Corpus/NN

Technologies/NNS are/VBP becoming/VBG increasingly/RB complicated/VBN and/CC increasingly/RB interconnected/JJ Cars/NNP airplanes/VBZ medical/JJ devices/NNS financial/JJ transactions/NNS and/CC electricity/NN systems/NNS all/DT rely/VBP on/IN more/JJR computer/NN software/NN than/IN they/PRP ever/RB have/VBP before/IN making/VBG them/PRP seem/VB both/DT harder/JJR to/TO understand/VB and/CC in/IN some/DT cases/NNS harder/VBP to/TO control/VB Government/NNP and/CC corporate/JJ surveillance/NN of/IN individuals/NNS and/CC information/NN processing/NN relies/VBZ largely/RB on/IN digital/JJ technologies/NNS and/CC artificial/JJ intelligence/NN and/CC therefore/RB involves/VBZ less/JJR humantohuman/JJ contact/NN than/IN ever/RB before/IN and/CC more/JJR opportunities/NNS for/IN biases/NNS to/TO be/VB embedded/VBN and/CC codified/VBN in/IN our/PRP$ technological/JJ systems/NNS in/IN ways/NNS we/PRP may/MD not/RB even/RB be/VB able/JJ to/TO identify/VB or/CC recognize/VB Bioengineering/NNP advances/NNS are/VBP opening/VBG up/RP new/JJ terrain/NN for/IN challenging/VBG philosophical/JJ political/JJ and/CC economic/JJ questions/NNS regarding/VBG humannatural/JJ relations/NNS Additionally/RB the/DT management/NN of/IN these/DT large/JJ and/CC small/JJ devices/NNS and/CC systems/NNS is/VBZ increasingly/RB done/VBN through/IN the/DT cloud/NN so/IN that/DT control/NN over/IN them/PRP is/VBZ both/DT very/RB remote/JJ and/CC removed/VBN from/IN direct/JJ human/NN or/CC social/JJ control/NN The/DT study/NN of/IN how/WRB to/TO make/VB technologies/NNS like/IN artificial/JJ intelligence/NN or/CC the/DT Internet/NNP of/IN Things/NNP explainable/NN has/VBZ become/VBN its/PRP$ own/JJ area/NN of/IN research/NN because/IN it/PRP is/VBZ so/RB difficult/JJ to/TO understand/VB how/WRB they/PRP work/VBP or/CC what/WP is/VBZ at/IN fault/NN when/WRB something/NN goes/VBZ wrong/JJ

This/DT growing/VBG complexity/NN makes/VBZ it/PRP more/RBR difficult/JJ than/IN everand/VB more/RBR imperative/JJ than/IN everfor/JJ scholars/NNS to/TO probe/VB how/WRB technological/JJ advancements/NNS are/VBP altering/VBG life/NN around/IN the/DT world/NN in/IN both/DT positive/JJ and/CC negative/JJ ways/NNS and/CC what/WP social/JJ political/JJ and/CC legal/JJ tools/NNS are/VBP needed/VBN to/TO help/VB shape/VB the/DT development/NN and/CC design/NN of/IN technology/NN in/IN beneficial/JJ directions/NNS This/DT can/MD seem/VB like/IN an/DT impossible/JJ task/NN in/IN light/NN of/IN the/DT rapid/JJ pace/NN of/IN technological/JJ change/NN and/CC the/DT sense/NN that/IN its/PRP$ continued/JJ advancement/NN is/VBZ inevitable/JJ but/CC many/JJ countries/NNS around/IN the/DT world/NN are/VBP only/RB just/RB beginning/VBG to/TO take/VB significant/JJ steps/NNS toward/IN regulating/VBG computer/NN technologies/NNS and/CC are/VBP still/RB in/IN the/DT process/NN of/IN radically/RB rethinking/VBG the/DT rules/NNS governing/VBG global/JJ data/NN flows/NNS and/CC exchange/NN of/IN technology/NN across/IN borders/NNS

These/DT are/VBP exciting/VBG times/NNS not/RB just/RB for/IN technological/JJ development/NN but/CC also/RB for/IN technology/NN policyour/NN technologies/NNS may/MD be/VB more/JJR advanced/JJ and/CC complicated/VBD than/IN ever/RB but/CC so/RB too/RB are/VBP our/PRP$ understandings/NNS of/IN how/WRB they/PRP can/MD best/RB be/VB leveraged/VBN protected/VBN and/CC even/RB constrained/VBD The/DT structures/NNS of/IN technological/JJ systems/NNS as/IN determined/VBN largely/RB by/IN government/NN and/CC institutional/JJ policies/NNS and/CC those/DT structures/NNS have/VBP tremendous/JJ implications/NNS for/IN social/JJ organization/NN and/CC agency/NN ranging/VBG from/IN open/JJ source/NN open/JJ systems/NNS that/WDT are/VBP highly/RB distributed/VBN and/CC decentralized/VBN to/TO those/DT that/WDT are/VBP tightly/RB controlled/VBN and/CC closed/VBN structured/VBD according/VBG to/TO stricter/NN and/CC more/JJR hierarchical/JJ models/NNS And/CC just/RB as/IN our/PRP$ understanding/NN of/IN the/DT governance/NN of/IN technology/NN is/VBZ developing/VBG in/IN new/JJ and/CC interesting/JJ ways/NNS so/RB too/RB is/VBZ our/PRP$ understanding/NN of/IN the/DT social/JJ cultural/JJ environmental/JJ and/CC political/JJ dimensions/NNS of/IN emerging/VBG technologies/NNS We/PRP are/VBP realizing/VBG both/CC the/DT challenges/NNS and/CC the/DT importance/NN of/IN mapping/VBG out/RP the/DT full/JJ range/NN of/IN ways/NNS that/IN technology/NN is/VBZ changing/VBG our/PRP$ society/NN what/WP we/PRP want/VBP those/DT changes/NNS to/TO look/VB like/IN and/CC what/WP tools/IN we/PRP have/VBP to/TO try/VB to/TO influence/VB and/CC guide/VB those/DT shifts/NNS

Technology/NN can/MD be/VB a/DT source/NN of/IN tremendous/JJ optimism/NN It/PRP can/MD help/VB overcome/VB some/DT of/IN the/DT greatest/JJS challenges/VBZ our/PRP$ society/NN faces/VBZ including/VBG climate/NN change/NN famine/NN and/CC disease/NN For/IN those/DT who/WP believe/VBP in/IN the/DT power/NN of/IN innovation/NN and/CC the/DT promise/NN of/IN creative/JJ destruction/NN to/TO advance/VB economic/JJ development/NN and/CC lead/NN to/TO better/JJR quality/NN of/IN life/NN technology/NN is/VBZ a/DT vital/JJ economic/JJ driver/NN Schumpeter/NNP But/CC it/PRP can/MD also/RB be/VB a/DT tool/NN of/IN tremendous/JJ fear/NN and/CC oppression/NN embedding/VBG biases/NNS in/IN automated/JJ decisionmaking/NN processes/NNS and/CC informationprocessing/VBG algorithms/RP exacerbating/VBG economic/JJ and/CC social/JJ inequalities/NNS within/IN and/CC between/IN countries/NNS to/TO a/DT staggering/JJ degree/NN or/CC creating/VBG new/JJ weapons/NNS and/CC avenues/NNS for/IN attack/NN unlike/IN any/DT we/PRP have/VBP had/VBN to/TO face/NN in/IN the/DT past/JJ Scholars/NNS have/VBP even/RB contended/VBN that/IN the/DT emergence/NN of/IN the/DT term/NN technology/NN in/IN the/DT nineteenth/JJ and/CC twentieth/JJ centuries/NNS marked/VBD a/DT shift/NN from/IN viewing/VBG individual/JJ pieces/NNS of/IN machinery/NN as/IN a/DT means/NN to/TO achieving/VBG political/JJ and/CC social/JJ progress/NN to/TO the/DT more/RBR dangerous/JJ or/CC hazardous/JJ view/NN that/IN largerscale/VBZ more/JJR complex/JJ technological/JJ systems/NNS were/VBD a/DT semiautonomous/JJ form/NN of/IN progress/NN in/IN and/CC of/IN themselves/PRP Marx/NNP More/RBR recently/RB technologists/NNS have/VBP sharply/RB criticized/VBN what/WP they/PRP view/VBP as/IN a/DT wave/NN of/IN new/JJ Luddites/NNP people/NNS intent/NN on/IN slowing/VBG the/DT development/NN of/IN technology/NN and/CC turning/VBG back/RP the/DT clock/NN on/IN innovation/NN as/IN a/DT means/NN of/IN mitigating/VBG the/DT societal/JJ impacts/NNS of/IN technological/JJ change/NN Marlowe/NNP

At/IN the/DT heart/NN of/IN fights/NNS over/IN new/JJ technologies/NNS and/CC their/PRP$ resulting/NN global/JJ changes/NNS are/VBP often/RB two/CD conflicting/VBG visions/NNS of/IN technology/NN a/DT fundamentally/RB optimistic/JJ one/NN that/WDT believes/VBZ humans/NNS use/VBP it/PRP as/IN a/DT tool/NN to/TO achieve/VB greater/JJR goals/NNS and/CC a/DT fundamentally/RB pessimistic/JJ one/CD that/WDT holds/VBZ that/IN technological/JJ systems/NNS have/VBP reached/VBN a/DT point/NN beyond/IN our/PRP$ control/NN Technology/NNP philosophers/NNS have/VBP argued/VBN that/IN neither/DT of/IN these/DT views/NNS is/VBZ wholly/RB accurate/JJ and/CC that/IN a/DT purely/RB optimistic/JJ or/CC pessimistic/JJ view/NN of/IN technology/NN is/VBZ insufficient/JJ to/TO capture/VB the/DT nuances/NNS and/CC complexity/NN of/IN our/PRP$ relationship/NN to/TO technology/NN Oberdiek/NNP and/CC Tiles/NNP Understanding/NNP technology/NN and/CC how/WRB we/PRP can/MD make/VB better/JJR decisions/NNS about/IN designing/VBG deploying/NN and/CC refining/NN it/PRP requires/VBZ capturing/VBG that/DT nuance/NN and/CC complexity/NN through/IN indepth/JJ analysis/NN of/IN the/DT impacts/NNS of/IN different/JJ technological/JJ advancements/NNS and/CC the/DT ways/NNS they/PRP have/VBP played/VBN out/RP in/IN all/DT their/PRP$ complicated/VBN and/CC controversial/JJ messiness/NN across/IN the/DT world/NN

These/DT impacts/NNS are/VBP often/RB unpredictable/JJ as/IN technologies/NNS are/VBP adopted/VBN in/IN new/JJ contexts/NN and/CC come/VB to/TO be/VB used/VBN in/IN ways/NNS that/WDT sometimes/RB diverge/VBP significantly/RB from/IN the/DT use/NN cases/NNS envisioned/VBN by/IN their/PRP$ designers/NNS The/DT internet/NN designed/VBN to/TO help/VB transmit/VB information/NN between/IN computer/NN networks/NNS became/VBD a/DT crucial/JJ vehicle/NN for/IN commerce/NN introducing/NN unexpected/JJ avenues/NNS for/IN crime/NN and/CC financial/JJ fraud/NN Social/NNP media/NNS platforms/NNS like/IN Facebook/NNP and/CC Twitter/NNP designed/VBD to/TO connect/VB friends/NNS and/CC families/NNS through/IN sharing/VBG photographs/NN and/CC life/NN updates/NNS became/VBD focal/JJ points/NNS of/IN election/NN controversies/NNS and/CC political/JJ influence/NN Cryptocurrencies/NNP originally/RB intended/VBD as/IN a/DT means/NN of/IN decentralized/JJ digital/JJ cash/NN have/VBP become/VBN a/DT significant/JJ environmental/JJ hazard/NN as/IN more/JJR and/CC more/RBR computing/JJ resources/NNS are/VBP devoted/VBN to/TO mining/VBG these/DT forms/NNS of/IN virtual/JJ money/NN One/CD of/IN the/DT crucial/JJ challenges/NNS in/IN this/DT area/NN is/VBZ therefore/RB recognizing/VBG documenting/NN and/CC even/RB anticipating/VBG some/DT of/IN these/DT unexpected/JJ consequences/NNS and/CC providing/VBG mechanisms/NNS to/TO technologists/NNS for/IN how/WRB to/TO think/VB through/IN the/DT impacts/NNS of/IN their/PRP$ work/NN as/RB well/RB as/IN possible/JJ other/JJ paths/NNS to/TO different/JJ outcomes/NNS Verbeek/NNP And/CC just/RB as/RB technological/JJ innovations/NNS can/MD cause/VB unexpected/JJ harm/NN they/PRP can/MD also/RB bring/VB about/RB extraordinary/JJ benefitsnew/NN vaccines/NNS and/CC medicines/NNS to/TO address/VB global/JJ pandemics/NNS and/CC save/VB thousands/NNS of/IN lives/NNS new/JJ sources/NNS of/IN energy/NN that/WDT can/MD drastically/RB reduce/VB emissions/NNS and/CC help/NN combat/NN climate/VB change/NN new/JJ modes/NNS of/IN education/NN that/WDT can/MD reach/VB people/NNS who/WP would/MD otherwise/RB have/VB no/DT access/NN to/TO schooling/VBG Regulating/NNP technology/NN therefore/RB requires/VBZ a/DT careful/JJ balance/NN of/IN mitigating/VBG risks/NNS without/IN overly/RB restricting/VBG potentially/RB beneficial/JJ innovations/NNS

Nations/NNS around/IN the/DT world/NN have/VBP taken/VBN very/RB different/JJ approaches/NNS to/TO governing/VBG emerging/VBG technologies/NNS and/CC have/VBP adopted/VBN a/DT range/NN of/IN different/JJ technologies/NNS themselves/PRP in/IN pursuit/NN of/IN more/JJR modern/JJ governance/NN structures/NNS and/CC processes/VBZ Braman/NNP In/IN Europe/NNP the/DT precautionary/JJ principle/NN has/VBZ guided/VBN much/RB more/RBR anticipatory/JJ regulation/NN aimed/VBN at/IN addressing/VBG the/DT risks/NNS presented/VBN by/IN technologies/NNS even/RB before/IN they/PRP are/VBP fully/RB realized/VBN For/IN instance/NN the/DT European/JJ Unions/NNP General/NNP Data/NNP Protection/NNP Regulation/NNP focuses/VBZ on/IN the/DT responsibilities/NNS of/IN data/NNS controllers/NNS and/CC processors/NNS to/TO provide/VB individuals/NNS with/IN access/NN to/TO their/PRP$ data/NNS and/CC information/NN about/IN how/WRB that/DT data/NN is/VBZ being/VBG used/VBN not/RB just/RB as/IN a/DT means/NN of/IN addressing/VBG existing/VBG security/NN and/CC privacy/NN threats/NNS such/JJ as/IN data/NNS breaches/NNS but/CC also/RB to/TO protect/VB against/IN future/JJ developments/NNS and/CC uses/NNS of/IN that/DT data/NN for/IN artificial/JJ intelligence/NN and/CC automated/VBD decisionmaking/VBG purposes/NNS In/IN Germany/NNP Technische/NNP berwachungsvereine/NN or/CC TVs/NNP perform/VBP regular/JJ tests/NNS and/CC inspections/NNS of/IN technological/JJ systems/NNS to/TO assess/VB and/CC minimize/VB risks/NNS over/RP time/NN as/IN the/DT tech/NN landscape/NN evolves/VBZ In/IN the/DT United/NNP States/NNPS by/IN contrast/NN there/EX is/VBZ much/RB greater/JJR reliance/NN on/IN litigation/NN and/CC liability/NN regimes/NNS to/TO address/VB safety/NN and/CC security/NN failings/NNS afterthefact/VBP These/DT different/JJ approaches/NNS reflect/VBP not/RB just/RB the/DT different/JJ legal/JJ and/CC regulatory/JJ mechanisms/NNS and/CC philosophies/NNS of/IN different/JJ nations/NNS but/CC also/RB the/DT different/JJ ways/NNS those/DT nations/NNS prioritize/VBP rapid/JJ development/NN of/IN the/DT technology/NN industry/NN versus/NN safety/NN security/NN and/CC individual/JJ control/NN Typically/NNP governance/NN innovations/NNS move/VBP much/RB more/RBR slowly/RB than/IN technological/JJ innovations/NNS and/CC regulations/NNS can/MD lag/VB years/NNS or/CC even/RB decades/NNS behind/IN the/DT technologies/NNS they/PRP aim/VBP to/TO govern/VB

In/IN addition/NN to/TO this/DT varied/JJ set/NN of/IN national/JJ regulatory/JJ approaches/VBZ a/DT variety/NN of/IN international/JJ and/CC nongovernmental/JJ organizations/NNS also/RB contribute/VBP to/TO the/DT process/NN of/IN developing/VBG standards/NNS rules/NNS and/CC norms/NNS for/IN new/JJ technologies/NNS including/VBG the/DT International/NNP Organization/NNP for/IN Standardization/NNP and/CC the/DT International/NNP Telecommunication/NNP Union/NNP These/DT multilateral/JJ and/CC NGO/NNP actors/NNS play/VBP an/DT especially/RB important/JJ role/NN in/IN trying/VBG to/TO define/VB appropriate/JJ boundaries/NNS for/IN the/DT use/NN of/IN new/JJ technologies/NNS by/IN governments/NNS as/IN instruments/NNS of/IN control/NN for/IN the/DT state/NN

At/IN the/DT same/JJ time/NN that/IN policymakers/NNS are/VBP under/IN scrutiny/JJ both/DT for/IN their/PRP$ decisions/NNS about/IN how/WRB to/TO regulate/VB technology/NN as/RB well/RB as/IN their/PRP$ decisions/NNS about/IN how/WRB and/CC when/WRB to/TO adopt/VB technologies/NNS like/IN facial/JJ recognition/NN themselves/PRP technology/NN firms/NNS and/CC designers/NNS have/VBP also/RB come/VBN under/IN increasing/VBG criticism/NN Growing/VBG recognition/NN that/IN the/DT design/NN of/IN technologies/NNS can/MD have/VB farreaching/VBG social/JJ and/CC political/JJ implications/NNS means/VBZ that/IN there/EX is/VBZ more/JJR pressure/NN on/IN technologists/NNS to/TO take/VB into/IN consideration/NN the/DT consequences/NNS of/IN their/PRP$ decisions/NNS early/RB on/IN in/IN the/DT design/NN process/NN Vincenti/NNP Winner/NNP The/DT question/NN of/IN how/WRB technologists/NNS should/MD incorporate/VB these/DT social/JJ dimensions/NNS into/IN their/PRP$ design/NN and/CC development/NN processes/NNS is/VBZ an/DT old/JJ one/CD and/CC debate/VB on/IN these/DT issues/NNS dates/NNS back/RB to/TO the/DT s/NN but/CC it/PRP remains/VBZ an/DT urgent/JJ and/CC often/RB overlooked/JJ part/NN of/IN the/DT puzzle/NN because/IN so/RB many/JJ of/IN the/DT supposedly/JJ systematic/JJ mechanisms/NNS for/IN assessing/VBG the/DT impacts/NNS of/IN new/JJ technologies/NNS in/IN both/DT the/DT private/JJ and/CC public/JJ sectors/NNS are/VBP primarily/RB bureaucratic/JJ symbolic/JJ processes/VBZ rather/RB than/IN carrying/VBG any/DT real/JJ weight/NN or/CC influence/NN

Technologists/NNS are/VBP often/RB illequipped/JJ or/CC unwilling/JJ to/TO respond/VB to/TO the/DT sorts/NNS of/IN social/JJ problems/NNS that/WDT their/PRP$ creations/NNS haveoften/VBN unwittinglyexacerbated/JJ and/CC instead/RB point/NN to/TO governments/NNS and/CC lawmakers/NNS to/TO address/VB those/DT problems/NNS Zuckerberg/NNP But/CC governments/NNS often/RB have/VBP few/JJ incentives/NNS to/TO engage/VB in/IN this/DT area/NN This/DT is/VBZ because/IN setting/VBG clear/JJ standards/NNS and/CC rules/NNS for/IN an/DT everevolving/JJ technological/JJ landscape/NN can/MD be/VB extremely/RB challenging/JJ because/IN enforcement/NN of/IN those/DT rules/NNS can/MD be/VB a/DT significant/JJ undertaking/NN requiring/VBG considerable/JJ expertise/NN and/CC because/IN the/DT tech/NN sector/NN is/VBZ a/DT major/JJ source/NN of/IN jobs/NNS and/CC revenue/NN for/IN many/JJ countries/NNS that/WDT may/MD fear/VB losing/VBG those/DT benefits/NNS if/IN they/PRP constrain/VBP companies/NNS too/RB much/RB This/DT indicates/VBZ not/RB just/RB a/DT need/NN for/IN clearer/JJR incentives/NNS and/CC better/JJR policies/NNS for/IN both/DT private/JJ and/CC publicsector/JJ entities/NNS but/CC also/RB a/DT need/NN for/IN new/JJ mechanisms/NNS whereby/VBP the/DT technology/NN development/NN and/CC design/NN process/NN can/MD be/VB influenced/VBN and/CC assessed/VBN by/IN people/NNS with/IN a/DT wider/NN range/NN of/IN experiences/NNS and/CC expertise/NN If/IN we/PRP want/VBP technologies/NNS to/TO be/VB designed/VBN with/IN an/DT eye/NN to/TO their/PRP$ impacts/NNS who/WP is/VBZ responsible/JJ for/IN predicting/VBG measuring/NN and/CC mitigating/VBG those/DT impacts/NNS throughout/IN the/DT design/NN process/NN Involving/VBG policymakers/NNS in/IN that/DT process/NN in/IN a/DT more/RBR meaningful/JJ way/NN will/MD also/RB require/VB training/VBG them/PRP to/TO have/VB the/DT analytic/JJ and/CC technical/JJ capacity/NN to/TO more/RBR fully/RB engage/VB with/IN technologists/NNS and/CC understand/VB more/RBR fully/RB the/DT implications/NNS of/IN their/PRP$ decisions/NNS

At/IN the/DT same/JJ time/NN that/IN tech/NN companies/NNS seem/VBP unwilling/JJ or/CC unable/JJ to/TO rein/VB in/IN their/PRP$ creations/NNS many/JJ also/RB fear/VBP they/PRP wield/VBD too/RB much/JJ power/NN in/IN some/DT cases/NNS all/DT but/CC replacing/VBG governments/NNS and/CC international/JJ organizations/NNS in/IN their/PRP$ ability/NN to/TO make/VB decisions/NNS that/WDT affect/VBP millions/NNS of/IN people/NNS worldwide/JJ and/CC control/VB access/NN to/TO information/NN platforms/NNS and/CC audiences/NNS Kilovaty/NNP Regulators/NNPS around/IN the/DT world/NN have/VBP begun/VBN considering/VBG whether/IN some/DT of/IN these/DT companies/NNS have/VBP become/VBN so/RB powerful/JJ that/IN they/PRP violate/VBP the/DT tenets/NNS of/IN antitrust/JJ laws/NNS but/CC it/PRP can/MD be/VB difficult/JJ for/IN governments/NNS to/TO identify/VB exactly/RB what/WP those/DT violations/NNS are/VBP especially/RB in/IN the/DT context/NN of/IN an/DT industry/NN where/WRB the/DT largest/JJS players/NNS often/RB provide/VBP their/PRP$ customers/NNS with/IN free/JJ services/NNS And/CC the/DT platforms/NNS and/CC services/NNS developed/VBN by/IN tech/NN companies/NNS are/VBP often/RB wielded/VBN most/RBS powerfully/RB and/CC dangerously/RB not/RB directly/RB by/IN their/PRP$ privatesector/NN creators/NNS and/CC operators/NNS but/CC instead/RB by/IN states/NNS themselves/PRP for/IN widespread/JJ misinformation/NN campaigns/NNS that/WDT serve/VBP political/JJ purposes/NNS Nye/NNP

Since/IN the/DT largest/JJS private/JJ entities/NNS in/IN the/DT tech/NN sector/NN operate/NN in/IN many/JJ countries/NNS they/PRP are/VBP often/RB better/RB poised/VBN to/TO implement/VB global/JJ changes/NNS to/TO the/DT technological/JJ ecosystem/NN than/IN individual/JJ states/NNS or/CC regulatory/JJ bodies/NNS creating/VBG new/JJ challenges/NNS to/TO existing/VBG governance/NN structures/NNS and/CC hierarchies/NNS Just/NNP as/IN it/PRP can/MD be/VB challenging/VBG to/TO provide/VB oversight/NN for/IN government/NN use/NN of/IN technologies/NNS so/RB too/RB oversight/JJ of/IN the/DT biggest/JJS tech/NN companies/NNS which/WDT have/VBP more/JJR resources/NNS reach/NN and/CC power/NN than/IN many/JJ nations/NNS can/MD prove/VB to/TO be/VB a/DT daunting/VBG task/NN The/DT rise/NN of/IN network/NN forms/NNS of/IN organization/NN and/CC the/DT growing/VBG gig/JJ economy/NN have/VBP added/VBN to/TO these/DT challenges/NNS making/VBG it/PRP even/RB harder/RBR for/IN regulators/NNS to/TO fully/RB address/VB the/DT breadth/NN of/IN these/DT companies/NNS operations/NNS Powell/VBP The/DT privatepublic/JJ partnerships/NNS that/WDT have/VBP emerged/VBN around/IN energy/NN transportation/NN medical/JJ and/CC cyber/VB technologies/NNS further/RBR complicate/NN this/DT picture/NN blurring/VBG the/DT line/NN between/IN the/DT public/JJ and/CC private/JJ sectors/NNS and/CC raising/VBG critical/JJ questions/NNS about/IN the/DT role/NN of/IN each/DT in/IN providing/VBG critical/JJ infrastructure/NN health/NN care/NN and/CC security/NN How/NNP can/MD and/CC should/MD private/JJ tech/NN companies/NNS operating/VBG in/IN these/DT different/JJ sectors/NNS be/VB governed/VBN and/CC what/WP types/NNS of/IN influence/NN do/VBP they/PRP exert/VB over/IN regulators/NNS How/NNP feasible/JJ are/VBP different/JJ policy/NN proposals/NNS aimed/VBN at/IN technological/JJ innovation/NN and/CC what/WP potential/NN unintended/VBD consequences/NNS might/MD they/PRP have/VB

Conflict/NNP between/IN countries/NNS has/VBZ also/RB spilled/VBN over/RP significantly/RB into/IN the/DT private/JJ sector/NN in/IN recent/JJ years/NNS most/RBS notably/RB in/IN the/DT case/NN of/IN tensions/NNS between/IN the/DT United/NNP States/NNPS and/CC China/NNP over/IN which/WDT technologies/NNS developed/VBD in/IN each/DT country/NN will/MD be/VB permitted/VBN by/IN the/DT other/JJ and/CC which/WDT will/MD be/VB purchased/VBN by/IN other/JJ customers/NNS outside/IN those/DT two/CD countries/NNS Countries/NNPS competing/VBG to/TO develop/VB the/DT best/JJS technology/NN is/VBZ not/RB a/DT new/JJ phenomenon/NN but/CC the/DT current/JJ conflicts/NNS have/VBP major/JJ international/JJ ramifications/NNS and/CC will/MD influence/VB the/DT infrastructure/NN that/WDT is/VBZ installed/VBN and/CC used/VBN around/IN the/DT world/NN for/IN years/NNS to/TO come/VB Untangling/VBG the/DT different/JJ factors/NNS that/WDT feed/VBP into/IN these/DT tussles/NNS as/RB well/RB as/IN whom/WP they/PRP benefit/VBP and/CC whom/WP they/PRP leave/VBP at/IN a/DT disadvantage/NN is/VBZ crucial/JJ for/IN understanding/VBG how/WRB governments/NNS can/MD most/VB effectively/RB foster/JJ technological/JJ innovation/NN and/CC invention/NN domestically/RB as/RB well/RB as/IN the/DT global/JJ consequences/NNS of/IN those/DT efforts/NNS As/IN much/JJ of/IN the/DT world/NN is/VBZ forced/VBN to/TO choose/VB between/IN buying/VBG technology/NN from/IN the/DT United/NNP States/NNPS or/CC from/IN China/NNP how/WRB should/MD we/PRP understand/VB the/DT longterm/JJ impacts/NNS of/IN those/DT choices/NNS and/CC the/DT options/NNS available/JJ to/TO people/NNS in/IN countries/NNS without/IN robust/JJ domestic/JJ tech/NN industries/NNS Does/VBZ the/DT global/JJ spread/NN of/IN technologies/NNS help/VBP fuel/VB further/JJ innovation/NN in/IN countries/NNS with/IN smaller/JJR tech/NN markets/NNS or/CC does/VBZ it/PRP reinforce/VB the/DT dominance/NN of/IN the/DT states/NNS that/WDT are/VBP already/RB most/RBS prominent/JJ in/IN this/DT sector/NN How/WRB can/MD research/NN universities/NNS maintain/VBP global/JJ collaborations/NNS and/CC research/NN communities/NNS in/IN light/NN of/IN these/DT national/JJ competitions/NNS and/CC what/WP role/NN does/VBZ government/NN research/NN and/CC development/NN spending/NN play/NN in/IN fostering/VBG innovation/NN within/IN its/PRP$ own/JJ borders/NNS and/CC worldwide/VB How/NNP should/MD intellectual/VB property/NN protections/NNS evolve/VBP to/TO meet/VB the/DT demands/NNS of/IN the/DT technology/NN industry/NN and/CC how/WRB can/MD those/DT protections/NNS be/VB enforced/VBN globally/RB

These/DT conflicts/NNS between/IN countries/NNS sometimes/RB appear/VBP to/TO challenge/VB the/DT feasibility/NN of/IN truly/NN global/JJ technologies/NNS and/CC networks/NNS that/WDT operate/VBP across/IN all/DT countries/NNS through/IN standardized/JJ protocols/NNS and/CC design/NN features/NNS Organizations/NNS like/IN the/DT International/NNP Organization/NNP for/IN Standardization/NNP the/DT World/NNP Intellectual/NNP Property/NNP Organization/NNP the/DT United/NNP Nations/NNPS Industrial/NNP Development/NNP Organization/NNP and/CC many/JJ others/NNS have/VBP tried/VBN to/TO harmonize/VB these/DT policies/NNS and/CC protocols/NNS across/IN different/JJ countries/NNS for/IN years/NNS but/CC have/VBP met/VBN with/IN limited/JJ success/NN when/WRB it/PRP comes/VBZ to/TO resolving/VBG the/DT issues/NNS of/IN greatest/JJS tension/NN and/CC disagreement/NN among/IN nations/NNS For/IN technology/NN to/TO operate/VB in/IN a/DT global/JJ environment/NN there/EX is/VBZ a/DT need/NN for/IN a/DT much/RB greater/JJR degree/NN of/IN coordination/NN among/IN countries/NNS and/CC the/DT development/NN of/IN common/JJ standards/NNS and/CC norms/NNS but/CC governments/NNS continue/VBP to/TO struggle/VB to/TO agree/VB not/RB just/RB on/IN those/DT norms/NNS themselves/PRP but/CC even/RB the/DT appropriate/JJ venue/NN and/CC processes/NNS for/IN developing/VBG them/PRP Without/IN greater/JJR global/JJ cooperation/NN is/VBZ it/PRP possible/JJ to/TO maintain/VB a/DT global/JJ network/NN like/IN the/DT internet/NN or/CC to/TO promote/VB the/DT spread/NN of/IN new/JJ technologies/NNS around/IN the/DT world/NN to/TO address/VB challenges/NNS of/IN sustainability/NN What/WP might/MD help/VB incentivize/VB that/DT cooperation/NN moving/VBG forward/RB and/CC what/WP could/MD new/JJ structures/NNS and/CC process/NN for/IN governance/NN of/IN global/JJ technologies/NNS look/VBP like/IN Why/WRB has/VBZ the/DT tech/NN industrys/NN selfregulation/NN culture/NN persisted/VBN Do/VBP the/DT same/JJ traditional/JJ drivers/NNS for/IN public/JJ policy/NN such/JJ as/IN politics/NNS of/IN harmonization/NN and/CC path/NN dependency/NN in/IN policymaking/VBG still/RB sufficiently/RB explain/JJ policy/NN outcomes/NNS in/IN this/DT space/NN As/IN new/JJ technologies/NNS and/CC their/PRP$ applications/NNS spread/VBP across/IN the/DT globe/NN in/IN uneven/JJ ways/NNS how/WRB and/CC when/WRB do/VBP they/PRP create/VB forces/NNS of/IN change/NN from/IN unexpected/JJ places/NNS

These/DT are/VBP some/DT of/IN the/DT questions/NNS that/IN we/PRP hope/VBP to/TO address/VB in/IN the/DT Technology/NNP and/CC Global/NNP Change/NNP section/NN through/IN articles/NNS that/WDT tackle/VBP new/JJ dimensions/NNS of/IN the/DT global/JJ landscape/NN of/IN designing/VBG developing/VBG deploying/VBG and/CC assessing/VBG new/JJ technologies/NNS to/TO address/VB major/JJ challenges/NNS the/DT world/NN faces/VBZ Understanding/VBG these/DT processes/NNS requires/VBZ synthesizing/VBG knowledge/NN from/IN a/DT range/NN of/IN different/JJ fields/NNS including/VBG sociology/JJ political/JJ science/NN economics/NNS and/CC history/NN as/RB well/RB as/IN technical/JJ fields/NNS such/JJ as/IN engineering/NN climate/NN science/NN and/CC computer/NN science/NN A/NNP crucial/JJ part/NN of/IN understanding/VBG how/WRB technology/NN has/VBZ created/VBN global/JJ change/NN and/CC in/IN turn/NN how/WRB global/JJ changes/NNS have/VBP influenced/VBN the/DT development/NN of/IN new/JJ technologies/NNS is/VBZ understanding/VBG the/DT technologies/NNS themselves/PRP in/IN all/DT their/PRP$ richness/NN and/CC complexityhow/NN they/PRP work/VBP the/DT limits/NNS of/IN what/WP they/PRP can/MD do/VB what/WP they/PRP were/VBD designed/VBN to/TO do/VB how/WRB they/PRP are/VBP actually/RB used/VBN Just/NNP as/IN technologies/NNS themselves/PRP are/VBP becoming/VBG more/RBR complicated/VBN so/RB are/VBP their/PRP$ embeddings/NNS and/CC relationships/NNS to/TO the/DT larger/JJR social/JJ political/JJ and/CC legal/JJ contexts/NN in/IN which/WDT they/PRP exist/VBP Scholars/NNP across/IN all/DT disciplines/NNS are/VBP encouraged/VBN to/TO join/VB us/PRP in/IN untangling/VBG those/DT complexities/NNS

In/IN the/DT st/JJ century/NN technology/NN has/VBZ become/VBN an/DT integral/JJ part/NN of/IN our/PRP$ daily/JJ lives/VBZ reshaping/VBG the/DT way/NN we/PRP live/VBP work/NN and/CC interact/NN with/IN the/DT world/NN The/DT rapid/JJ advancement/NN of/IN technology/NN has/VBZ given/VBN rise/NN to/TO a/DT digital/JJ revolution/NN that/WDT permeates/VBZ every/DT facet/NN of/IN society/NN From/NNP communication/NN and/CC healthcare/NN to/TO business/NN and/CC education/NN the/DT transformative/JJ power/NN of/IN technology/NN is/VBZ evident/JJ Lets/NNS explore/VBP the/DT diverse/NN ways/NNS in/IN which/WDT technology/NN is/VBZ changing/VBG the/DT world/NN ushering/NN in/IN an/DT era/NN of/IN innovation/NN and/CC connectivity/NN

One/CD of/IN the/DT most/RBS profound/JJ ways/NNS technology/NN is/VBZ changing/VBG the/DT world/NN is/VBZ through/IN connectivity/NN The/DT advent/NN of/IN the/DT internet/NN coupled/VBN with/IN advancements/NNS in/IN telecommunications/NNS has/VBZ transformed/VBN the/DT global/JJ landscape/NN into/IN a/DT tightly/RB interconnected/VBN web/JJ Social/NNP media/NNS platforms/NNS instant/VBP messaging/VBG apps/NN and/CC video/NN conferencing/NN tools/NNS have/VBP brought/VBN people/NNS from/IN different/JJ corners/NNS of/IN the/DT world/NN closer/NN than/IN ever/RB This/DT extraordinary/JJ level/NN of/IN connectivity/NN has/VBZ not/RB only/RB revolutionised/VBD personal/JJ communication/NN but/CC has/VBZ also/RB paved/VBN the/DT way/NN for/IN global/JJ collaboration/NN in/IN business/NN science/NN and/CC humanitarian/JJ efforts/NNS

Technology/NN has/VBZ become/VBN the/DT driving/VBG force/NN behind/IN the/DT digital/JJ transformation/NN of/IN businesses/NNS across/IN industries/NNS From/IN automation/NN and/CC artificial/JJ intelligence/NN to/TO data/VB analytics/NNS and/CC cloud/JJ computing/NN businesses/NNS are/VBP leveraging/VBG technology/NN to/TO streamline/VB operations/NNS enhance/VB efficiency/NN and/CC gain/VB a/DT competitive/JJ edge/NN Ecommerce/NNP platforms/NNS have/VBP redefined/VBN the/DT retail/JJ experience/NN and/CC digital/JJ marketing/NN strategies/NNS have/VBP revolutionised/VBN how/WRB companies/NNS reach/VBP and/CC engage/VBP with/IN consumers/NNS The/DT integration/NN of/IN technology/NN in/IN business/NN is/VBZ not/RB merely/RB a/DT trend/NN but/CC a/DT fundamental/JJ shift/NN that/WDT is/VBZ reshaping/VBG traditional/JJ models/NNS and/CC paving/VBG the/DT way/NN for/IN innovative/JJ approaches/NNS to/TO entrepreneurship/VB