

BBRY's QNX Auto Infotainment Domination Threatened; IoT and Healthcare Still Promising

Companies: AAPL, BBRY, CSCO, GOOG/GOOGL, IBM, INTC, MSFT, TYO:6752

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Research Question:

Will BlackBerry's QNX hold its lead position beyond 2016 as the number of competitors in the auto infotainment OS market increases?

Summary of Findings

- BlackBerry Ltd.'s (BBRY) [QNX Software](#) will hold its dominant position in the automotive infotainment market into 2016, but Linux-based systems, including Google Inc.'s (GOOG/GOOGL) [Android Auto](#) and to a lesser extent Apple Inc.'s (AAPL) [CarPlay](#), are a growing threat to QNX's share in this expanding market.
- Google via Linux has won major [contracts](#) with automotive makers, which will take a few years to hit the market. Partners include General Motors Co. (GM, via Harman International Industries Inc.), Hyundai Motor Co. (KRX:005380), Daimler AG's (DDAIF) Mercedes-Benz and Volvo AB (STO:VOLV-B).
- A partnership could take place between QNX and Google in the auto infotainment market, in which Google's Android would run on a QNX base.
- Sources in all silos said QNX dominates the [medical market](#), which requires superior security, protected data and uninterrupted processing. Android and Apple cannot match QNX's ability to address these requirements.
- The winner of the [Internet of Things](#) (IoT) market has yet to be determined and likely will be more than one company. [QNX](#) fits better into systems that require higher security, such as healthcare, the government and utilities.

Silo Summaries

1) Automotive IT Executives

Although all six sources said BlackBerry's QNX holds a dominant share position in the auto infotainment market, four of the six also said Google's Linux-based Android was a growing threat. All five sources who commented believe QNX has little pricing power, but added that QNX will succeed in devices and systems that are more complicated and require more security.

2) Industry Specialists

All three sources said QNX has 50% to 60% of the auto infotainment market's share. Two expect QNX's share to reach 70% to 75% during the next five years, but the third source said Linux-based Android systems are a growing threat. QNX's additional revenue streams include aviation, smart homes, utilities and power grids. Two said QNX holds pricing power.

3) Software Engineers

Two of three sources believe QNX will continue to grow and dominate the auto infotainment market. One sees competition increasing in the next five years as demand grows for lower-end cars with infotainment systems. Additional revenue streams are in sectors needing constant, uninterrupted data processing, such as healthcare, government defense contractors, aviation, industrial applications, shipping and transportation. All three said QNX's pricing power is stable.

4) IoT Executives and Software Engineers

All three sources expect QNX to gain strength in the auto infotainment and the medical markets. One source said the IoT sector does not yet have a clear winner but that QNX would be better suited for higher security applications. Sources were split on QNX's pricing power.

	Auto Infotainment Competition Building	QNX Has Other Revenue Streams
Automotive IT Executives	↑	↑
Industry Specialists	↑	↑
Software Engineers	↑	↑
IoT Executives and Software Engineers	→	↑

BlackBerry Ltd.'s QNX Software

Background

In its last quarterly filing, BlackBerry reported getting \$54 million in revenue from its software segment, which includes QNX Software. The segment accounted for just 6.8% of total revenue, and growth remained flat throughout 2014 as QNX's gains were offset by declines in BlackBerry's [BES](#) segment. BlackBerry has estimated that its 2015 software revenue will be \$250 million and then double to \$500 million in 2016. BlackBerry will have the means to [negotiate](#) higher licensing fees with automakers as its share in the infotainment segment increases. QNX leads the market in the auto infotainment-embedded software space, and should benefit greatly as the Internet of things (IoT) market explodes over the next decade. (BlackBerry [announced](#) at the 2015 CES that it would become more focused on IoT.) The company soon will conclude beta testing on its cloud-based IoT platform, which combines QNX's technology and BlackBerry's secure network infrastructure and is set to release in April.

A few signs of trouble have emerged for BlackBerry. One of its top QNX executives recently went to Microsoft Corp. (MSFT), while CEO John Chen lost the confidence of some investors after submitting a controversial [blog post](#) that proposed the government enforce app neutrality. Meanwhile, Google's Android on Linux poses a threat to QNX's lead. As Google makes [headway](#) into vehicles with its Android Auto dashboard interface system, it likely will push auto OEMs to use the Android OS.

Blueshift Research's [May 23, 2014, BlackBerry QNX report](#) found an increasing demand for real-time operating systems (RTOS), and QNX was considered best in class. All sources mentioning QNX viewed it positively and predicted a bullish five-year outlook for the software. The report also found that QNX's greatest potential was in the medical field but that it also could expand in IoT, industrial automation, military and agriculture. Until a real competitor emerged, sources said QNX could demand premium pricing. Sources in Blueshift's [Sept. 26, 2014, SiriusXM report](#) said BlackBerry's QNX was the clear OS standard for auto infotainment because of its smooth integration with products from various providers and its secure, robust platform.

Current Research

In this next study, Blueshift Research assessed QNX's ability to continue dominating the auto infotainment world. We also asked sources about QNX's prospects in other sectors such as healthcare and IoT. We employed our pattern mining approach to establish five independent silos, comprising 15 primary sources (including three repeat sources) and five relevant secondary sources focused on OEMs adopting Google's Linux-based Android, recent contracts for QNX and QNX's contribution to BlackBerry's revenues:

- 1) Automotive IT executives (6)
- 2) Industry specialists (3)
- 3) Software engineers (3)
- 4) IoT executives and software engineers (3)
- 5) Secondary sources (5)

Next Steps

Blueshift Research will continue to monitor auto infotainment system contracts won by BlackBerry and competitors. We also look into the possibility of BlackBerry selling QNX. Finally, we will assess whether security issues arise from using Android as car manufacturers implement the open system into their vehicles.

Silos

1) Automotive IT Executives

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BlackBerry Ltd.'s QNX Software

pricing power, but added that QNX will succeed in devices and systems that are more complicated and require more security.

Key Silo Findings

Market Share

- All 6 believe QNX currently dominates the auto infotainment market.
- However, 4 of 6 cited a growing preference for Linux-based Android solutions.
- 1 believes QNX will remain the market leader.
- 1 said Android will disrupt the market but only in the short term because of QNX's superior capabilities.

Additional Revenue Streams

- Linux is better suited for basic needs because it is less expensive.
- QNX has many applications beyond the auto market.
- 1 raised concerns about BlackBerry's viability, but thinks QNX will survive.

Pricing

- 5 said QNX has having little pricing power.
- 1 had no comment on pricing power.

1) Senior infotainment specialist at a high-end auto OEM

Linux is winning over OEMs and tier 1 infotainment manufacturers because of its absence of royalties and its greater pool of engineers developing and maintaining the open-source software. QNX has 50% market share in cars sold while Linux only has 5%. However, this source's research indicates each will have 40% share by 2020. The slowness of the change is due to the automotive industry's long cycles. QNX's major problem is its business model, from which its development revenue stems mostly from automotive. Linux benefits from R&D by thousands of engineers and companies, including consumer electronics. QNX could take apart its stack and tap into the different elements of its OS for growth.

Market Share

- "Our research shows QNX being replaced by Linux. The landscape will be completely changed in five years."
- "The power of Linux is that everybody can have their own spin and put on what they need."
- "There are no royalties for Linux. This adds up for an OEM that is selling millions of cars with a high-end operating system. They can save between \$10 and \$12 a car. That's significant."
- "Software maintenance is another reason for the shift. With Linux, you can have 1,000 people working in different organizations adding to the stack, but you can't have that with QNX."
- "QNX's business model is unsustainable."
- "I believe QNX's annual income based on automotive sales is about \$50 million. The price in maintaining the operating system is approaching \$50 million. With Linux, that comes from all the different companies, each putting in a little percentage. It's also supported by consumer electronics."
- "QNX is only on BlackBerry handsets that nobody buys, and on vehicles. There's nobody outside of automotive sharing in the development. That's not so with [GENIVI](#) and the [Linux Foundation](#)."
- "There are also a limited number of engineers that can support QNX. On Linux, there are all the consumer electronics people as well who can be quickly trained. That wouldn't be quite as easy on QNX."
- "The power of Android is the development community and that it has an SDK [[software development kit](#)] and an ADK [[accessory development kit](#)] that helps develop applications very rapidly. However, it doesn't have much of the stack beneath it that you need in a vehicle. It will do apps, but it won't necessarily make it easy to control the heating and ventilation or integrate into a cluster. I can see how Android might be popular with some car companies, but every time we look at it, we see that it doesn't do what we really need it to do in terms of the application framework. The changes required under the top layer of the stack would be too expensive to even start."

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Senior Infotainment Specialist
High-end Auto OEM

BlackBerry Ltd.'s QNX Software

- “Android turns over too quickly, with too many software updates needed to use the latest applications. It would be hard to get those into automotive quickly.”
- “Android in the car would entail legal issues in terms of Google getting customer data and having the Android name eliminating the car brand name.”
- “We’re better off putting the handset screen on the vehicle rather than trying to totally embed Android.”
- “Microsoft is dying. In 2015, globally, it is still in 20% to 25% of vehicles sold. QNX has about 50% of the vehicles sold. Linux has about 5%. By 2020, our forecast shows 40% Linux, 40% QNX and 20% everything else.”
- “We’re seeing a lot of car companies looking at Linux as their operating system choice for the infotainment system and also for some of the cluster in the ADAS [advanced driver assistance systems] and other elements that were historically QNX elements. These will replace either QNX or other proprietary operating systems in future programs.”
- “BMW, Peugeot [S.A.] and [Tata Motors Ltd.’s/BOM:500570] Jaguar Land Rover have Linux. Audi [AG/ETR:NSU] and Ford [Motor Co./F] have QNX. GM has a mixed strategy using QNX and Linux. Hyundai is using Linux and Android. Toyota [Motors Corp./TYO:7203] is using QNX and [migrating](#) to Linux. Mercedes is using QNX and migrating to Linux. Daimler has also just joined GENIVI. Volvo has also declared it’s using Linux. These aren’t shifts of 100% of their operating systems, but it is the majority.”
- “The software timescale is very long in automotive and takes a very long time. Discussion about Linux in automotive started in 2009, but the first systems, the forerunners, didn’t appear on the market until 2012–2013. It’s only in 2015 that we’re seeing a massive play into the market.”
- “This doesn’t mean QNX will disappear overnight. It takes an OEM five to six years on average to roll out a new operating system or set of software. This is why we’re still seeing QNX volumes increasing along with the growth of premium infotainment systems. But as an operating system, QNX is not there [as much] when you look at the publicly released future business awards.”
- “[QNX’s] biggest win is the Ford system [through](#) Panasonic [Corp./TYO:6752], and I understand this is because Panasonic already had it working on their hardware and it helped their time to market. Harman still uses QNX, but they also have [projects](#) underway now with Linux. Harman is winning the next generation of BMW business with Intel and the GENIVI Linux stack that BMW created.”
- “Harman has been looking at how to get Linux into the market for years.”
- “QNX can have a long future, but at this point in time it is on the negative tail end of its lifecycle in automotive.”

Additional Revenue Streams

- “If QNX wants to continue into the future, it can tap into the elements of its operating system, take apart the stack, the media player, the telephone, etc.”

Pricing

- “A complete infotainment software stack, excluding navigation, is about €20 to €30 more on QNX than it would be on Linux.”

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Senior Infotainment Specialist
High-end Auto OEM

2) Infotainment executive at an auto OEM

This source uses Linux because it does not have a license fee, but may use a QNX platform for a premium product depending on strategy. QNX is suited for an exceptional experience and would be overkill in basic radios. Linux is easy to work with, provides flexibility for customization, and is free. As a result, QNX does not have pricing power. However, QNX is well positioned because of its history of integration by OEMs. For now, Android Auto and Apple’s CarPlay are looking not to replace the infotainment operating system but to deliver content. Other Linux products such as those offered by Intel Corp.’s (INTC) [Wind River](#) compete in the market.

Market Share

- “We’re Linux users on pretty much all our platforms.”

BlackBerry Ltd.'s QNX Software

- “Linux is easy to work with and provides a lot of flexibility. It’s open-source and can be customized by anyone that has expertise in the language to do what you want it to do.”
- “The fundamental language allows you to customize it to what you need in many different ways.”
- “Linux is free while QNX is not.”
- “QNX has a license fee. We may elect in the future to use a QNX platform for a premium product. It depends on what we’re doing.”
- “We want to minimize costs, and a Linux platform does this job at no fee. On a premium product, where people are looking for an exceptional experience that QNX can provide, you pay their fee.”
- “We used a Microsoft Windows-embedded product before, and there were some challenges that made it difficult to customize. It was difficult to grow the system to reflect the rapidly emerging market of infotainment.”
- “[Using QNX] depends on the OEM’s strategy and what they’re trying to accomplish. You need to factor in many things. The QNX platform is very capable, but if the only strategy is to offer a basic solution, it’s an overkill.”
- “The distinction between Linux and QNX is that Linux is a language while QNX is a brand. GENIVI and Android are also brands. ... Those companies have taken the Linux computer language or framework code and made something out of it, and they want to charge for those efforts. QNX charges a license fee, and Google would charge if you advertise it as Android. It’s the same for GENIVI, but that effort is more of a nonprofit.”
- “There are many versions of the Linux framework that have been applied.”
- “I see Linux growing in the automotive space, but I also see QNX being at the forefront of adoption by many OEMs. They’ve done well being integrated into a lot of OEM solutions.”
- “The competition isn’t between QNX and Linux. It’s a mother-and-child relationship. Right now Linux is the king and QNX is the prince. Microsoft is not in the mix. Other Linux products, such as those offered by Wind River, are.”
- “Android Auto and Apple CarPlay want to change the landscape. At this point, however, Google’s and Apple’s role is not to replace the operating system. They want to be a content delivery network, and that’s different from an operating system. The operating system is the framework in which the hardware operates. Google and Apple are focused on how to deliver content.”

The QNX platform offers a rich experience in customization from a UX [user experience] standpoint. Automotive is not the only place. It could be used anywhere where there’s a need for a rich user experience and for a low-overhead operating system.

Infotainment Executive, Auto OEM

Additional Revenue Streams

- “QNX can be applied any place where you need an operating system to manage information. The QNX platform offers a rich experience in customization from a UX [user experience] standpoint. Automotive is not the only place. It could be used anywhere where there’s a need for a rich user experience and for a low-overhead operating system in terms of usage and high capability.”
- “There are many Internet of Things devices, like refrigerators and appliances for example, that use Linux. RFID readers also use Linux. It depends on what you’re trying to get done and the scale.”
- “Linux is very versatile and can be applied anywhere, including in the Internet of Things, if that doesn’t require distinguished and expensive user-experience layers, which QNX would provide. It all depends on the application.”

Pricing

- “QNX’s price is low, but I don’t think they have pricing power now. It’s hard to forecast.”

3) Senior IT executive for an auto OEM

QNX holds the lead in the auto infotainment OS market, but already Android’s Linux-based OS is making inroads in the luxury car market because of its app environment and navigation system. Apple also is entering the automotive sector, and this sets the stage for a struggle between not only Google and Apple but Apple and the OEMs. Apple could change infotainment through better integration and design. QNX may lose market share, but the role of its real-time OS is not yet known in autonomous cars with unique architecture. QNX does not have pricing power, but it could leverage its security proposition as the industry undergoes change.

Market Share

BlackBerry Ltd.'s QNX Software

- “These OEMs will be using less QNX [because of the appeal of Google’s app environment and navigation system]. Among these are Audi, Hyundai and others.”
- “Google’s navigation is a powerful driver because it provides traffic conditions. Often a car’s navigation system is slower than the phone’s. That accuracy and responsiveness are important.”
- “High-end car owners prefer Apple over Android products. But Android is gaining market share quickly.”
- “Apple is also getting into automotive. [There are reports that] they will start building electric cars. That may change all this. All the OEMs already have a solution, but if it comes to putting up a fight, Apple will, without a question, fight. There will be a struggle between Apple and Android but also between Apple and the OEMs.”
- “There’s a lot of appeal to electric cars in big cities like Los Angeles. For OEMs, however, the value is in big cars such as SUVs, which have seen better sales as gas prices have gone down.”
- “Infotainment will change when Apple begins investing in it. There’s going to be better integration and design. This is an exciting moment. If Apple is in infotainment, it will be tremendously influential.”
- “Both Google and Apple are very aggressive in putting together an automotive solution and are recruiting talent.”
- “For now, Google has the upper hand in terms of navigation.”
- “The underlying system for Android is Linux. However, the app environment and navigation system that Google is building adds value to any business proposal.”
- “OEMs have to ask themselves if they support native Android or not. Google is a big concern in the equation. This is specifically in regards to Google Maps and other utilities.”
- “It’s very important for OEMs to provide an equal environment to support both Apple and Google products.”
- “As of today there’s no push to bring any Microsoft products in support of Apple and or Google. Microsoft has had challenges with things like startup time, system responsiveness.”
- “Google is an open environment, and it’s easier to put a solution together with it.”
- “QNX would be the preferred solution because of the security it provides.”
- “Looking ahead, QNX may be losing market share.”
- “Approximately 98% of cars that have infotainment, whether they’re from OEMs from North America, Asia Pacific or Europe, are using QNX as a platform for their systems. This is from a 2014 count of cars in production.”
- “But there’s been a shift recently to use Android. Android is picking up major OEMs. They have platforms in the market already. Hyundai, for example, is using Android. ... Most of them have a solution in their roadmap for using Android.”
- “That means the 98% QNX has will probably go down.”

Looking ahead, QNX may be losing market share. ... There’s been a shift recently to use Android.

Senior IT Executive, Auto OEM

Additional Revenue Streams

- “The way OEMs deal with security is an important issue, how they will add the security layer on top of Android or Apple.”
- “It’s also important to look at the role of the OEM vs. Google and Apple. In five years things may not be that different yet, but there will be a need for more security-related features. Autonomous cars are going to start playing a role within five years, particularly as people see accident rates go down with that. OEMs will be implementing that technology. I believe it will be a very different model altogether, with different hardware and different software. The solutions will be different depending on the OEM.”
- “It’s an unknown how QNX’s real-time operating systems architecture will play out for that next generation of products, where the cars will be architected differently.”

Pricing

- “QNX does not charge a lot, but this is not a good time for them to raise prices.”
- “QNX’s security solution could influence pricing down the road. The value of their name brand is very important to OEMs. If people start breaking into their cars or intercepting messages, that would have a bad reflection on the brand.”
- “There are no royalties for Android nor Linux.”

BlackBerry Ltd.'s QNX Software

4) Senior technical specialist for an auto infotainment supplier

QNX has proven itself in the auto industry, going back to Harman. It also has carved out a niche, particularly in higher-end systems. However, some OEMs now are looking at Android Auto. Also, Apple's plans for the auto space still are unknown. QNX supports the Apple and Android OSs when they are beamed to the car's head unit. In that situation, they are not challengers. Changes in infotainment will play out over the next five years and will determine QNX's growth. For now, QNX has the largest infotainment share. Pricing negotiations are kept secret by OEMs.

Market Share

- "QNX is being challenged, but it has staying power too."
- "There have been a lot of operating systems that have come and gone over the years. But it seems like QNX has carved out a precise niche. I think they're viable for a while."
- "You can't underestimate the value in the automotive industry of first-hand experience. QNX's affiliation with Harman has given them a lot of knowledge. They've embedded that, and they've also understood they have to approach the higher-end navigation systems to attain recognition. They've grown within the automotive industry."
- "Google has an attractive product, but once they're going to be embedded in the vehicle, they might find out there are items that may not have appeared on their radar. I think they recognize that. Everybody in Silicon Valley is ramping up with automotive experience, and that's a good thing."
- "Within automotive, power management is crucial. This is something that QNX has experience with. It's key to not have the infotainment system locking up where you have to either turn it off and on or do an ignition cycle or, worst of all, a battery pull to get it to recover."
- "From my understanding, QNX is working with Android and Apple with the beaming or mirroring technology. Android Auto and Apple CarPlay are not really embedded operating systems. They're a layer on top. I believe QNX supports that."
- "The brought-in device is beamed through a USB-wired connection to the head unit. That's different from the Android actually becoming embedded within the vehicle. In that sense, Android Auto and Apple CarPlay are not challengers because QNX can facilitate them."
- "However, Android is a challenger because they are trying to get into the vehicle. Some OEMs are deploying Android."
- "It's an open question, what's going to come of all the vehicle programs, especially regarding Apple. It's a wild card where iOS is going to fit in."
- "The timing is the biggest secret. In five years we might know if Android will be taking some of QNX's market share or if Apple, with whatever it does, can take share."
- "In infotainment, [QNX has] the largest market share compared to any other operating system. This is especially true regarding the higher-end multiprocess systems."

Additional Revenue Streams

- "QNX really shines in the infotainment world. However, who knows what's going to happen with BlackBerry? It was a fear, but they're now starting to realize what they have. QNX stands on its own legs within their company."

Pricing

- "Price is always about a negotiation. The OEMs will always push back and demand more for their money."
- "What the OEMs pay their suppliers is another big secret in automotive. It's very sensitive information."

Miscellaneous

- "Networking and Ethernet penetration in the vehicle are two big areas of discussion. [Broadcom \[Corp./BRCM\]](#) is leading the charge on Ethernet but also [Marvell \[Technology Group Ltd./MRVL\]](#) and Apple to a degree. It's for things like hooking up the diagnostics systems. For infotainment systems there's a new set of standards or profiles called AVB [\[audio video bridging\]](#)."

5) Automobile technology executive; repeat source

QNX is very strong in many verticals, including the automotive market but also in factories, controllers, aerospace and the military. Competition exists from the likes of Wind River, [Green Hills Software Inc.](#) and Linux, but has not escalated since this source's last interview. QNX stands to grow in automotive in line with high-end infotainment penetration. It also has an opportunity for further growth with the secure BlackBerry [Messaging](#) and [cloud service](#). QNX has difficulty exerting its pricing power because its value is not fully appreciated by OEMs.

BlackBerry Ltd.'s QNX Software

Market Share

- “As a company [QNX is] very strong. They’ve been around for more than 30 years. They’re not defined by what happens in automotive alone. QNX has a massive presence in factories, controllers, aerospace and military.”
- “Automotive is just another vertical for them, but that’s not what got them hired, bought and sold. I’m very bullish on them, and I think they’re a great company. They’ll be around for a long time. If they lost the automotive segment, I think they would be hurt but as a company, they wouldn’t go out of business.”
- “They’re not the only ones in the auto space. There’s Wind River’s [VxWorks](#) and Green Hills with their [Integrity](#) product. There are a lot of operating system choices, whether it’s with safety or security systems or infotainment systems. QNX has to compete with these, but there’s no more challenge than there was before.”
- “Linux has not become any more of a challenger than before. You’d be hard-pressed to find cars on the road with Linux. Linux hasn’t had the market penetration people thought it would have.”
- “Another product offering that will help QNX is the BlackBerry Messaging. BlackBerry is beginning to flex its marketing muscle about being secure and never hacked. Even the [President of the United States](#) uses BlackBerry for his communication device.”
- “QNX will also benefit from their involvement in integrating Google and Android into head units, as with Ford.”
- “QNX claims to be in over 50% of the vehicles on the road today. There can be different market share measurements of infotainment systems that are in production or that are commercially available.”
- “I think QNX will grow [in the next five years] in automotive because more and more people are going to get into high-end infotainment, with more mass-market vehicles coming in. Not everyone is there yet.”
- “Market share depends on what’s being measured. There are many different modules in the car that use operating systems. I don’t know if QNX is dominant in infotainment. Microsoft still has millions of vehicles on the road because of its deal with Ford. QNX can also be measured in millions on the road because of its work with [VW](#) [Volkswagen AG/VLKAY], Audi and Bosch [Ltd./BOM:500530] systems with other OEMs.”
- “The challengers, such as Wind River and Green Hills, will also grow because the market is getting bigger, but I don’t know if it will be at the expense of others.”

They’ll be around for a long time. If they lost the automotive segment, I think they would be hurt but as a company, they wouldn’t go out of business.

Automobile Technology Executive

Additional Revenue Streams

- “They have a robust and rich version of their QNX cloud service, the backbone of their BlackBerry cloud. As cars increasingly connect, QNX can deliver a world-class cloud that is part of their BlackBerry offer.”
- “Another area is in radio. BlackBerry has moved the people working on modems to the QNX team. QNX can now deliver modem software and connectivity solutions. QNX is expanding its reach from a real-time, very tight and very secure operating system to the modem space, integration, and also do secure, robust cloud services.”
- “QNX has a rich portfolio and a bright future as they move forward. The only thing that shadows QNX is BlackBerry.”
- “There are three jewels within BlackBerry. QNX is one of them. Their secure messaging cloud infrastructure is another, and their very good radio is another. The phone business brought them to fame, but it’s the jewels that are keeping them secure.”

There are conversations happening with OEMs about using Android as the operating system, which would be free and great, but as soon as they understand what would happen, they back away from it. That’s because if Android becomes the operating system, it would exclude supporting Apple and the OEM’s own operating system too.

Automobile Technology Executive

Pricing

- “QNX does have pricing power, but it’s another question whether they can exert it. They’re not the only game in town, and many of the OEMs lack understanding in software.”
- “If and when Google unveils its new Android release, M, at the Google I/O conference in May, there is debate whether Google will position it as ‘M’ as in motor. ... That is what they did with the mobile industry. If Android creates a release to be put into the head unit for free, then there will be significant pricing pressure on all the players there.”
- “The OEMs would be very price-sensitive to no more licensing fee. Google has a huge opportunity to upset the pricing models that are currently in place with operating systems like Wind River, Green Hills and QNX.”

Miscellaneous

BlackBerry Ltd.'s QNX Software

- “There are conversations happening with OEMs about using Android as the operating system, which would be free and great, but as soon as they understand what would happen, they back away from it. That’s because if Android becomes the operating system, it would exclude supporting Apple and the OEM’s own operating system too.”
- “There are solutions from companies like BMW, and from [Parrot](#) [a tier 1 supplier] where they have a host OS, like Linux or QNX, and they have a daughter process which has an Android processor on it, and they merge and meld the two. But it’s still the host OS that owns the ecosystem.”

6) Veteran automotive industry executive and consultant

QNX’s technology is superior within the infotainment space and is well poised for growth because of that, but it faces several challenges. One is silicon support, which is costly at a time when chip releases are frequent. The other is BlackBerry’s financial situation. Android will heavily invest in and disrupt the space. QNX is under pricing pressure because OEM executives do not always recognize the value of software. The car’s body electronics is an additional area of revenue that QNX should explore. Although the number of infotainment nodes is shrinking, the number of microprocessors is growing.

Market Share

- “Any advice I would give to an OEM would be to go with QNX for the most secure operating system.”
- “As far as challengers, I think Android is going to be a disaster in the automotive industry. My prediction is that the companies getting in with Android are going to regret it in a couple of years. They’ll have to throw it away.”
- “Ford dumping Microsoft and switching to QNX is a cautionary tale. It ties in to the prediction about Android. Automotive wasn’t Microsoft’s business, and it never made a lot of money for them. It’s hard for nonautomotive companies to understand that automotive has development cycles of three to five years, long ramps, and is a high-touch activity. You have to be in there with the customer. It didn’t work for Microsoft. It’s also very far away from Google’s culture. They’re full of themselves trying to get into automotive.”
- “There are different OEMs and tier 1s adopting the Android solution. It’s all in development still. You can have a core Android system and you can even run CarPlay on top.”
- “Google’s business model is disruptive for a more salient reason than the normal disruptive. There’s no money in automotive for them, and it wouldn’t mean anything on their balance sheet even if they got every bit of it because they’re so big. They’re after the value they can get from the data in the future. It’s going to be very messy for the whole auto industry.”
- “There’s also still GENIVI puttering along, but they’re not getting very far. Wind River, a division of Intel, has a chance of being a player there. It feels though they’re being dragged into it rather than really wanting to do it.”
- “Silicon support is a problem for QNX. Silicon is evolving very fast. Whenever there’s a new BSP [[board support package](#)], QNX has a hard time keeping up with the silicon manufacturers because there are too many new chips coming too fast. This has been especially tough on the graphics side because it’s proprietary to the chipmaker. Chipmakers will usually do their own BSP release for Linux and for Android. But QNX has to do their own BSP. That means they have to go to all the different chipmakers to make them, and that gives them a big overhead. Tier 1s complain about the wait for QNX, while with Linux and Android, the BSP is available with the chip release.”
- “The flip side is that QNX works. If you want an infotainment system that works and is reliable, you go with QNX because they understand the business and they understand what it takes to ship a program.”
- “[Over the next five years] I think it’s going to be OK for QNX. The difficulty is what happens to the parent company, BlackBerry. There’s an underlying financial concern that companies working with them have. The concern is whether they will be able to expand their business or focus on stemming the bloodletting at BlackBerry. ... They’d probably be better off as a standalone company at this point.”
- “Another con against BlackBerry are personnel changes. Sebastien Marineau-Mes has [left](#) for Apple. He was the person who got things done and was a big loss for them.”

Another con against BlackBerry are personnel changes. Sebastien Marineau-Mes has left for Apple. He was the person who got things done and was a big loss for them.

*Veteran Automotive Industry Executive
& Consultant*

Additional Revenue Streams

BlackBerry Ltd.'s QNX Software

- “They haven’t explored the body electronics segment very far. The number of nodes in infotainment is shrinking because chips are getting more powerful. However, the rest of body electronics is growing, with things like smart lights and smart backup camera systems. It’s become more sophisticated, and there are more microprocessors.”

Pricing

- “The hard part for QNX has been getting the associated middleware fees. Besides the base OS, there are things like media decoders and multimedia support. They’ve had a hard time with their licensing for those.”
- “Their charge for what they bring is reasonable, but they’re under huge price pressure. OEM management, because they come from a mechanical background, does not understand the newer electronic technology. They have a hard time perceiving value in the ephemeral software segment.”

2) Industry Specialists

All three sources said QNX has 50% to 60% of the auto infotainment market’s share. Two expect QNX’s share to reach 70% to 75% during the next five years, but the third source said Linux-based Android systems are a growing threat. QNX’s additional revenue streams include aviation, smart homes, utilities and power grids. Two said QNX holds pricing power.

Key Silo Findings

Market Share

- All 3 sources believe QNX will continue to grow its auto business as the market expands.
- 2 expect QNX’s 50% to 55% auto market share to grow to 70% to 75% over the next 5 years.
- 1 expects Google’s Android to take a larger percentage of the auto infotainment market.

Additional Revenue Streams

- Aviation, smart homes, utilities and power grids are areas for growth.

Pricing

- 2 said QNX has maintained its pricing power.
- 1 didn’t comment on pricing power but expects QNX’s revenue to increase.

1) Embedded technology consultant with 30 years of software design experience

QNX deployment in vehicles and medical devices will continue to grow steadily during the next five years. QNX lacks a competitor in auto infotainment, but Google could challenge its dominance with an embedded OS that is compatible with other developers’ apps. The automobile aftermarket is an attractive growth area. QNX’s price negotiations likely take place mainly within the healthcare industry. Additional revenue streams include aviation, smart homes and the IoT, which QNX could exploit with its secure cloud systems.

Market Share

- “It will be growing steadily just because more and more of the smart tech is going into cars, whether it’s GPS, video gaming for the kids or a backup camera. Also, remote access to a car. It will eventually get to where cars will drive autonomously.”
- “High-end cars already have more of this stuff in them.”
- “The major automotive companies themselves have teams developing software; other companies develop modules for cars. [Delphi \[Automotive plc/DLPH\]](#) comes to mind. Even an airbag can be called an embedded system.”
- “QNX has some competition in auto infotainment, but they are still the dominant force. There are a fair number of choices for operating systems, but someone would have to bring out game-changing technology to catch QNX.”
- “The design cycle for automobiles is about two years, so the technology is going to be behind other consumer products that have a shorter design cycle.”
- “Aftermarket systems can use whatever current technology is available. You pull out old modules and put something new in. There are some aspects that you can design forward-thinking on cars, but there are limits. It will be harder to retrofit older models with new technology.”
- “The medical space will be a big growth area for embedded systems. Also aviation.”

BlackBerry Ltd.'s QNX Software

- “QNX dominates both auto infotainment and the healthcare sector. At least half the vehicles on the road with embedded tech use QNX.”
- “Some of the smaller companies could do well in the healthcare industry because of the level of customization, the specific requirements of these devices. I can see a company like Wind River carving out a niche in healthcare.”
- “Google is a growing force within the auto industry. One of the key issues here is compatibility, so a Google OS would have to move beyond something like Android so it could process apps from other developers. The same is true for Apple.”

Additional Revenue Streams

- “Embedded systems are widespread. It’s getting into the medical field much more: sensors in assisted-living homes for families to keep an eye on their aging parents; wearable devices that monitor and transmit a patient’s medical condition; and systems for medical records flowing from doctor to doctor as a patient progresses to different areas of treatment. It’s more efficient and creates a seamless flow of patient information.”
- “Also, aviation, smart homes, utilities and power grids. It’s going to continue to grow with the Internet of Things. There are going to be lots of opportunities for this technology.”
- “Embedded systems are all customized to perform specific functions, whether it’s an airbag or a piece of hospital equipment. Low-power devices and miniaturization will help the technology expand into many areas of our lives.”
- “Cell phones are a good example of a device using embedded systems. As smartphones become more complex and deliver a broader range of apps, embedded tech will only continue to grow.”
- “QNX’s secure cloud systems can exploit the Internet of Things. That’s a potential revenue stream as all of our devices and appliances become connected to the Internet.”

Google is a growing force within the auto industry. One of the key issues here is compatibility, so a Google OS would have to move beyond something like Android so it could process apps from other developers. The same is true for Apple.

*Embedded Technology Consultant
30 Years of Experience*

Pricing

- “There’s some negotiation because it depends on the feature set the customer wants. There will be some negotiations on pricing and features, especially with medical devices that have unique requirements.”
- “BlackBerry’s revenues will increase from QNX over the next five years. It will be difficult for anyone to catch up with QNX on their microkernel tech. Linux isn’t gaining in the space because device manufacturers are reluctant to use open-source code. Google, though, has the money and the clout to shake it up.”

2) Embedded technology consultant

QNX’s name recognition among auto OEMs coupled with its reputation for absolute data security will drive its growth through the next five years. Most growth will be in the automobile industry, while healthcare is a more complex and fragmented market in which QNX can best compete on big-data projects. Pricing negotiations with auto OEMs probably are not occurring, while pricing likely is part of the discussion with the healthcare industry based on the varying requirements and specializations. QNX’s real-time OS gives it an edge in mission-critical applications like healthcare.

Market Share

- “Regulations on software security are going to become much stronger on the automotive industry. This is where QNX has an advantage because they already have the scale, the customer base, to continue leading that market.”
- “QNX systems are definitely going to grow in cars. They say 50% of the cars with infotainment systems use their technology right now. In five years that could grow to maybe 70%. A lot of that depends on what Microsoft does in the next five years. They are the biggest challenge to QNX in auto infotainment.”
- “Most of the growth will be in cars. Medical is a very complicated market. Some devices will not be suitable for QNX. A key application is for the chain of custody in medical records. QNX can be used to send patient data across devices like tablets and smartphones. There’s no need to deliver paper records or for a physician to check in at a computer terminal; all the information can pull up on a mobile device.”
- “There is some competition in the healthcare space, but because it’s so specialized I don’t see it overlapping a lot right now. That could change. Wind River Systems and Green Hills are the main challengers in that area.”

BlackBerry Ltd.'s QNX Software

- “They control automotive and healthcare. It’s a real-time OS, something Android and Apple cannot do. The goal is to provide operating reliability. With a real-time system, computing power and processing priorities do not shift from one action to another. This is critical in a healthcare setting, which is why QNX has an edge in that space.”
- “Microsoft and probably Google could pose a threat in automotive. QNX can do well in healthcare, but their solutions may not be workable for all applications. Smaller companies could still find opportunity there.”

Additional Revenue Streams

- “They do a good job of promoting data security both within their OS and cloud systems.”
- “In healthcare, QNX is probably best suited to big-data management. That’s also where the money is. I would imagine systems like wearable tech, so people requiring regular or even constant medical monitoring could live as independently as possible without constant trips to a hospital or doctor’s office.”
- “Aviation and marine applications would be ideal for QNX. Again, marketing and promoting data security are big draws that favor QNX.”

Pricing

- “BlackBerry’s prices should increase on the strength of the automotive market. They can also leverage QNX’s secure messaging services to grow that side of the business. QNX is well known for data security, and they can exploit that.”
- “I don’t think there’s any negotiation with the auto OEMs. Maybe on the medical side, where more customization is required. But even then that would tend to drive up QNX’s price to create a unique system for a hospital.”

3) President of an embedded systems consulting firm

QNX holds a majority share of the auto infotainment market and can make inroads in large-scale projects for healthcare, military, aviation and industry. Wind River, Green Hill, Microsoft and Google are competitors to varying and lesser degrees. Google may try to challenge QNX in the automotive sector, but forging a partnership is just as probable. BlackBerry will continue to benefit from QNX revenue, but U.S. automakers likely would be the first to make an offer if BlackBerry were to divest QNX.

Market Share

- “QNX has something like 55% penetration in U.S. cars already. In five years they could hit maybe 75%, but that depends on how well they sustain their marketing to the OEMs and whether any other company can deliver comparable solutions.”
- “Wind River gets favorable reviews. Apple and Google’s Android might also mount a challenge to QNX. More likely, though, QNX will be able to merge their system with Android and Apple for greater compatibility across different services like iTunes and Google Play. Infotainment is going to expand beyond the more expensive cars so the market will really open up. But it’s really QNX’s market to lose.”
- “The healthcare industry, military, aviation, secure messaging applications—these are a few areas that come to mind [in terms of sector growth].”
- “Wind River and Green Hills compete with [QNX]. Also Microsoft. Google has their toes in the water with smart-car prototypes and looking at new ways to use Android, which they keep tinkering with.”
- “Market share in healthcare appears fragmented. QNX probably succeeds at enterprisewide projects because their OS can scale up to manage mammoth amounts of data across an entire hospital, for instance.”
- “QNX has the majority of the auto market.”
- “Wind River and Green Hills are the main players going up against QNX in healthcare.”
- “Google may try to compete with QNX in auto infotainment, although a partnership seems equally possible.”

Apple and Google’s Android might also mount a challenge to QNX. More likely, though, QNX will be able to merge their system with Android and Apple for greater compatibility across different services. Infotainment is going to expand beyond the more expensive cars so the market will really open up. But it’s really QNX’s market to lose.

*President
Embedded Systems Consulting Firm*

Additional Revenue Streams

- “Mobile medical monitoring devices, like a smart watch, will come into play. There may also be some increasing automated monitoring of patients in a hospital setting. That could help hospitals trim staffing costs and improve efficiency, and help reduce the risk of human error—and that holds down liability costs.”

BlackBerry Ltd.'s QNX Software

- “Military and industrial equipment is becoming more and more dependent on wireless data transmission, where security is essential. That’s QNX’s forte.”

Pricing

- “I suspect QNX sets the prices and the auto OEMs pay it.”
- “Competition may increase, but the market for infotainment in cars is also growing.”
- “BlackBerry’s future is an interesting question. QNX is one of their best holdings, if not the best. If BlackBerry had to divest because of financial troubles, the major U.S. automakers would probably be the first to make an offer for QNX.”

3) Software Engineers

Two of three sources believe QNX will continue to grow and dominate the auto infotainment market. One sees competition increasing in the next five years as demand grows for lower-end cars with infotainment systems. Additional revenue streams are in sectors needing constant, uninterrupted data processing, such as healthcare, government defense contractors, aviation, industrial applications, shipping and transportation. All three said QNX’s pricing power is stable.

Key Silo Findings

Market Share

- 2 of 3 believe QNX will continue to grow and be dominant in auto applications.
- 1 sees competition increasing in the next 5 years as demand grows for infotainment systems in lower-end cars and as competition from Google and Apple grows.
- 1 did not comment on auto market share but said QNX is trying to be No. 1 in healthcare with its [partnership](#) with NantHealth, a cloud-based IT provider in which BlackBerry has made [investments](#).

Additional Revenue Streams

- Healthcare, government defense contractors, aviation, industrial, shipping and transportation are all areas of growth because they require constant, uninterrupted data processing.

Pricing

- All 3 sources see QNX’s pricing power as stable.
- 1 said QNX may be able to raise prices in the midsingle digits over the next 5 years, assuming no major competitors emerge.

1) Senior technology architect at a Los Angeles IT company

QNX remains the leader in secure, reliable embedded software. The auto infotainment market has tremendous upside as the technology moves from luxury vehicles to midrange cars and eventually budget models. Price negotiation likely is nonexistent, and parent company BlackBerry will continue to raise prices on QNX tech as long as it can—because it must. QNX’s value in the IoT remains uncertain, but healthcare, military and government—as well as any sector dependent on secure data transmission—represent an opportunity. Green Hills and Wind River are QNX’s primary competitors. Open-source solutions built on Linux are not a threat.

Market Share

- “Until something better is available, QNX will continue to be the first choice in real-time OS for car applications. That will increase. They already have better than half the market.”
- “Google could compete on the automotive side. In healthcare, you see Green Hills and Wind River. Linux, despite their best efforts, hasn’t become a factor in this area. Nobody in healthcare wants open-source code running their diagnostic equipment or processing sensitive data like patient information.”
- “QNX has staying power. If anything, I believe their systems will get even better.”
- “The auto market has a lot of upside as the OEMs build more infotainment systems into midrange cars. It’s still pretty much a luxury option, although pieces of it have been around for years in different makes and models.”

BlackBerry Ltd.'s QNX Software

- “There’s a lot of talk about the potential for embedded tech in the so-called Internet of Things. ... I don’t know that IoT will be as comprehensive as some people make it out to be, but there is certainly the opportunity for an OS that can manage multiple tasks simultaneously with total data security across different devices. That segues logically into military applications, government communications, any company that requires secure data transmission.”
- “Only Green Hills and Wind River come to mind in terms of comparable abilities.”

Additional Revenue Streams

- “QNX offers technology that can drive a lot of really powerful innovations in healthcare. Managing patient protocols from smartphones to tablets, laptops to terminals and everything in between among medical staff, and tie that into back-office applications for billing and insurance—that’s transformative technology.”
- “QNX works very well in critical applications where you cannot afford data loss or downtime, and you have to have that constant, uninterrupted data processing. An OS like Android or Apple OS X works on algorithms that are designed to drive your workflow but do not recognize priorities in real-time. With these types of systems, signals and processing demands can get switched on and off as more demands come through. So you have a situation where an app might be paused to give priority to another app. When the first one starts up again, the app has to repopulate all that data going through the first transmission. If you are trying to save a patient’s life or manage air traffic over an airport, the importance of that real-time processing becomes obvious.”

Pricing

- “I think QNX sets their prices pretty firmly. There may be some discount depending on the number of licenses.”
- “While BlackBerry owns QNX, they will continue to raise prices as they can within reason. BlackBerry has to. The best thing that could happen to QNX would be if it was sold off to a company that can grow the business rather than use it mainly as a cash cow. I still think Cisco [Systems Inc./CSCO] would try to acquire them.”

QNX works very well in critical applications where you cannot afford data loss or downtime, and you have to have that constant, uninterrupted data processing. An OS like Android or Apple OS X works on algorithms that are designed to drive your workflow but do not recognize priorities in real-time.

*Senior Technology Architect
Los Angeles IT Company*

2) Software engineer at a Washington, D.C., IT company

QNX holds most of the auto infotainment market and derives 90% of its revenue from this sector. Additional opportunities exist within the government, defense contractors, healthcare, industry and aviation. Apple and Google are primary competitors in auto infotainment, but a collaboration with either could lead to control over the sector. QNX’s pricing and revenues should remain at least stable for the next four to five years as the market expands beyond high-end vehicles.

Market Share

- “QNX is the top OS in auto infotainment systems. It’s because they don’t have any serious competition in that area. In the next five years, though, demand for these systems is going to draw down into lower-priced cars and the market will really open up. That could drive competition.”
- “QNX offers powerful and secure, real-time processing technology. It’s probably the best of its kind in that area, but not every device needs QNX to justify the price. You don’t need multiple layers of servers to turn on your houselights with your smartphone. Big companies, data-driven companies, the government and other entities where security is essential—these can benefit the most from QNX.”
- “I think QNX will get more and more involved with the government, defense contractors, and commercial aviation for secure data transmission. Also, enterprisewide applications in hospitals and industry.”
- “Apple and Google want to play in the connected-car space. Microsoft has had trouble holding onto [auto OEM] customers. Where safety and security are essential, QNX has the lead.”
- “QNX has the majority of the auto market. I do not know about their share of

In the next five years, though, demand for these systems is going to draw down into lower-priced cars and the market will really open up. That could drive competition.

*Software Engineer
Washington, D.C., IT Company*

BlackBerry Ltd.'s QNX Software

the healthcare market other than the need for safety, and reliability makes QNX an attractive solution for that market.”

- “Google and Apple will try to challenge QNX in the auto market. Another interesting scenario is one of them may try a deeper collaboration with QNX on connected cars. That would probably lock up the market pretty fast for QNX and whoever they might partner with. Google and QNX have worked together before on mapping technology. On the other hand, Google is making some inroads with a few automakers using Android.”

Additional Revenue Streams

- “The future of healthcare is all about controlling costs and operating efficiently. QNX can deploy across the operations of a complex enterprise like a hospital. It’s secure and there’s no downtime, so information flows in a reliable way.”
- “Aeronautics and military contractors are two areas that can benefit QNX. Another area related to healthcare might be the pharmaceuticals industry. QNX could be used to manage the workflow on clinical trials, drug testing.”

Pricing

- “QNX probably doesn’t need to come down on pricing in most of their core areas. There are a lot of cheaper solutions, like Linux, but device makers are leery of systems that don’t have that level of security they know QNX provides.”
- “BlackBerry’s QNX revenues will remain at least stable for the next four to five years. There will be more competition for the connected-car business, and that will impact sales. QNX does a good job of marketing and is well known within the tech industry.”
- “About 90% of QNX’s revenues come from the auto industry.”

3) Director of a software engineering firm focused on mobile traffic information apps

QNX should see 5% growth annually for the next three years in the automotive sector as demand expands for infotainment and smart-car tech. Additional revenue streams include healthcare solutions, industry automation, defense systems, and shipping and transportation companies. QNX remains the clear leader in auto infotainment; whether Google and Apple will challenge QNX directly or work collaboratively remains uncertain. QNX may emerge as the leader in healthcare tech, utilizing BlackBerry’s relationship with IT provider NantHealth to set up patient monitoring systems.

Market Share

- “I still think QNX has growth potential of 5% for the next three years.”
- “Google and Apple are pushing very hard to become a major part of the smart-car market. Both have deep pockets and the R&D resources to succeed. It’s hard to say whether they will go it alone or work with QNX to embed OS X and Android into vehicles.”
- “QNX will still be around in the next five years. The auto market for this tech is expanding, and there are other areas the company can explore.”
- “Wind River is their main competition in healthcare tech.”
- “As more cars are built with interactive systems, QNX can grow in that area. There’s also hospitals, major industry, shipping and transportation, defense systems.”
- “Their main competitors are still Apple and Google, Wind River, maybe Microsoft in some areas. Linux may be the OS of choice on low-end applications and consumer devices, where that level of [QNX’s] real-time functionality and the price that goes with it probably aren’t necessary.”
- “If QNX doesn’t have the largest share of the healthcare market, they are certainly trying to get there. BlackBerry owns part of NantHealth, and they’re using QNX to set up healthcare systems with SSL [secure sockets layer] to manage vast amounts of patient data. Basically, the system monitors hospital patients and transmits their vitals to medical staff who might be on the other end of the hospital or even off-site. It works on any web-enabled device. My understanding is it can be scaled for virtually any number of patients to monitor every second of their care.”

Additional Revenue Streams

- “QNX will be in the best position to offer enterprisewide solutions for the healthcare industry.”
- “Cisco does a lot of business with QNX. I think there’s a lot of opportunity in secure communications services, automating manufacturing plants. QNX and BlackBerry’s IoT platform also could be deployed to a greater extent in smart cars. Beyond infotainment, there’s vehicle-to-vehicle warning systems and vehicle-to-infrastructure, with embedded tech alerting the driver to things like road hazards and construction sites.”

BlackBerry Ltd.'s QNX Software

Pricing

- “QNX probably negotiates on price in growing markets like healthcare. In the auto industry, where they have a firm foothold, I think the price is probably set in stone.”
- “Prices should grow over the next five years—5% annually seems reasonable—in the absence of any major developments from a competitor.”

4) IoT Executives and Software Engineers

All three sources expect QNX to gain strength in the auto infotainment and the medical markets. One source said the IoT sector does not yet have a clear winner but that QNX would be better suited for higher security applications. Sources were split on QNX's pricing power.

Key Silo Findings

Market Share

- All 3 sources expect QNX to gain strength in the auto infotainment and the medical markets.
- All 3 said QNX currently dominates the auto infotainment market.
- 1 said Linux-based software is QNX's main competitor in the auto market.
- 1 said QNX also dominates the medical market.
- 2 said the winner of the IoT market is yet to be determined. There are many competitors, and there will likely be more than 1 winner.

Additional Revenue Streams

- The medical, IoT, industrial automation and nuclear plants are all areas for growth for QNX.

Pricing

- 1 said customers do have ability to push back on pricing.
- 1 said pricing likely will not change.
- 1 said QNX would have more pricing power in areas that need security, such as utilities.

1) Executive at a Canadian software development and consulting firm; repeat source

QNX's position has improved since the last discussion with this source. QNX probably has 60% to 70% share in automotive and medical and is well placed to grow in both markets. In automotive, the QNX platform is compelling and will grow as infotainment systems become more sophisticated, integrate Google and Apple, and require more networking both inside and outside the car. QNX has broadened the scope of its FDA specifications to better accommodate the medical sector, which is growing in light of an aging population. QNX faces more competition in the Internet of Things, but this is a growing sector and QNX will grow with it. QNX's pricing is based on volume, with low-volume devices in healthcare commanding higher prices compared with high volume devices in the IoT. Auto OEMs are willing to pay for the value that QNX brings to basic radio and infotainment systems. Its main challenger is Linux, which is royalty-free, but integration costs are considerable. Industrial automation, utilities and the military are additional revenue streams for QNX.

Market Share

- “QNX will be growing [during the next five years]. Their key market is automotive, and that's only going to grow. Second is medical, and that has been very strong in the last year. And then there's the Internet of Things, which is starting to come together.”
- “QNX's position has improved since the last time we talked.”
- “The medical applications that use QNX are diverse. They range from cobalt-based radiation machines to PET scanning. Real-time operating systems are important in those devices, and QNX has a big advantage because of its FDA approval. They've broadened the scope of their FDA specifications to accommodate more customers.”
- “That marketplace is only about 25 to 30 years old, but there's very little competition for these mission-critical types of devices. In terms of adoption, it's only going to increase.”

BlackBerry Ltd.'s QNX Software

- “There’s also lots of QNX in the Internet of Things space. The No. 1 market within that is automotive—getting data about driver and car behavior and predictive maintenance. These are going to be very big areas. Since QNX is already in the car market, it’s not much of a stretch to expand a little wider beyond infotainment applications.”
- “QNX will also play a role in accessing cloud services and cloud data in automotive. That’s going to be big as people access cloud music services. The vehicle itself is its own local area network as well, for example, when there are screens built in the back for kids. The access would come from a central repository.”
- “There are a few smaller challengers, but I don’t see them being as powerful as QNX. The company that was traditionally their biggest competitor was [Intel’s] Wind River. Wind River has adopted more of a Linux model and is more geared toward integration than on focusing on key markets like QNX does.”
- “There isn’t a lot of real competition. [QNX has] very long-standing relationships in their traditional verticals.”
- “There’s another option: People can write their own operating systems. This has always been one of the biggest competitors to any of the operating system companies, if you can call it that. For a very specific project, let’s say a talking network capable refrigerator, it might be overkill to have QNX and it might be more cost-effective to write your own, maybe in assembly code or UNIX. There are many choices.”
- “In industrial automation, Linux is the biggest competitor and, to a lesser extent, Microsoft.”
- “I don’t think Android and Apple are a threat [to QNX’s dominance in the automotive space]. QNX provides a real-time operating system, and that means fault tolerant, deterministic, fail-safe systems. The applications go beyond radio and infotainment to things like gauges and antilock braking systems.”
- “QNX is willing to give up the user interface. BlackBerry has integrated for Android applications to run on BlackBerry. QNX is allowing the same thing. They still get the design wins and the royalties, and still proliferate in the automotive world. I would guess they’re building some sort of tie-in so Apple too can run on top of QNX.”
- “Their market share will grow in healthcare because that’s a growing area. There are going to be more players in the medical market due to the aging population. QNX has a well-established practice in that space, and I believe it will continue to grow.”
- “The Internet of Things is just developing, so they can grow with that market.”
- “In automotive, they will continue to convert those who haven’t jumped onboard already. Ford going to QNX was huge because Microsoft was in there for a long time. QNX’s offering is quite compelling.”

Their market share will grow in healthcare because that’s a growing area. QNX has a well-established practice in that space, and I believe it will continue to grow.

Executive, Canadian Software Development & Consulting Firm

Additional Revenue Streams

- “The Internet of Things will logically be evolving toward industrial automation and utility companies—water meters, power meters, big, heavy machinery that require maintenance and remote monitoring.”
- “Military is another area for QNX.”

Pricing

- “Customers do have the ability to push back on pricing, but QNX has always been priced on the basis of volume.”
- “In medical, for example, they would typically only manufacture hundreds or at most thousands of machines. Based on volume, those prices would be higher. In the Internet of Things, many devices are connected and based on volume, the prices can be lower. The cost of the devices would be lower too. QNX recognizes that. In the automotive world, the OEMs pay for the functionality they require.”
- “With Linux, though there isn’t a license fee for the software, people more than pay for it in terms of integration. In the Linux world, it’s only the integrators who’ve made any money.

2) Consultant specializing in embedded systems and security; repeat source

QNX has grown to a stronger position, driven especially by key initiatives in auto infotainment where it can interface with both Android and Apple devices to stream them on head units. QNX’s strength is the value it adds with its unique, real-time operating system and security, including in healthcare. It could grow in absolute terms in the low double digits. It has good market share in automotive and healthcare and very few challengers. In the IoT, QNX will benefit only because the

BlackBerry Ltd.'s QNX Software

space itself is growing. It has not invested in IoT as much, and its pricing will likely not change. Prices also are unlikely to increase in automotive where QNX wants to expand its share. QNX does have some pricing power in the medical area.

Market Share

- “From a high level, QNX is in a stronger position than the last time we talked. My perception is based on their key initiatives, particularly auto infotainment.”
- “There’s a battle for the car in the auto industry—for infotainment, the interface, the user design of applications and entertainment for cars.”
- “One of the approaches is to stream information from the devices. QNX is now involved in Ford’s head unit, and they’re positioned to allow both Apple CarPlay and Android Auto applications to work in the system. They’re interfacing with the device. In that way, they’re controlling the operations of the head unit as much as possible. It’s great for them because they have that super-secure microkernel, yet it still allows more consumer-oriented applications to be run on it.”
- “Eventually cars will have a system that’s much more integrated, but for now all these systems are battling for the car because OEMs don’t want to alienate the 50% of users who aren’t Android or Apple users. QNX has found leverage there. They’re not unique for that, but they’re well suited for it.”
- “I would say they will be moderately growing [over the next five years] ... maybe 11% to 20%, driven by their value-added areas, particularly in automotive and healthcare. In the short term, they’ll grow in IoT also because everybody is growing there. They will grow there in volume, even if they have less pricing power.”
- “I don’t hear as much about them in IoT as before, but they’re still in there. They’re putting more of their marketing budget into the higher ecosystems, like infotainment.”
- “IoT has a long tail and is very spread out for now. There are thousands of companies doing IoT, but there are only a few handful of car companies. It’s a challenge for companies to stay relevant. IoT is the Wild West. There’s starting to be a little consolidation in it, but it’s necessary to partner with the very big companies to get your name out.”
- “[QNX is] also increasing in the healthcare area, especially in the regulated part where they are the favored operating system. Those devices are exploding.”
- “Microsoft, Google, Apple and even [IBM \[Corp./IBM\]](#) are all trying to get in and own the car market. It’s a battlefield. Apple is rumored to be building its own car, and Google is in self-driving cars. I don’t see any one of those companies winning that because they would have to be much more open than they are.”
- “In order for Apple to own that market, they would have to be able to run Google apps as well. Google would have to allow Apple devices to play.”
- “In home automation, it’s the same thing. Microsoft, Google and Apple are not going to win that, but they’ll be a new company that will create a great solution but from a user’s experience.”
- “Embedded Linux is a very straightforward operating system, but it’s not inherently very secure. You have to add security options to the hardware. For high-value content, like healthcare, that’s very necessary.”
- “Linux could gain share in the Internet of Things. The challenge is that many companies in IoT have no experience in security. They think security is web security, and they don’t realize the device itself can be compromised. Linux is easy to use and available, and it will definitely grow as well. Linux would be the closest threat to QNX, but in the high-value areas, it’s still too involved.”
- “They have good market share in their areas, and their areas are the value-added areas where you need a safe and reliable environment.”
- “QNX is a key player in IoT, but the space is all over the place in terms of market share. Embedded Linux is big, and a lot of other operating systems are in there.”
- “In wearables, QNX can be used as well. But QNX can offer more value in pricing on critical wearable devices, such as ones with medical capabilities. They have a strong market share and the ability to continue [to grow].”
- “They’re going to continue to be hammered by low-end companies and embedded Linux, and they can continue to play in that market. But their value is in the high-end.”

Additional Revenue Streams

- “Some of the other areas are set-top boxes and TVs, but a lot of these have Android as well.”
- “The products five years from now are not going to be the same as today. Things are changing very quickly. We’re not going to run our lives with 20 devices attached to us, or 20 apps. There will be some consolidation and

Linux would be the closest threat to QNX, but in the high-value areas, it’s still too involved.

*Consultant Specializing
Embedded Systems & Security*

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standardization in the industry, and there'll be some new devices that will span different markets. You probably won't go run in the future with your phone, music player, watch, step monitor, etc."

- "They have a great and mature product in IoT, but they're not investing in it as much as in cars and wearables and medical equipment."

Pricing

- "The balance of power in terms of pricing is changing all the time. There's flexibility on pricing if you have exclusivity. QNX has some of that, but the challenge is that with some of the higher-value systems, as in cars, there are a lot of players involved to make it work. There's a lot of licensing, and sometimes there's not much slice left."
- "You have to add extra value in order to be able to increase the price, and QNX is part of that value chain, which gives them a little pricing power. ... But in order to win, and to expand their market in the areas that are growing quickly, they have to be competitive, so there's not a lot of room for pricing ability. They're investing in the future by not having their prices too high."
- "On average, their prices aren't going to change much. In the areas where they can add value, they'll increase. In automotive, it will depend if QNX can create the products to make it easier for the OEMs or the tier 1s to integrate product and create value for the end users. This is something they're trying to do in the automotive industry but not very much in IoT."

3) IoT specialist at a networking company

QNX is one of many operating systems used in the IoT, but in the automotive industry it has proven it can provide added value through strong marketing. The IoT involves connecting 50 billion devices, and certainly not all will require QNX. Low-priced consumer devices can use Linux, but QNX must make a business case to become the solution provider for more complex business segments in IoT that need security, reliability and manageability. QNX's announcement at CES that it has created an IoT platform is a first step. Based on QNX's partner list, this source believes it has a very large percentage of the infotainment market in cars being shipped. Low-end infotainment is a new area of revenue growth for QNX.

Market Share

- "I expect to run into QNX in IoT on a regular basis. But it's in the car industry that I run into it on a consistent and growing basis."
- "QNX's automotive strategy has clearly worked. QNX has a strong value proposition that is a differentiator and it has staying power."
- "The IoT market involves connecting 50 billion devices to the Internet. There are a lot of moving parts in the IoT marketplace. The devices are varied, and they don't necessarily use the same network connections as cell phones. There can be things like dog tracking devices but also real world business applications. That's where the money is going to be made, and that's where some serious evolution is required. It takes a lot to deploy, manage, upgrade and ensure they don't get hacked."
- "The various segments of IoT are driven by who the buyers are. Linux plays very well to the consumer because it's free. For cheap devices that aren't mission-critical, Linux is perfect."
- "In automotive, QNX's secure architecture works well in the background for OEMs like Mercedes-Benz or Audi. It's to be seen if it will also work well in the Internet of Things. There are some 22 segments in the IoT space."
- "They don't build products, just components for a solution to a manufacturer. They need to create an ecosystem."
- "QNX made headway into the automotive industry by creating a package of what was needed, putting it in a box, and marketing it."
- "The question is if QNX can do the same for IoT. They can, but they haven't done it yet. However, they did have an IoT [announcement](#) at CES. That's the start."
- "Based on the number of OEMs listed as their partners, I believe they have a very large percentage share of the cars currently being shipped with infotainment systems."
- "There has not been a large-scale deployment of IoT yet. To do it well with consistency and quality is not simple. Price points and performance are also essential. 2016 and 2017 will be when things will really roll out."
- "Among the 50 billion devices, there are going to be a ton of major winners, not just one."

QNX will be a player and will win in specific segments, as in the past, where their value proposition resonates.

IoT Specialist, Networking Company

BlackBerry Ltd.'s QNX Software

- “There are three credible solutions with significant backing: Wind River from Intel, Linux and QNX. But it’s about not grabbing market but holding it. QNX will be a part of it.”
- “QNX needs to focus on the markets they can win and hold. The IoT market will not have one winner only. There are going to be vertical winners and their size will not all be the same.
- “QNX will be a player and will win in specific segments, as in the past, where their value proposition resonates.”

Additional Revenue Streams

- “Historically, the man-machine interfaces were only available to high-end cars. Ford Sync’s system is making it possible for millennials to have technology in the low-end. With this, QNX offers the car industry, especially in the low-end, the full functionality already developed at the high-end. There’s an opportunity for QNX there.”
- “Their other traditional market is industrial automation, the control of nuclear power reactors.”

Pricing

- “QNX can bring value to IoT, but at the same time value does not translate. Purchasing organizations fight for pennies. They don’t buy on value or on total cost of ownership. They are myopic and buy on unit costs. They look for the lowest cost solution.”
- “However, when delivering a service to a business, there are other values required—security, availability, reliability, upgradability. These are very important because they are service delivery mechanisms.”
- “The value proposition and the purchase motivations are very different depending on who is buying. Consumers tend to be more myopic. In applications where high availability, high reliability and high manageability play—for example, the utility markets—that would be a good fit for QNX.”

Secondary Sources

The following five secondary sources discussed automotive OEMs adopting Google’s Linux-based Android, recent contracts inked between QNX and auto OEMs, and QNX’s value to BlackBerry.

OEMs’ Adoption of Google/Linux

Harman has teamed up with Google Android to provide embedded systems to General Motors.

Dec. 19, 2014, [Arstechnica.com article](#)

Harman has teamed up with Google to provide Android-based head units for General Motors. The new Android system will serve as the vehicle’s embedded OS, whereas Google’s existing Android Auto product is merely an interface. The system will include apps developed by GM, Harman, Google and other third parties. Some readers believe the Harman-Google system will succeed, but one questioned if GM will provide timely software updates.

- “Harman International, the car infotainment manufacturer, recently spilled the beans on a ‘next-gen’ infotainment system it is building for General Motors. [Automotive News](#) has quotes from the company’s CEO, Dinesh Paliwal, who describes an Android-based system with an app store and ‘instant’ boot up. The report says that Harman is ‘working closely’ with Google to make the system a reality.”
- “This system isn’t Android Auto. Unlike regular Android, Android Wear, and Android TV, Android Auto isn’t an operating system. It doesn’t live on the car’s computer, control peripherals, or have an app store. Like Apple’s CarPlay, Android Auto is a ‘casted’ interface. Your plugged-in smartphone sends a custom interface to the car’s screen and receives touch events, but the car still has to run some other operating system.”
- “Harman won a \$900 million contract from GM to build the system, and judging by Harman CEO’s description, this is an actual embedded Android system that will power the entire infotainment setup. That typically includes the audio system, air conditioning, navigation, voice recognition, phone calls, reverse cameras, and Internet access.”
- “Interestingly the report says Harman is ‘working closely’ with Google to make the system ready for cars, which suggests this won’t be some cobbled-together AOSP system. Instead, it’s likely to be something that will be blessed by Google. Harman’s CEO said the system will have ‘an app store’ and that ‘apps will be developed by General Motors, Harman, and a bunch of other third parties, not just Google and Apple.’”
- “Besides GM, Harman supplies infotainment systems to Mercedes-Benz, Toyota, and BMW, and while GM has a bit of an exclusivity deal on the system, other companies can adopt it ‘one life cycle behind.’”

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- “GM has been leading the connected car movement with moves like [rolling embedded LTE out](#) to most of its lineup, but on the software side, things are a mess. *Automotive News* notes that GM’s current software lineup is a mix of systems based on BlackBerry’s QNX, Linux, and ‘a Microsoft OS.’ If GM is really serious about this, they’ll need to realize the power of a large install base for apps and build a system that works across its many brands.”
- Reader “fattybunter”: “I can imagine this working out better than Android Auto if Google treats this similar to a Nexus device. Google can push updates as needed via Play Services or create something new entirely for OEM’s to push directly. With their newly added account and security management in Lollipop I’m betting there are some cool implementations here to choose from. You could even have Android in the Car contain the capability of Android Auto. Sort of how the Nexus Player allows for Chromecast ‘casting’. If the manufacturer wanted, they could lock down Android in the Car so the consumer was only able to cast, thereby making it functionally the same as Android Auto.”
- Reader “SirOmega”: “This might be a change for GM in that if its infotainment system is based on android with app stores and starts to feel like a cell phone embedded in a car, then people might start to expect GM to keep it updated like a cell phone’s OS (insert android joke here about still running on 2.3). But GM and most automakers don’t actively update their infotainment systems with new features. I owned a 2009 Ford Escape and it had the Microsoft SYNC system (not the touch screen one, just the voice and line-of-text outputs), and it didn’t get upgraded after 1 year. It came with 1.x and it got an upgrade to 2.x but not beyond that. My 2012 Chevy Volt’s infotainment system hasn’t been upgraded at all (I’d love it if they’d just fix it so it worked well with Siri so I could command my iPhone). If people buying a 10 year old car have a 10 year old version of Android installed in their car dash, it’s more of a negative than a positive.”

Recent OEM Contracts with BlackBerry’s QNX

QNX will power the embedded systems in several 2015 Volkswagen models. Also, the BlackBerry subsidiary showed off capabilities in a Jeep wrangler as well as a Maserati Quattroporte at CES 2015.

Jan. 5 CrackBerry.com [article](#)

QNX will be available in many 2015 Volkswagen models. Some features include real-time traffic info, reverse camera display, and four-zone climate control.

- “If you’re shopping for a Touareg, Passat, Polo, Golf, or Golf GTI, you may be pleased to know the infotainment systems in those 2015 models will be powered by [QNX](#).”
- “Announced today at [CES 2015](#), the systems in those models will offer real-time traffic information, points-of-interest search, reverse camera display, voice control, Bluetooth connectivity, rich multimedia support, four-zone climate control, a high-resolution 8-inch color touchscreen, and many other advanced features.”
- “‘At Volkswagen, we believe deeply in delivering the highest quality driving experience, regardless of the cost, size, and features of the vehicle. The scalable architecture of the QNX platform is well-suited to our approach, enabling us to offer a full range of infotainment systems, from premium level to mass volume, using a single, proven software base for our Modular Infotainment Modules (MIB) and the RNS 850 system,’ said Alf Pollex, Head of Connected Car and Infotainment, Volkswagen AG.”
- “‘The sheer variety of these systems is a testament to the flexibility and dynamic range of the QNX platform, and we are excited to see Volkswagen leveraging this same flexibility to offer high-quality infotainment capabilities across a wide range of Volkswagen passenger vehicles,’ said Andrew Poliak, global director of business development, QNX Software Systems.”

Jan. 13 Embedded Computing Design [article](#)

QNX was featured in some Fiat Chrysler vehicles, including the Jeep Wrangler and Maserati Quattroporte, both of which were demonstrated at CES 2015. The Jeep demo focused on technology already available, while the Maserati featured technology still in its conceptual phase. Maserati’s rear- and side-view mirrors were replaced by video displays.

- “Hands down one of the coolest booths I visited while at CES, QNX Software had two vehicles on display that were retrofit-ted with their latest technology: a Jeep Wrangler and a Maserati Quattroporte GTS.”
- “The Jeep was used as part of a demonstration of [ADAS](#) that combined the QNX Car platform, ADAS algorithm processing from Itseez’s, and Elektrob’s EB Assist ADTF Framework with cameras, [LIDAR](#), and ultrasonic sensors to detect traffic signs and issue forward collision and lane departure warnings. As the vehicle (unfortunately) had to be stationary at the booth, the driving scenario was positioned in front of a 12-foot HD screen so you could get a feel

BlackBerry Ltd.'s QNX Software

(yes, the steering wheel actually vibrated in certain instances) for how the systems could all come together on the road.”

- “While the Jeep contained technology that is available today, the Maserati was actually positioned as a concept car, and included speed recommendations, parking assist, and a collision warning system that was highlighted by an LED-based display that appeared over the dashboard to indicate the direction and proximity of obstacles around the vehicle. In addition, the rear- and side-view mirrors on the Maserati were replaced by video displays that helped mitigate ‘objects being closer than they appear,’ and also issued color-coded alerts when objects entered the vehicle’s blind spots.”
- “Grant Courville of QNX asserted that the current challenge with ADAS systems is that no frameworks exist for integrating them into the car, which is something the company hopes to integrate into versions of their safety-critical OS in the future.”

QNX’s Value within BlackBerry

Some estimates show QNX accounts for 3% to 5% of BlackBerry’s revenue, but Bloomberg believes this figure is closer to 2%. Google Android may threaten QNX’s market share significantly in two or more years. The vehicle OS market is expected to grow to \$14 billion by 2016, but licensing fees are very low and will not equate to windfall profits for BlackBerry, Google and other vehicle OS providers.

Feb. 6 TechVibes.com [article](#)

BlackBerry’s QNX holds a significant lead in the embedded vehicle OS market. QNX’s revenue is believed to account for 3% to 5% of BlackBerry’s total revenue. Google Android is a true threat to QNX, but QNX will continue to lead the market for the next few years.

- “BlackBerry acquired QNX Systems in 2010. Back then, it was still called Research In Motion. A lot has changed since then, including the name.”
- “One thing that has not changed, though, is QNX’s impressive market share of the automobile industry’s ‘infotainment’ space—you know, all the new-fangled, problematic interfaces most new cars come with these days. QNX owns more than half the market. And it’s a fast-growing one, too.”
- “QNX isn’t a massive part of BlackBerry’s overall revenue—around 3% to 5%, according to some estimates—but the automobile industry is half of QNX’s revenue. