Before the
Federal Communications Commission

In the Matter of	)	
	)	**WC Docket No. 17-108**
Restoring Internet Freedom	)	
	)	
	)	

Comments of Engine

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Table of Contents

I. Introduction and Executive Summary

Engine is a non-profit technology policy, research, and advocacy organization that bridges the gap between policymakers and startups. Engine works with government and a community of thousands of high-technology, growth-oriented startups across the nation to support the development of technology entrepreneurship. Engine creates an environment where technological innovation and entrepreneurship thrive by providing knowledge about the startup economy and helping to construct smarter public policy. To that end, Engine conducts research, organizes events, and spearheads campaigns to educate elected officials, the entrepreneur community, and the general public on issues vital to fostering technological innovation.

The community of startups we work with would not exist without an open Internet. The startup ecosystem depends on the Internet as a low cost, ubiquitous platform for building and testing products, reaching customers, and participating in a worldwide entrepreneurial network. Allowing ISPs to impose above-cost, unconstrained access fees on startups would destroy the Internet's fundamental openness and severely curtail the startup activity that the open Internet makes possible. Arguments to the contrary—that startups welcome the "right" to pay access fees or attempt to outbid giant incumbent edge providers for preferential treatment—are divorced from the reality of entrepreneurship. The hundreds of thousands of new startups that launch every year simply do not have even a fraction of the resources or time required to engage in negotiations with ISPs or pay for the priority access that their well-financed incumbents would be able to afford. The drag on entrepreneurship that this would create would be

felt most acutely in the emerging startup ecosystems outside of California and New York that lack the robust investor base found in traditional tech hubs.

The network neutrality rules currently in place ensure that ISPs cannot use their gatekeeper power to disadvantage the early stage startups that drive our economy. Virtually everyone to consider the issue, from previous FCCs[1,2] to the D.C. Circuit,[3,4] to the American public,[5] agrees that in the absence of net neutrality protections, ISPs have the ability and incentive to leverage their terminating access monopolies in a manner that distorts free competition on the Internet, yet the current notice of proposed rulemaking (NPRM) ignores this consensus and sets the Commission on a path that would effectively end open Internet protections altogether.

Not only does the NPRM propose to reverse the Commission's 2015 Open Internet Order and reclassify broadband access service as an Information Service under Title I of the Telecommunications Act, thereby rendering ex ante rules against blocking, throttling, and paid prioritization impossible to enact, the proposal questions the need for *any* rules preventing ISP blocking and discrimination. The NPRM's indifference to the ISP abuse of their terminating access monopoly power is incredibly dangerous to entrepreneurship. Without bright line rules banning anti-competitive ISP practices,

[1] Report and Order, "Preserving the Open Internet," FCC 10-201 (2010).
[2] Report and Order on Remand, Declaratory Ruling and Order, "Open Internet Order," FCC 15-24 (2015).
[3] *Verizon v. FCC*. 740 F.3d 623 (D.C. Cir. 2014).
[4] *United States Telecom Ass'n v. FCC,* 825 F.3d 674 (D.C. Cir 2016).
[5] Imge. Insights (2017) "Open Internet Survey." Retrieved from: http://www.incompas.org/files/IMGEInsights-Presentations-KeyFindings-1c.pdf.

[2] Report and Order on Remand, Declaratory Ruling and Order, "Open Internet Order," FCC 15-24 (2015).
[3] *Verizon v. FCC*. 740 F.3d 623 (D.C. Cir. 2014).
[6] Notice of Proposed Rulemaking, "Restoring Internet Freedom," WC Docket 17-108, FCC 17-60 (2017)
[4] *United States Telecom Ass'n v. FCC,* 825 F.3d 674 (D.C. Cir 2016).
[5] Imge. Insights (2017) "Open Internet Survey." Retrieved from: http://www.incompas.org/files/IMGEInsights-Presentations-KeyFindings-1c.pdf.

startups will be put at a structural disadvantage in competiting with well-heeled incumbents, causing venture investment to dry up and innovation to suffer.

Considering ISPs have expressly stated that they would attempt to charge edge providers for access to end users and block those that did not or could not pay, it is difficult to imagine a policy more antithetical to startup innovation than what the NPRM offers. To support its efforts to rescind open Internet protections, the NPRM relies on dubious claims of decreased investment from ISPs as a result of the 2015 Open Internet Order's classification of broadband access services under Title II of the Communications Act.[6] But, because the Open Internet Order applied forbearance to the aspects of the Title II regime that the cited ISPs complain about, these claims of decreased investment incentives are facially implausible. Rather, as many of the same ISPs have said time and time again, their real opposition to the Open Internet Order's Title II regime rests in its capacity to support meaningful ex ante net neutrality rules. In light of the inevitable access fees and priority charges that would emerge under the NPRM's proposed regulatory structure, reclassifying broadband access service under Title I would result in decreased investment in the startups that are responsible for making the Internet the incredible platform for art, commerce, and culture that it is today. As such, the present NPRM would hardly "Restor[e] Internet Freedom." Rather, it would make the Internet much less vibrant, less innovative, and less free.

[6] Notice of Proposed Rulemaking, "Restoring Internet Freedom," WC Docket 17-108, FCC 17-60 (2017) ("NPRM").

II. Startups Depend on an Open Internet to Create Immense Value

In the span of a few decades, the Internet has become the world's dominant medium for economic growth and creative expression. By allowing anyone with a computer and a good idea to build a company and reach a global audience, the Internet has sparked a new industrial revolution led by hundreds of thousands of small entrepreneurs disrupting industries and challenging dominant incumbents. The value attributable to this boom in startup activity is staggering: virtually all new net jobs in this country are created by startups,[7] and the Internet sector now constitutes more than 6 percent of U.S. GDP.[8] Startups are driving the development of the next wave of innovative technologies—from virtual reality to artificial intelligence to the Internet of Things—that will reshape the economy in the coming years.

