vehicle Technology

<http://www.calt.com.cn/new/english/about/overview.htm>

- launch vehicle manufacturer
- launch service provider

China Great Wall Industry Corporation

<http://space.cgwic.com/>

- contractor of Chinese international commercial launch services and satellite technology cooperation

North America

US

International Launch Services (ILS)

www.ilslaunch.com

Netherlands

ESA/ESTEC

Research & Technology Centre for European Space Agency

<http://www.estec.esa.nl/>

North America

US

The Boeing Company

<http://www.boeing.com/flash.html>

- manufacturer of satellites, commercial jetliners, and military aircraft

Ball Aerospace and Technologies Corp.

<http://www.ball.com/bhome/hspacebu.html>

- provides imaging, communications, and information systems, products, software and services to government and commercial aerospace customers.

The Aerospace Corp.

www.aero.org/

- provide research, development and advisory services

- reliable launches, on schedule delivery

Kelly Space & Technology

www.kellyspace.com

- commercial aerospace systems and tech. development

Kistler Aerospace

www.kistleraerospace.com

- developed fully reusable aerospace vehicle

Lockheed Martin Astronautics

www.ast.lmco.com

- develop end-to-end space systems
- launch vehicles/systems, spacecraft for telecommunications, remote sensing and space science, missile systems

Microcosm

www.smad.com

- reduce space mission costs
- commercial, military, and scientific missions

VI. Funding/Support Organizations/Incubators

Organizations that provide funding to companies and groups specializing in micro and nano technology development and use. Many are investing, in order to attain a certain return, while others are supplying money in the interest of technological development and growth.

A. Venture Capital Associations/Incubators

These organizations specialize in providing funding and advice to emerging technology companies. Venture Capitalists provide these services in return for partial ownership of the company, usually offering to sell back the ownership after a certain amount of time. Incubators are companies or facilities that are in place to foster entrepreneurship and provide a nurturing environment for technology start-ups. They provide shared resources, management expertise, as well as, intellectual capital.

Asia Pacific

nABACUS Partners

<http://www.nabacusparkers.com/>

- technical/business consulting for foreign companies in Asia
- help Asian high-tech startups to grow internationally
- help high-tech companies building new business in nano-technology etc.

Europe

Germany

Ad_Astra

<http://www.adastra.de/en/index.html>

- venture capital for fast-growing, technology companies

Apax Partners

<http://www.apax.com/EN/>

- early stage venture capital, management buyouts

Capital Stage

<http://en.capitalstage.com/>

- non-captive equity investments company for fast-growing SMEs

Deutsche Venture Capital

www.dvcg.de

DEWB AG

[http://www.dewb-](http://www.dewb-vc.com/en/meta/homepage/index.html)

[vc.com/en/meta/homepage/index.html](http://www.dewb-vc.com/en/meta/homepage/index.html)

- bank-independent, quoted investment company
- focus: optic-related technologies

DVC Deutsche Venture Capital

<http://www.dvcg.de/gb/homepage.asp>

- focuses on European technology based growth companies

Earlybird VC

www.earlybird.com

EnjoyVenture Management

<http://www.enjoyventure.de/>

- venture capital in all phases of company development; emphasize seed and start-up financing
- minority shareholding without influence on company's operations

Equinet AG

<http://www.equinet-ag.de/>

- invest in market and technology leaders in high-tech sectors
- provide active support to entrepreneurs

IKB Private Equity

[http://www.ikb-](http://www.ikb-pe.de/de/index.jsp;jsessionid=3e9dd0aa1f8d00ea68f76adf4e7b9411fe59fdc49df1)

[pe.de/de/index.jsp;jsessionid=3e9dd0aa1f8d00ea68f76adf4e7b9411fe59fdc49df1](http://www.ikb-pe.de/de/index.jsp;jsessionid=3e9dd0aa1f8d00ea68f76adf4e7b9411fe59fdc49df1)

MicroVenture

<http://www.microventure.de/>

Nanoventure AG

<http://www.nanoventure.de/>

NewMex

<http://www.newmex.de/>

- supports entrepreneurs active in attractive technologies and fast-growing markets
- provide support through all phases of development

Polytechnos

<http://www.polytechnos.com/>

- technology venture capital firm

Siemens Venture Capital

www.siemensventurecapital.com

STAR Ventures

www.star-ventures.com

Target Partners

www.targetpartners.de

Ventizz Capital Partners
<http://www.ventizz.de/>
Wellington Partners Venture Capital
<http://www.wellington.de/>
-early-stage technology and life science companies
WGZ Venture Capital
<http://www.wgz-venture-capital.de/frameindex.html>

Switzerland

NanoDimension AG
www.nanodimension.com

UK

3i
www.3i.com
Abingworth Management Ltd.
www.abingworth.co.uk
FirstStage Capital
www.firststagecapital.com

www.star-ventures.com
Target Partners
www.targetpartners.de
Evolution Capital
<http://www.evolution-group.com>
-research driven investment bank
-specialty: enabling technologies

North America

Canada

Pangaea Ventures
www.pangaeaventures.com
T2IC Capital
www.t2ic.com

US

3rd Tech, Inc.
<http://www.3rdtech.com/>
-provides seed capital, protects intellectual property, and initiates marketing
Advantage Venture Partners
www.advantagevc.com
Advent International Corp.
www.adventinternational.com
Alameda Capital LLC
www.alamedavc.com
Allegro Ventures
www.allegroventures.com
Alliance Technology Ventures
www.atv.com
Alloy Ventures
www.alloyventures.com
Alta Partners
www.altapartners.com
Altotech ventures
www.altotechventures.com
Anthem Capital Management LLC
www.anthemcapital.com

Apax Partners Inc.
www.apax.com
ARCH Venture Partners
<http://www.archventure.com/>
-provides seed/early stage venture capital for technology firms
Arcturus Capital
<http://www.arcturusvc.com/>
-focus: early-stage technology companies
Ardesta
<http://www.ardesta.com>
-invest talent and capital into product-focused companies
Arete Corp.
www.arete-microgen.com
Ark Venture Partners
www.arkventurepartners.com
Asset Management Company Venture Capital
www.assetman.com
Atlas Venture Partners
www.atlasventure.com
Austin Ventures
www.austinventures.com
Avogadro Partners LLC
www.avagadro.us
Aweida Capital Management
www.aweida.com
Austin Ventures
<http://www.austinventures.com/>
BA Venture Partners
www.baventurepartners.com
Battery Ventures
<http://www.battery.com/>
-focus on investing in technology companies in all stages of growth
Bay Partners
www.baypartners.com
Benchmark Capital
www.benchmark.com
Bessemer Venture Partners
www.bvp.com
Bowman Capital Management LLC
www.bowmancapital.com
California Technology Ventures
<http://www.ctventures.com/index2.html>
-provides equity capital to early stage technology companies
Canaan Partners
www.canaan.com
Carlyle Group
www.carlyle.com
Castletop Capital
www.castletopcapital.com
CenterPoint Ventures
<http://www.centerpointvp.com/>
Charles River Ventures
www.crv.com
Cinergy Ventures
www.cinergy.com
Cleantech Venture Network
www.cleantechventure.com
CMEA Ventures

www.cmeaventures.com
 CMP Cientifica
<http://www.cmp-cientifica.com/>
 -provide electronic information, conferences,
 project management, business intelligence to
 both scientific and investing communities
 Convergent Investors
www.convergentinvestors.com
 Cordova Ventures
www.cordovaventures.com
 Crown Advisors International Ltd.
www.crownadvisors.com
 Dali, Hook Partners
www.dhpartners.com
 Del Mar Ventures
www.sciner.com
 DonPenny.com
www.DonPenny.com
 (nanotech stock index)
 Draper Fisher Jurvetson
<http://www.drapervc.com/>
 -early stage venture capital firm
 Draper Triangle Ventures LP
www.dtrvc.com
 Early Stage Partners LP
www.esplp.com
 Eastman Ventures
www.eatmanventures.com
 EDF Ventures
www.edfvc.com
 EnerTech Capital Partners
www.enertechcapital.com
 FA Technology Ventures
www.fatechventures.com
 Finaventures
www.finaventures.com
 Flagship Ventures
www.flagshipventures.com
 Foundation Medical Partners
www.foundmed.com
 Fremont Ventures
www.fremontventures.com
 Gaebler Ventures
<http://www.gaebler.com/>
 -business incubator and holding company
 -develops and nurtures; emphasis on seed- &
 early-stage investments
 Garage Technology Ventures
<http://www.garage.com>
 -early-stage venture capital firm
 Gemini Israel Venture Funds Ltd.
www.gemini.co.il
 Global Catalyst Partners
www.gc-partners.com
 Harris & Harris Group, Inc.
<http://www.hhgp.com>
 -VC firm making all initial investments in
 nanotechnology, Microsystems, and MEMS
 Healthcare Ventures LLC
www.hcven.com
 Hitachi Corporate Ventures Catalyst Fund
<http://www.hitachi.us/Apps/hitachicom/content.jsp?page=index.html&path=jsp/hitachi/aboutus/CVC/>
 Hopkins Capital Group
www.hopkinscap.com
 Illinois Partners
www.illinoispartners.com
 In-Q-Tel
www.in-q-tel.com
 incTANK
www.incTANK.com
 Inflexion Partners
www.inflexionvc.com
 Institutional Venture Partners
www.ivp.com
 Intel Capital
<http://www.intel.com/capital/>
 -strategic investor in private companies for
 the benefit of Intel/
 InterWest Partners
www.interwest.com
 ITU Ventures
www.itu.com
 Johnson & Johnson Development Corp.
www.jnj.com
 Johnston Associates Inc.
www.jaivc.com
 JP Morgan Partners
www.jpmorganpartners.com
 Kleiner Perkins Caufield & Byers
<http://www.kpcb.com>
 -invest in new technologies and new applications
 for technologies
 KLM Capital Management
www.klmtch.com
 Koch Genesis
www.kochgenesis.com
 Larta Insitute
 -“manage the innovation pipeline”
 -provide training, consulting, capital, etc.
 -incubator
 Lux Capital
<http://www.luxcapital.com/>
 -VC firm focused on early-stage investments
 in nanotechnology and related growth
 sectors
 MASA Inc.
www.masainc.com
 McGovern Capital LLC
<http://www.mcgoverncapital.com/>
 -originates, funds, structures, and implements
 capital formation, joint ventures, and business
 alliances
 -early-stage capital with services
 -access to network of Angel investors
 MedVenture Associates
www.medven.com
 Menlo Ventures
www.menloventures.com
 Millennium Technology Ventures Advisors LLC
www.mtvlp.com
 Mission Ventures

www.missionventures.com
 MIT-Stanford Venture Lab
<http://vlab.org/101.cfm>
 -non-profit organization
 -promotes growth and success of high-tech entrepreneurial ventures

Molecular Manufacturing Enterprises
<http://www.mmei.com/>
 -provide seed capital, advice, contact, other support services to researchers and business people developing advances in molecular nanotechnology

Morgenthaler Ventures
www.morgenthaler.com

MPM Capital
www.mpmcapital.com

NanoTech Financing Solutions LLC
www.nanotechfinancing.com

Navigator Technology Ventures
www.ntven.com

New Enterprise Associates
www.nea.com

NGEN
<http://www.ngenpartners.com>
 -provide catalytic, second-stage VC to emerging new businesses in materials science and enabling technologies

NIF Ventures USA
www.nifusa.com

Noro-Moseley Partners
www.noro-moseley.com

North Coast Technology Investors LP
www.northcoastvc.com

OCG Ventures LLC
www.ocgventures.com

Oxford Bioscience Partners
www.oxbio.com

Polaris Ventures Partners
<http://www.polarisventures.com/>
 -invest in seed, first round, and early stage information technology and life science businesses

Portage Venture Partners
www.portageventures.com

PureTech Ventures
<http://www.puretechventures.com/ventures/>
 -focus on scientific breakthroughs that have the potential to significantly impact the biotechnology, medtech and pharmaceutical industries

Radius Ventures LLC
www.radiusventures.com

San Francisco Consulting Group
<http://www.sfcgcorp.com/>
 -premiere marketing consulting firm

SAS Investors
www.sasinvestors.com

Schering-Plough Corp.
www.sch-plough.com

Sequoia Capital
www.sequoiacap.com

Seraphima Ventures
<http://www.seraphimaventures.com/>
 -proposing new venture capital business model, combining venture capital and angel investing

Sevin Rosen Funds
www.srfunds.com

Sierra Ventures
www.seirraven.com

Sloan Ventures LLC
www.sloanventures.com

Smart Technology Ventures
www.stv.com

SpaceVest
www.spacevest.com

Sprout Group
www.sproutgroup.com

Stratsyn
<http://www.stratsyn.com>
 -full life-cycle management consulting firm

Summit Partners
www.summitpartners.com

Sycamore Ventures
www.sycamorevc.com

Taproot Ventures
www.taprootventures.com

Techno Venture Management
www.tvmvc.com

Telemark Group Inc.
www.telemarkgroup.com

Telos Group Inc.
www.telosvp.com

The Athenaeum Fund
www.athenaeumfund.com

The Randall Group LLC
www.the-randall-group.com

TL Ventures
www.tlventures.com

Toucan Capital Corp.
www.toucancapital.com

Vanguard Ventures
www.vanguardventures.com

Vencon Management Inc.
www.venconinc.com

Venrock Assoc.
www.venrock.com

Ventana Capital Management LLC
www.ventanaglobal.com

Venture Fund Management LLC
www.pbcapitaladvisors.com

Versant Ventures
www.versantventures.com

Vortex Partners
www.vortexpartners.com

Wakefield Group
www.wakefieldgroup.com

Wasserstein Ventures
www.wasserco.com

West STEAG Partners
www.weststeag.com

WestBridge Capital Partners Services LLC
www.wbcp.com

Weston Presido Capital

www.westonpresido.com

Zero Stage Capital

www.zerostage.com

Zone Ventures

<http://www.zonevc.com/>

-provide equity capital to young, high-growth companies

B. Consultants/Support

These are non-government organizations that provide support to technology start-up companies.

North America

Canada

Alwend Group

www.alwend.com/

-aid in technology commercialization

AstroCom Associates

www.astrocom.on.ca

(consult on space/telecomm)

BGA

www.bga-inc.com

(technology commercialization services)

Berch Group, The

www.berchagroup.com

(risk analysis/engineering/geomatics)

G.A.Borstad Associates Ltd.

www.borstad.com

(spec. Remote sensing – consulting, consult R&D)

CARIS-Universal Systems Ltd.

www.caris.com

(GIS & SIM solutions provider)

Centre for Research in Earth and Space Technology

www.crestech.ca

(network for innovation – develop marketable tech)

Calian

www.calian.com

(provider of tech. & professional services)

Chipworks Inc.

www.chipworks.com

(tests circuitry & physical composition of semiconductor chips)

Digital Environmental Management Inc.

www.digitalenvironmental.ca

US

Molecular Manufacturing Enterprises Inc.

<http://www.mmei.com/>

3rd Tech Home

<http://www.3rdtech.com/>

-commercialization support

Honeywell – MEMS plus

<http://www.memsservices.com/>

-accelerate MEMS design development to market

-technology marketing

-lobbying for advanced technology SMEs.

Asia Pacific

Japan

Takeda Foundation

<http://www.takeda-foundation.jp/en/index.html>

-tech grants til 2005 (3/year), \$80,000

China

Chinese Academy of Sciences

Nano Science and Technology Center

<http://www.casnano.net.cn>

Europe

European Science Foundation

<http://www.esf.org>

Germany

IVAM

www.ivamrw.com

C. Government Agencies

Provide services to technology companies for the benefit of the nation as a whole.

North America

Canada

Aerospace Industries Association of Canada (AIAC)
www.aiac.ca

-non-for-profit national trade association re:
aerospace goods/services

Alberta Research Council (ARC)

www.arc.ab.ca

-develop/commercialization

Canadian Centre for Marine Communications
(CCMC)

www.ccmc.nf.ca

-develop Canadian marine information and
communications technology industry

-cooperation with industry, government, and
academia

CRC (Dept. Of Industry)

www.crc.ca

(R&D re : broadband netwk tech, etc)

Environment Canada

www.ec.gc.ca

USA

DARPA

MEMS Program

<http://www.darpa.mil/MTO/MEMS/index.html>

Terahertz Technology Sensing & Satellite
Communications

<http://www.darpa.mil/MTO/Terahertz/index.html>

Microsystems Technology Office (MTO)

<http://www.darpa.mil/mto/index.html>

Department of Commerce

National Institute for Standards and Technology

<http://www.nist.gov/nanotech/onepage.html>

NASA

Ames Research Center

Center for Nanotechnology

<http://www.ipt.arc.nasa.gov/>

Goddard Space Flight Center

<http://www.gsfc.nasa.gov/about.html>

Jet Propulsion Laboratory-Reliability & Failure
Analysis Group

http://parts.jpl.nasa.gov/org_relf_a_grp.htm

Johnson Space Center – Carbon Nanotube Project

[http://mmptdpublic.jsc.nasa.gov/jscnano/Default.htm?
169,24](http://mmptdpublic.jsc.nasa.gov/jscnano/Default.htm?169,24)

Johnson Space Center Area Nanotechnology Study
Group

<http://www.amtexpo.com/nan/>

Glenn Research Center

[http://www.grc.nasa.gov/WWW/AERO/base/nano.ht
m](http://www.grc.nasa.gov/WWW/AERO/base/nano.htm)

Langley Research Center – Structures and Materials
National Nanotechnology Initiative

<http://www.nano.gov/>

Naval Research Laboratory – Surface Nanoscience
and Sensor Technology

<http://stm2.nrl.navy.mil/>

Office of Naval Research – Science & Technology
Solid State and Materials Chemistry

<http://chemistry.nrl.navy.mil/>

Asia Pacific

Japan

JAXA (Japanese Aerospace Exportation Agency)

http://www.jaxa.jp/index_e.html

Office of Space Flight and Operations

<http://www.sfo.jaxa.jp/>

-R&D of space-transportation systems

-launching operations

-International Space Station (ISS) project

-control and operation of satellites in orbit

Office of Space Application

<http://www.satnavi.jaxa.jp/en/index.html>

-R&D & practical applications of satellite
systems for land surveys

-provide satellite systems that further
improve quality of life

Institute of Space Technology and Aeronautics

http://www.ista.jaxa.jp/index_e.html

-R&D of basic technologies to assure steady
progress in space development

-fosters research for development of
reusable launch vehicles etc.

-supports development of domestic aircraft

Institute of Space and Astronautical Science

<http://www.isas.jaxa.jp/e/index.shtml>

-space observation, use of scientific

satellites, planetary research

-supports postgraduate education