Even with limited resources and untested ideas, startups generate incredible economic value from the open Internet. An Engine report from 2013 showed that "[d]uring the last three decades, the high-tech sector was 23 percent more likely and [the information and communication technology sector] 48 percent more likely than the private sector as a whole to witness a new business formation."[9] The high-tech jobs these businesses create accounted for 5.6% of the job market in the United States in 2012 and almost

[7] John Haltiwanger, Ron S. Jarmin, and Javier Miranda, "Who Creates Jobs? Small Versus Large Versus Young." *The Review of Economics and Statistics*, May 2013, available at http://www.mitpressjournals.org/doi/pdf/10.1162/REST_a_00288.
[8] Internet Association. "New Report Calculates the Size of the Internet Economy." Dec. 2015, available at https://internetassociation.org/121015econreport/.
[9] Ian Hathaway, "Tech Starts: High-Technology Business Formation and Job Creation in the United States," Kauffman Foundation, Aug. 2013, available at http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2013/08/bdstechstartsreport.pdf at p. 2.

certainly constitute a higher proportion of total employment today.[10] Moreover, these tech jobs spur further job creation and stimulate the local economy, as tech workers spend money locally.[11]

This technological innovation and economic potential is only possible because today's founders can launch their businesses at extremely low cost—often merely the expense of hard work, cloud computing tools, and off-the-shelf laptops and mobile devices. These costs generally drop each year per unit of computing power, allowing entrepreneurs to launch businesses with ever smaller amounts of seed capital. From 2000 to 2011, the cost of running a basic internet application fell from $150,000 a month to $1,500 a month.[12] The ever-decreasing cost of launching a startup has democratized the tech sector and has allowed new startup hubs outside of Silicon Valley to flourish. According to the most recent Kauffman Foundation Index of Startup Activity, 16 of the 20 fastest growing metropolitan areas for high-growth startups are outside of California, New York, and Massachusetts,[13] which have traditionally accounted for more than 70 percent of venture capital investments.[14]

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[10] Ian Hathaway, "High-Tech Employment and Wages in the United States," Bay Area Council Economic Institute, Dec. 2012, available at http://www.bayareaeconomy.org/media/files/pdf/TechReport.pdf, at p. 10.

[11] *Id.* at 12 ("For each job created in the local high-tech sector, approximately 4.3 jobs are created in the local non-tradable sector in the long run.").

[12] Marc Andreessen, "Why Software Is Eating The World," *The Wall Street Journal*, Aug. 20, 2011, available at http://on.wsj.com/1gt4wRH.

[13] "Metropolitan Area Rankings," Kauffman Foundation, 2017, available at http://www.kauffman.org/kauffman-index/rankings?report=growth&indicator=growth-rate&type=metro

[14] "Venture Capital Dollars and Deals by State, 2009-2014," National Venture Capital Association and PricewaterhouseCoopers, Jan. 16th, 2015, available at: http://ssti.org/blog/useful-stats-venture-capital-activity-capitagdp-state-2009-2014.

Though the cost of many of the material inputs for launching a startup have decreased over time, the amount of capital invested in startups has trended upwards. Venture capital investment in the U.S. grew from $29 billion in 2006 to more than $69 billion in 2016.[15] Angel investment has seen similar growth in recent years, increasing from $17.6 billion in 2009 to $24.1 billion in 2014.[16] New crowdfunding markets are opening up investment opportunities to large segments of the population that had previously been unable to participate in the startup market. The investors backing Internet-enabled startups did so with the expectation that ISPs would be unable to charge for access to ISP customers or to give larger competitors preferential treatment in exchange for payment. Because of a combination of technical limitations; merger conditions; enforcement actions; and bright-line, ex ante FCC rules in place since 2010,[17,18] broadband providers have been precluded from arbitrarily blocking startups, charging access fees, or otherwise discriminating against small edge providers. Disrupting these settled expectations would undermine the continued viability of the startup market in incalculable ways and severely curtail the economic and job growth that startups provide.

[15] Taylor Soper, "VC investment Activity Dips in 2016, But Still Reaches $69B Across 7,751 Companies," *GeekWire*, Jan. 10, 2017, available at https://www.geekwire.com/2017/vc-investment-activity-2016-dips-year-prior-still-reaches-69b-across-7751-companies/.
[16] Jonathan Ortman, The Rise of Angel Investment, *Kauffman Policy Digest*, Mar. 28, 2016, available at http://www.kauffman.org/blogs/policy-dialogue/2016/march/the-rise-of-angel-investing.
[17] Report and Order, "Preserving the Open Internet," FCC 10-201 (2010) ("2010 Open Internet Order").
[18] Report and Order on Remand, Declaratory Ruling and Order, "Open Internet Order," FCC 15-24 (2015) ("2015 Open Internet Order").

III. Startups and the Broader Internet Ecosystem Would Suffer Without Strong Net Neutrality Rules

While the NPRM does not explicitly reject the value of rules that prevent ISPs from abusing their gatekeeper power to distort competition, it suggests that such rules are unnecessary by both questioning the need for bans on blocking, throttling, and paid prioritization and by proposing a regulatory framework that would make such ex ante rules invalid under existing precedent. This approach is profoundly misguided. As the 2010 and 2015 Open Internet Orders found, broadband providers "have the incentives and ability to engage in practices that pose a threat to Internet openness, and as such, rules to protect the open nature of the Internet remain necessary."[19] Startups depend on such rules to preserve the fundamental openness of the Internet, which "fosters the edge provider innovation that drives the virtuous cycle."[20] Without the core net neutrality rules at the heart of the Commission's 2015 Open Internet Order—ex ante bans on blocking, throttling, and paid prioritization, as well as a flexible rule to address threats to Internet openness not directly addressed under the bright line rules—startups would be put at a structural disadvantage in the Internet marketplace, face significantly higher founding and operational costs, and struggle to find investment capital. Robust startup activity depends on new entrants not being throttled, blocked, or put at disadvantage relative to well-heeled incumbents that can pay for priority access.

[19] *Id.* at ¶ 75.
[20] *Verizon*, 740 F.3d at 644.

Though the NPRM attempts to paint the Open Internet Order's core protections as unnecessary efforts to curtail mere "hypothetical actions Internet service providers might take,"[21] examples abound of ISPs engaging in the types of anti-competitive behaviors that the Open Internet Order's rules are meant to curtail. That ISPs engaged in these practices despite the existence of rules meant to prevent such activities underscores the critical need for strong, bright line rules. Worse, ISPs have repeatedly asserted that they would engage in the anti-competitive behaviors barred under the Open Internet Order in the absence of such rules.

Because it is well-established that ISPs have every incentive to undermine core net neutrality principles in the absence of bright-line prohibitive rules, preserving the protections embedded in the Open Internet Order is necessary to foster the startup activity that has been so fundamental to the vitality and growth of the entire Internet sector.

A. ISP Blocking or Discrimination Would Gravely Harm Startups

Launching a startup is an inherently risky proposition. With minimal funding and little consumer awareness, an early stage startup's future prospects are always uncertain. To survive, a startup usually needs to be able to quickly and easily reach as wide of an audience as possible—a task made significantly easier by the Internet's ubiquity and relatively low cost of participation. If, however, ISPs were permitted to block startups from accessing customers on their networks, those startups' valuations would plummet

[21] NPRM at ¶ 50.

as they would be unable to reach large portions of the market and lose potential customers. This is a particular problem for startups with products or services that rely on network effects—those that become more valuable with more users— such as social networks, e-commerce platforms connecting buyers and sellers (or drivers and riders), sites that host user-generated content (including reviews, photos, or micro-blogs), and payment networks. If blocked by even a few ISPs, these companies will be less likely to gain traction in the market, even if consumers would otherwise prefer their services.

Discriminatory ISP practices that fall short of fully blocking access to subscribers—such as giving certain traffic priority, guaranteed bandwidth, or exemptions from data caps—would have the same anti-competitive effect. Startups lack the brand recognition or customer loyalty that more established players enjoy, so reliability and speed are particularly important for early stage companies. If a startup's site does not load as quickly as a competitor's site or if its application is not as reliable, it will be put at a potentially insurmountable disadvantage as customers switch to incumbents whose services receive better treatment. The negative impact of slower page loading is not merely theoretical. According to research compiled by StrangeLoop Networks, "three out of five [users] say that poor performance will make them less likely to return" and two of five said "they'd likely visit a competitor's site next."[22] Beyond moving to competitors, users will simply spend less money on e-commerce sites or view fewer pages on sites that garner advertising revenue through the number of page-views. For example, in 2007, for every 100ms increase in load time, Amazon's sales decreased 1

[22] Jolie O'Dell, "Why Websites Are Slow and Why Speed Really Matters," Mashable, Apr. 5, 2011, available at http://mashable.com/2011/04/05/site-speed.

percent;[23] AOL found that users whose sites load faster view up to 50 percent more pages than visitors whose pages load slowly.[24]

Because packet switching is a zero-sum game (that is, prioritizing certain packets necessarily means that other packets reach their destinations more slowly than they otherwise would), allowing any companies to purchase prioritized service would be economically damaging to non-prioritized service. Since an edge provider would only rationally pay for prioritized service to the extent that such service is economically advantageous compared to non-prioritized service, it logically follows that paid prioritization schemes would create competitive disparities between prioritized and non-prioritized services. As a result, the negative economic consequences of non-prioritized service—the class of traffic management that startups will be forced into—would be severe.

B. Startups Would Be Unable To Pay ISP Access or Priority Fees

Far from recognizing the serious negative impact access fees and paid prioritization schemes would have on startups, the NPRM appears to follow the bizarre logic of some net neutrality opponents that startups somehow welcome the opportunity to pay for priority, and that rules banning these practices stifle "pro-competitive or pro-consumer paid prioritization arrangements."[25] The argument that many net neutrality opponents

[23] Ryan Kelly, "How Webpage Load Time is Related to Visitor Loss," Pear Analytics, Aug. 7, 2009, available at https://www.pearanalytics.com/blog/2009/how-webpage-load-time-related-to-visitor-loss/.
[24] *See* O'Dell *infra* note 22.
[25] NPRM at ¶ 87.

have put forward, that paid prioritization "could help fledgling entrepreneurs compete with Internet giants, such as Facebook and Google, whose scale economies allow them to develop their own customized network capabilities,"[26] reflects a deep misunderstanding of startup economics. Early stage startups typically run on threadbare budgets, stretching seed investments long enough to produce a minimum viable product. It is absurd to think that they could outbid some of the largest companies in the world for priority access.

Startups simply do not have sufficient capital to pay access or prioritization fees of any kind. While the aggregate amount of money invested in startups is massive, the average startup launches with surprisingly little capital, making even small increases in startup costs potentially ruinous for new enterprises. According to a 2008 Kauffman Foundation survey, the average high-tech startup firm launches with around $73,000 of outside capital, with company insiders providing a similar amount.[27] The University of New Hampshire's Center for Venture Research estimated that the average angel deal size in 2015 was $345,390, though this figure included angel deals for biotech, industrial, and energy companies which tend to have higher capital needs than Internet-enabled startups.[28]

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[26] Mark Jamison and Roslyn Layton, "Beyond Net Neutrality: Policies for Leadership in the Information, Computing, and Network Industries," American Enterprise Institute, June 2016, available at http://warrington.ufl.edu/centers/purc/purcdocs/papers/1606_Jamison_Beyond%20Net%20Neutrality.pdf.

[27] "The Capital Structure Decisions of New Firms," Kauffman Foundation, Apr. 17, 2009, p. 11, available at http://www.kauffman.org/what-we-do/research/kauffman-firm-survey-series/the-capital-structure-decisions -of-new-firms.

[28] Jeffrey Sohl, "The Angel Investors Market in 2015: A Buyer's Market," Center for Venture Research, May 25, 2015, available at https://paulcollege.unh.edu/sites/paulcollege.unh.edu/files/webform/Full%20Year%202015%20Analysis%20Report.pdf.

1. ISPs' Claims Regarding Title II's Impact on Investment Demonstrate the Likely Prohibitive Cost of Priority and Access Fees

Considering ISPs apparently believe that they will be able to generate significant economic returns from access and prioritization fees if the Open Internet Order's rules are rescinded, the cost of obtaining prioritized access will likely be many times greater than the average startup's seed round. Ever since the *Verizon v. FCC* decision reopened the debate around the proper classification of broadband access services, ISPs and their advocates have argued that imposing strong net neutrality rules on ISPs under Title II would vastly decrease their investment incentives by as much as $40 billion.[29] While claims that the 2015 Open Internet Order's reclassification decision has actually resulted in diminished ISP investments are empirically[30] and logically[31] false, threats from ISPs that they will decrease investment as a result of the 2015 Open Internet Order reveal why access and priority fees would be so devastating to the startup economy.

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[29] *See* NPRM at ¶ 44-48.

[30] *See, e.g.,* Free Press, "Internet Service Providers' Capital Expenditures," (Feb. 28, 2017), available at https://www.freepress.net/sites/default/files/resources/internet_service_providers_capital_expenditures_2013- 2016_reported_as_of_2_27_17.pdf; *see also* Christopher Hooton, "An Empirical Investigation Of The Impacts Of Net Neutrality," Internet Association, 2017, available at https://cdn1.internetassociation.org/wp-content/uploads/2017/07/InternetAssociation_NetNeutrality-Impacts-Investigation.pdf.

[31] As the National Cable and Telecommunications Association recently said, any negative infrastructure investment impact from reclassification would not yet have shown up in the data: "two years is too short a time to fully evaluate the impact of a Title II regime because investment horizons are typically much longer than two years. Many of the investments made in 2015 and 2016 were set in motion several years before and may not have accounted for the prospect of Title II regulation" Rick Chessen, "Dear Harold Feld," NCTA Platform, June 13, 2017, available at https://www.ncta.com/platform/public-policy/dear-harold-feld/.

The NPRM cites several statements from ISPs that pre-date the issuance of the 2015 Open Internet Order arguing that Title II reclassification would curb their infrastructure investment.[32] But, the aspects of the Title II regime that these ISPs claim would hurt investment—"rate regulation...unbundling (open access), resale and mandatory collocation"[33]—were excluded from the Open Internet Order by virtue of the FCC's forbearance decisions.[34] Despite this forbearance, ISPs still attempt to argue that reclassification hurts ISP investment because the Open Internet Order's forbearance decisions "cannot bind the actions of a future Commission."[35] Of course, since a future FCC could also reverse the proposals in the present NPRM through essentially the same process required to reverse the FCC's forbearance decisions in the 2015 Open Internet Order, reclassifying broadband as a Title I service will not result in any less "regulatory uncertainty" about the possibility of rate regulation in the future than that which exists under the current regime.

Since rate regulation and the threat of future rate regulation should not plausibly diminish ISP investment incentives, ISPs' insistence that the Open Internet Order is diminishing their investment incentives by up to $40 billion suggests that their real

[32] NPRM ¶ 47, FN. 115.
[33] *See* Letter from Barbara S. Esbin, Counsel, American Cable Association, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 14-28, at 2–5 (filed Feb. 2, 2015) (arguing that Title II provisions regarding "rate regulation – either through ex ante rules or ex post enforcement through the complaint process – unbundling (open access), resale and mandatory collocation" could hinder small ISP investment); *see also* Letter from 43 Small ISPs to Chairman Wheeler, GN Docket Nos. 14-28, 10-127, at 1–2 (filed Feb. 10, 2015) (arguing that FCC effort to "impose rate regulation – either by rule or by addressing complaint cases – resale, unbundling (open access) and collocation requirements" would hinder investment).
[34] 2015 Open Internet Order at ¶ 519.
[35] NPRM at ¶ 115, citing Letter from 43 Small ISPs to Chairman Wheeler, GN Docket Nos. 14-28, 10-127 (filed Feb. 10, 2015).

concern is their inability to charge edge providers for access and priority under the current regime. If ISPs expect to earn billions more in the absence of net neutrality protections, they apparently anticipate charging exorbitant fees for access to consumers or priority treatment, well beyond what any startup could afford. And, in order to charge such high fees for priority service, non-prioritized service would have to be effectively useless, rendering the Internet less vibrant and efficient. While ISP claims about the cause and magnitude of purported decreased investment incentives are facially implausible, these arguments actually support the claim that removing open Internet protections would have worse economic consequences than maintaining them.

2. Priority and Access Fees Are Anti-Consumer

The notion that allowing wealthy edge providers to pay for priority access would be somehow "pro-competitive or pro-consumer" is equally misguided. As described above, because startups would not realistically be able to compete with large incumbents for priority access and because the relative disadvantage of non-prioritized service would drive many startups out of business or prevent investors from funding them in the first place, paid prioritization schemes will lead to a less competitive market with fewer new firms challenging incumbents. Though in the short term, some consumers may enjoy the benefits of prioritized service from the large companies able to afford it, these pro-consumer effects will be outweighed in the long run in the form of less competition and less innovation from fewer startup firms.[36]

[36] As many other commentators have noted, application-agnostic, user-directed prioritization does not present the same types of competitive harms that would arise if ISPs are permitted to charge specific

C. Many Of The Most Successful Startups Today Would Not Have Launched if ISPs Were Permitted to Block or Discriminate

While it is impossible to fully calculate the lost innovation and startup activity that would occur if ISPs are allowed to use their gatekeeper power to disadvantage startups, many of the most successful small and medium-sized edge providers operating today have asserted that they likely would not have launched and found success without strong net neutrality rules:

- **Tumblr**, a New York-based microblogging and social networking platform hosting over 200 million blogs, has previously testified that "[d]e facto net neutrality has been a fundamental pillar of the innovation and economic growth spurred by and because of the internet, and Tumblr's existence would not have been possible without it."[37]
- **Etsy**, an online marketplace where users can connect to buy and sell unique, often handmade goods, said that its "business model would not have worked under [a Title I-based net neutrality regime lacking ex ante rules], which would have allowed more established e-commerce companies to negotiate individualized, differentiated arrangements and pay for priority access to consumers."[38]
- **reddit**, an online news and social networking site, has stated that, if a net neutrality plan without bright line bans on blocking, throttling, and paid

edge providers for priority access. *See, e.g.,* Barbara van Schewick, Network Neutrality and Quality of Service: What a Non-Discrimination Rule Should Look Like, 67 Stanford Law Review 1-166 (2015).

[37] Comments of Tumblr, Inc., GN Docket No. 14-28, at p. 6 (filed September 9, 2014)

[38] Comments of Etsy, Inc., GN Docket No. 14-28, at p. 5 (filed July 8, 2014)

prioritization "had been law in 2005, reddit might not have gotten off the ground."[39]

- **General Assembly**, an online educational institution that teaches courses in technology, business, and design, shared similar opinions about the impossibility of launching their company under the proposed Title I framework in the Protecting and Promoting the Open Internet Notice of Proposed Rulemaking[40] ("2014 NPRM"): "General Assembly would not have been founded if the FCC's proposed rules were in effect [when we launched]."[41]
- **LendUp**, an online lending startup, noted in comments to the FCC in 2014 that "Competition within this industry is fierce and, if we were founded under the [Title I-based] rules laid down in the [2014 NPRM], our initial cost projections could have proven prohibitive."[42]
- **Distinc.tt**, a social lifestyle network for the LGBT community, stated in comments to the FCC: "Like all of the startups I've talked with, if there were a fast lane, our survival would have depended on us being in it from the beginning. As I noted earlier, this would not have been possible. Even if the 'slow lane' were 'pretty fast,' it wouldn't matter because we would still need to be as effective at serving our users as our competitors. Users turn away from websites which are even 250 milliseconds slower than their competitors."[43]

[39] Comments of reddit, Inc., GN Docket No. 14-28, at p. 9 (filed July 15, 2014)
[40] Notice of Proposed Rulemaking, "Protecting and Promoting the Open Internet," GN Docket 14-28, FCC 14-61 (2014) ("2014 NPRM").
[41] Comments of General Assembly, GN Docket No. 14-28, at p. 4 (filed July 1, 2014)
[42] Reply Comments of LendUp, GN Docket No. 14-28, at p. 5 (filed August 5, 2014)
[43] Comments of Distinc.tt, GN Docket No. 14-28 at pp. 5-6 (filed August 5, 2014)

- **Codecademy**, an education company that offers free online classes in computer programming noted in 2014 that "[Codecademy's founders] could not have founded Codecademy if the Chairman's proposed [Title I-based] rules were in effect three years ago."[44]
- **Contextly**, an online service that helps media companies retain readers and matches readers to news they want to read, says about its founding, "None of this would have happened under the [Title I-based] rules proposed by the FCC [in 2014]. I would have never left my job or tried to start a company when everyone around me thought I was just a journalist with a crazy idea that high quality recommendations can help good journalism and storytelling thrive."[45]
- **Floor64,** an online media, research, and consulting company, commented, "Without the open internet, Floor64 would not exist today. Started on a whim, initially as a hobby, it was only possible because, at first, I could send around emails, and then I could expand to the web for the low price (then) of a $50 domain name and $30/month web hosting -- which enabled me to put up a website that could easily compete with the NY Times or the Washington Post."[46]
- **Badger Maps**, a field sales mapping application, commented in 2014: "Under the FCC's [Title I-based] proposal we would not be able to provide the services we currently provide."[47]
- **FarmLogs** farm management software company, commented in this proceeding: "one of the initial questions about our business was the assumption that only big

[44] Comments of Codecademy, GN Docket No. 14-28 at p. 3 (Filed June 23, 2014).
[45] Comments of Contextly, GN Docket No. 14-28 at p. 2 (Filed June 3, 2014).
[46] Comments of Floor64, GN Docket No. 14-28 at p. 2 (Filed July 14, 2014).
[47] Comments of Badger Maps, GN Docket No. 14-28 at p. 2 (Filed August 5, 2014).

companies were successful in farming, and there'd be no place for a start-up like us. Without net neutrality, this truly might have been the case."[48]

- **Single**, an online platform that connects music artists directly to consumers, commented in this proceeding: "As a distributor of online content and media, net neutrality is essential to my ability to reach customers and compete. We would not have existed without it. The big cable and wireless companies also are content providers, and I'm concerned that they will favor their own services over ours."[49]
- **Kip**, an online application that allows groups to streamline purchases and split payments, commented in this proceeding, "We would not have existed without [strong net neutrality rules], and, right now, we can compete and reach a worldwide audience, and succeed based on the quality of our application; big companies may have bigger marketing budgets than us, but ultimately any consumer can choose to use our app with the same broadband speeds they'd get for any other service."[50]

Support for strong net neutrality protections is practically unanimous within the startup community. Earlier this year, more than 1,200 startups, investors, and entrepreneur support organizations representing all 50 states signed a letter organized by Engine and the startup accelerators Y Combinator and TechStars supporting the 2015 Open Internet Order.[51] The signatories praised the Open Internet Order's "light touch net neutrality rules that not only prohibit certain harmful practices, but also allow the

[48] Reply Comments of FarmLogs, WC Docket No. 17-108 at p. 3 (Filed July 12, 2017)
[49] Comments of Single, WC Docket No. 17-108 at p. 2 (Filed July 10, 2017)
[50] Comments of Kip, WC Docket No. 17-108 at p. 2 (June 22, 2017)
[51] Engine, Y Combinator, and Techstars, "Startups for Net Neutrality," Apr. 26, 2017, available at: http://www.engine.is/startups-for-net-neutrality/.

Commission to develop and enforce rules to address new forms of discrimination," and expressed disapproval of proposals to eliminate the Order's bright-line rules, "which would give a green light for Internet access providers to discriminate in unforeseen ways."[52]

D. ISPs Would Engage in Blocking, Throttling, and Paid Prioritization in the Absence of Prophylactic Rules

Opponents of net neutrality frequently argue that rules against ISP discrimination are a solution in search of a problem[53] because, in their view, ISPs historically have not and, if existing protections are eliminated, likely would not engage in any form of throttling, blocking, paid prioritization, or other activity that leverages their terminating access monopoly power in a manner that distorts open competition on the Internet. In reality, however, ISPs have in the past discriminated against different types of Internet traffic despite the existence of rules prohibiting such behavior, have clear incentives to abuse their gatekeeper position, and have stated they would engage in such practices but for the existence of net neutrality protections.

1. ISPs Have Previously Violated Net Neutrality Principles

[52] *Id.*

[53] Ajit Pai, "Remarks of FCC Commissioner Ajit Pai Before the Free State Foundation's Tenth Anniversary Gala Luncheon." Free State Foundation December 7th, 2016, available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db1207/DOC-342497A1.pdf.

The NPRM's suggestion that proscriptive rules banning blocking, throttling, and paid prioritization are unnecessary because ISPs have not to date engaged in any of these practices[54] ignores many examples of online gatekeepers undermining Internet openness throughout the world. Even in the U.S., despite FCC actions to protect network neutrality principles, parties have engaged in abuses, including:

- Comcast interfering with peer-to-peer technologies, including some of the most popular technologies online;[55]
- Apple blocking the application Skype on the iPhone, which is subject to a contract with AT&T, a carrier that competes with Skype;[56]
- Verizon, AT&T, and T-Mobile blocking Google Wallet, while all three companies were part of a competing mobile payments joint venture;[57]
- Comcast's disputes with Level 3 and Netflix over termination fees and congested transit.[58]

Other countries have also seen net neutrality violations. In Canada, the telecommunications regulator has adopted network neutrality rules and has taken some

[54] NRPM at ¶ 50.

[55] Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications; Broadband Industry Practices, Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC's Internet Policy Statement and Does Not Meet an Exception for "Reasonable Network Management," WC Docket No. 07-52, Memorandum Opinion and Order, FCC 08-183 (Aug. 20, 2008), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-183A1.pdf.

[56] "AT&T Extends VoIP to 3G Network for iPhone," AT&T, Oct. 6, 2009, available at http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27207; Ryan Singel, "AT&T Relents, Opens iPhone to Skype, VoIP," *Wired*, Oct. 6, 2009, available at http://www.wired.com/2009/10/iphone-att-skype.

[57] Sarah Perez, "Google Wallet Rolls Out To More Devices – Nope, Still No Love For Verizon, AT&T Or T- Mobile Owners," *TechCrunch*, May 16, 2013, available at http://techcrunch.com/2013/05/16/google-wallet-rolls-out- to-more-devices-nope-still-no-love-for-verizon-att-or-t-mobile-owners.

[58] Drew Fitzgerald, "Level 3, Comcast Reach Accord on Internet Traffic Costs," *The Wall Street Journal*, July 16, 2013, available at http://online.wsj.com/news/articles/SB10001424127887323394504578609963298727892; Shalini Ramachandran, "Netflix to Pay Comcast for Smoother Steaming," *The Wall Street Journal*, Feb. 23, 2014, available at http://online.wsj.com/news/articles/SB10001424052702304834704579401071892041790.

action to enforce them against companies discriminating against peer-to-peer traffic.[59] One telecommunications company blocked the website of a union member during a strike against the company.[60]

European ISPs have engaged in similar conduct. In June of 2012, the Body of European Regulators for Electronic Communications (BEREC) released a report based on an investigation into practices restricting the open Internet in the European Union. It found widespread violations affecting at least 1 in 5 users. In the fixed market, "at least 21% of broadband users are affected by P2P-related restrictions, either technically or contractually."[61] In the mobile market, "at least 36% of broadband users are affected by P2P related restrictions, either technically or contractually." Moreover, in the mobile market, "at least 21% of broadband users are affected by VoIP related restrictions, either technically or contractually."[62] Beyond P2P and VoIP, BEREC also found restrictions on "other specific applications (such as gaming, streaming, e-mail or instant messaging service) and, to a much lesser extent, on access to specific content and application providers."

Considering many of the examples above occurred despite the existence of net neutrality protections, the NPRM's argument that the relative sparsity of abuses

[59] Michael Geist, "CRTC Investigation Finds Rogers Violated Net Neutrality Rules," MichaelGeist.ca, Jan. 20, 2012, available at http://www.michaelgeist.ca/2012/01/crtc-on-rogers-net-neutrality-2/; Michael Geist, "Canada's Net Neutrality Enforcement Failure," MichaelGeist.ca, July 8, 2011, available at http://www.michaelgeist.ca/2011/07/net-neutrality-enforcement-fail/.
[60] Barbara Van Schewick, "Internet Architecture and Innovation," MIT Press (2010) at p. 267-68.
[61] BEREC, "A view of traffic management and other practices resulting in restrictions to the open Internet in Europe," May 29, 2012, available at http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/Traffic%20Management%20Investigation%20BEREC_2.pdf, at p. 21.
[62] *Id.*

somehow proves that rules are unnecessary is logically invalid. It is certain that there would have been many more violations of net neutrality principles in the absence of FCC protections, particularly considering ISPs have repeatedly said that they would like to take actions barred under the current rules.[63]

2. ISPs Have Said They Want to Engage in Practices Barred Under the Open Internet Order

The NPRM's apparent belief that ISPs would not throttle, block, or charge edge providers for special treatment is belied by the many statements ISPs have made to the contrary. Though their public relations departments have begun putting out statements purporting to establish support for net neutrality rules, ISPs have consistently told the FCC, courts, and the public at large that net neutrality rules are preventing them from charging access and priority fees to edge providers.

In 2011, Verizon filed a lawsuit against the FCC to overturn the 2010 Open Internet Order in part because the Order's protections purportedly harmed Verizon by "foreclosing potential revenue streams" in the form of access and prioritization fees.[64] At oral argument before the D.C. Circuit, Verizon's counsel repeatedly claimed that her

[63] The NPRM's suggestion that the lack of ISP site blocking in the year between the DC Circuit's invalidation of the 2010 Open Internet Order's "no-blocking rule" and the enactment of the 2015 Open Internet Order reflects ISP disinterest in blocking or charging access fees is not plausible. *See* NPRM at ¶ 79 ("For example, prior to 2015, many large Internet service providers voluntarily abided by the 2010 no-blocking rule in the absence of a regulatory obligation to do so."). In that period, ISPs were actively petitioning the FCC to refrain from passing strong net neutrality rules. Engaging in such egregious net neutrality violations at that time would only have made the FCC more likely to enact the robust rules they sought to avoid.

[64] *Verizon,* 740 F.3d at 649.

client wanted the power to charge edge providers for access to end users and to block those that could not or would not pay:

> Judge Silberman: You think you're entitled to charge [edge providers for access]?
> Ms. Walker: Yes.
> Judge Silberman: And if somebody refuses to pay, you think you're entitled to block?
> Ms. Walker: Yes.[65]

Counsel for Verizon also stated that her client wished to charge edge providers for priority access to end users (and as a natural extension of this prioritization, throttle edge providers that did not pay for priority access):

> There would be a market [for paid prioritization] were it not for these rules, and my client wants the freedom to explore that.[66]
> ...
> If Mr. Lev [FCC General Counsel] wants to come back up and say 'pay for priority is perfectly OK,' my client would be delighted.[67]

Similarly, in the docket for the 2015 Protecting and Promoting the Open Internet proceeding, ISPs repeatedly argued that Title II-based net neutrality rules were problematic because they prevented ISPs from charging edge providers for access to end users:

- **AT&T:** "Allowing ISPs to experiment with different pricing structures and *impose charges on edge providers* also would lead to pricing innovation."[68]
- **Verizon:** "[T]he Commission should declare two-sided pricing to be presumptively reasonable."[69]

[65] Oral argument, *Verizon v. FCC*, at 1:54:48. Available at: https://www.c-span.org/video/?314904-1/verizon-v-federal-communications-commission-oral-argument.
[66] *Id.* at 30:09.
[67] *Id.* at 1:40:00.
[68] Comments of AT&T Services, Inc., GN Docket No. 14-28 at p. 22 (Filed March 23, 2014).
[69] Comments of Verizon and Verizon Wireless, GN Docket No. 14-28 at p. 6 (Filed July 15, 2014).

- **CenturyLink:** "[I]t is clear that a two-sided market is needed to meet the ever-growing demand for bandwidth."[70]

Rebranding "access fees" with euphemisms like "pricing innovation" and "two-sided markets" does not mask what ISPs are asking for: the ability to "impose charges on edge providers" for access to consumers and the right to block those that do not or cannot pay these gatekeeper tolls.

IV. Bright-Line, Ex Ante Rules Against ISP Blocking and Discrimination Are Necessary to Protect an Open Internet

In light of ISPs' incentive to and stated interest in using their gatekeeper power over end users to extract access and priority fees from edge providers in a manner that distorts and competition on the internet, it is clear that bright-line rules banning such ISP practices is necessary to preserve the openness that makes the Internet such a successful medium for startup innovation. The rules already in place under the 2015 Open Internet Order—bright line bans against blocking, throttling, and paid prioritization, along with the No Unreasonable Interference or Unreasonable Disadvantage Standard to address new threats to Internet openness—are well suited to this task and should be preserved. As the court in *Verizon v. FCC* established, the FCC cannot impose these bright-line, ex ante rules if broadband access services are classified as "information services" under Title I of the Telecommunications Act.[71] Consequently, the NPRM's plan

[70] Comments of CenturyLink, GN Docket No. 14-28 at p. 5 (Filed July 17, 2014).
[71] *Verizon*, 740 F.3d at 657 (holding that a rule "bar[ring] broadband providers from charging edge providers for using their service…[leaves] no room at all for 'individualized bargaining'" and therefore amounts to a *per se* common carriage obligation that cannot be imposed on Title I services).

to reverse the 2015 Open Internet Order's classification of broadband internet access services as Title II "telecommunications services" would not only invalidate the 2015 Order's strong net neutrality protections, it would make it impossible to enact any strong ex ante rules against ISPs' abusive gatekeeper behavior. Because the startups that depend on meaningful protections against ISP blocking, throttling, and paid prioritization cannot possibly afford to engage in protracted litigation over discriminatory ISP policies or survive long enough for an agency or court to address such policies, the ex post rules that the FCC could create under Title I are effectively useless at protecting startup interests.

A. The FCC Should Maintain the Title II Classification for Broadband Access Service and Preserve the Open Internet Order's Ex Ante Bans on Blocking, Throttling, and Paid Prioritization

As described in section II.A. *supra*, startups depend on having access to the full universe of Internet users and depend on not being put at a competitive disadvantage relative to wealthy incumbents by virtue of being unable to pay ISP access or priority fees. Without protections preventing these ISP behaviors, startup activity and investment will decrease substantially. The FCC should preserve the 2015 Open Internet Order's ex ante bans on blocking,[72] throttling,[73] and paid prioritization.[74] These

[72] 2015 Open Internet Order at ¶ 15.
[73] *Id.* at ¶ 16.
[74] *Id.* at ¶ 18.

rules help establish the certainty investors and entrepreneurs need to invest billions of dollars in edge providers to power the innovation ecosystem.

Rules that purportedly prevent ISP blocking or discrimination that nevertheless allow for "individualized bargaining" are functionally useless for startups. Such rules would allow ISPs to charge edge providers for access to end users or for giving priority to a particular edge provider's traffic, subject to ex post review by a court or governmental agency. But, startups lack the resources to engage in "individualized bargaining" with ISPs, much less the resources necessary to mount a legal challenge to an ISP's anti-competitive policies.[75] Even if a governmental agency independently reviewed the reasonability of an ISP's charges to edge providers, the time it would take to complete such a review would render it valueless to a startup that would likely be driven out of competition during the pendency of the action. The uncertainty as to whether ISPs could use this "individualized bargaining" process to block or discriminate against startups at will would alone cause investors to shy away from startups that depend on the Internet to reach customers.

[75] According to a study for the National Center for State Courts, getting a contractual dispute merely to the discovery stage in state court will cost on average more than $25,000. Bringing it to resolution will cost on average more than $100,000. *See* Paula Hannaford-Agor, "Measuring the Cost of Civil Litigation: Findings from a Survey of Trial Lawyers," *Voir Dire*, 2013, available at: https://www.ncsc.org/~/media/Files/PDF/Services%20and%20Experts/Areas%20of%20expertise/Civil%20Justice/Measuring-cost-civil-litigation.ashx. Considering a dispute with an ISP over the treatment of Internet traffic would likely be much more complicated and time consuming than the average contractual dispute, the cost of challenging the reasonability of ISP access fees would almost certainly be orders of magnitude greater than this estimate.

The court in *Verizon v. FCC* made clear that the FCC could only enact ex ante, bright-line rules barring ISP blocking, throttling, or paid prioritization programs if it first classified broadband as a Title II service.[76] According to the *Verizon* court, an ex ante rule preventing ISPs "from charging edge providers for using their service" amounts to a common carrier obligation, and imposing such an obligation on a Title I information service violates 47 U.S.C. § 153(51).[77] As such, the present NPRM's proposal to reclassify broadband access providers as Title I services forecloses the FCC's ability to impose bright-line, ex ante bans on blocking and discrimination like those in the 2010 and 2015 Open Internet Orders.

Because bright-line, ex ante rules against ISP blocking and discrimination are necessary to preserve the virtuous cycle of innovation and promote startup activity, the Commission should maintain its current classification of broadband access services as "telecommunications services" under Title II of the Communications Act and preserve bright-line, ex ante bans on blocking, throttling, and paid prioritization.

B. The FCC Should Preserve the Open Internet Order's Flexible Rule Addressing ISP Discrimination Not Covered by the Ex Ante Bans on Blocking, Throttling, and Paid Prioritization

[76] *Verizon*, 740 F.3d at 628 ("Because the Commission has failed to establish that the anti-discrimination and anti-blocking rules do not impose *per se* common carrier obligations, we vacate those portions of the Open Internet Order").
[77] *Id*. at 650, 657.

While bright-line ex ante rules barring ISPs from abusing their gatekeeper power to distort competition on the Internet are necessary to create certainty and ensure that startups can compete with incumbent edge providers on the quality of their ideas rather than their capacity to pay tolls, some flexibility in the regulatory structure is needed to keep the rules consistent with developing technologies and to prevent ISPs from finding loopholes that would undermine the central purpose of open Internet protections. The 2015 Open Internet Order created this flexibility within its net neutrality protections in the form of the "No Unreasonable Interference or Unreasonable Disadvantage Standard," which allows the FCC to evaluate on a case-by-case basis ISP actions that violate core open Internet principles but do not directly implicate the Order's bright-line, ex ante rules.[78] While it is preferable to provide as much certainty as possible in the form of bright-line rules, the No Unreasonable Interference or Unreasonable Disadvantage Standard is necessary to ensure that open Internet rules remain viable as the marketplace develops.

The development of zero-rating demonstrates the need for a flexible rule against ISP discrimination not covered under existing bright-line rules. Zero-rating programs—whereby an ISP exempts certain sources of traffic from user data caps, often to advantage the ISP's own content or in exchange for payment from a third party—were not a part of the debate leading up to the 2010 Open Internet Order.[79] But, such programs clearly strain the Internet's fundamental openness. Allowing a well-capitalized

[78] 2015 Open Internet Order at ¶ 133-145.

[79] Rob Pegoraro, "A Recent History of Free 'Zero Rated' Online Access in the U.S.", *Yahoo! Tech*, Aug. 26, 2014, available at https://www.yahoo.com/tech/a-recent-history-of-free-zero-rated-online-access-in-95779687199.html ("But in the U.S., the story of free access to particular sites over wireless connections started last December.").

edge provider to pay an ISP to have users not incur data charges when using the edge provider's services unfairly disadvantages startup competitors in the same way that allowing an edge provider to pay an ISP for priority access would. In both cases, small providers face structural disadvantages in the marketplace based solely on an ISP's ability to discriminate between different sources of traffic and a wealthy incumbent's greater capacity to pay for preferential treatment. Crafting rules that prevent certain specific types of discriminatory conduct—such as paid prioritization—but leaving unchecked any future forms of discriminatory conduct—such as zero-rating—poses a serious risk to the future viability of the open Internet.

The NPRM proposes to eliminate the No Unreasonable Interference or Unreasonable Disadvantage Standard on the grounds that it is unreasonably vague and creates problematic uncertainty for ISPs that "must guess at what they are permitted and not permitted to do."[80] Curiously, it cites the Commission's inquiry into zero-rating practices as evidence that the No Unreasonable Interference or Unreasonable Disadvantage Standard somehow deters ISPs from "providing consumers with innovative offerings" because it fails to give "providers clear rules of the road to govern future conduct" such that any such offerings could put an ISP at risk of an enforcement action.[81] To the contrary, ISPs reacted to the FCC's decision to evaluate zero-rating programs on a case-by-case basis not by shelving their planned "innovative offerings" but rather by launching a plethora of zero-rating programs, many of which clearly violated net neutrality principles by giving preferential treatment to their own vertically integrated

[80] NPRM at ¶ 74.
[81] *Id.*

content.[82] If anything, the FCC's treatment of zero-rating programs demonstrates why bright-line, ex ante rules are necessary to address known threats to the open Internet and why flexible rules like the No Unreasonable Interference or Unreasonable Disadvantage Standard are important to address future net neutrality concerns. Even though a program like Verizon's Go90, which allows users to stream video from Verizon's own video service without incurring data charges while simultaneously requiring users to incur data charges for using competing video services, manifestly violates core net neutrality principles, the lack of ex ante rules emboldened Verizon to launch the program anyhow, since a a costly and time-consuming enforcement action was unlikely. A bright-line, ex ante rule against self-dealing zero-rating programs would have succeeded in addressing this anti-competitive program where ex post rules failed.

Though bright-line, ex ante rules are in almost all circumstances better suited for protecting the open Internet from inevitable ISP challenges, new technologies and unforeseen developments require a flexible tool like the No Unreasonable Interference or Unreasonable Disadvantage Standard to respond to evolving threats. The FCC should reject the NPRM's proposal to eliminate the No Unreasonable Interference or Unreasonable Disadvantage Standard.

[82] Klint Finley, "The FCC OKs Streaming for Free—But Net Neutrality Will Pay," *Wired*, Feb. 3, 2017, available at https://www.wired.com/2017/02/fcc-oks-streaming-free-net-neutrality-will-pay/. ("AT&T allows its wireless customers to stream content from its DirecTV service for free and gives its home broadband subscribers free unlimited data if they also subscribe to DirecTV. Verizon exempts its Go90 video service from its wireless data caps. Comcast doesn't count its Stream TV service towards its new data limits. And T-Mobile's BingeOn and Music Freedom programs let users stream unlimited amounts of video and audio from select services.")

V. Conclusion

Strong net neutrality rules are the bedrock of an open and free Internet. In reliance on these protections, investors have poured billions into startups that have changed the world, creating countless new jobs and vast economic growth in the process. Eliminating these rules, as the present NPRM proposes, would severely disrupt the future potential of the Internet sector. In the absence of ex ante protections against access fees, paid prioritization, and other forms of discrimination, ISPs would leverage their gatekeeper power to advantage their own content or the content of paying incumbents over the startups that have been responsible for the Internet's incredible evolution and the job growth that it has created. By proposing to reclassify broadband access as a Title I service immune to ex ante rules banning access fees and discrimination, the present NPRM threatens to reverse the policies that have made the Internet so successful and put America's position as the worldwide leader in innovation at risk.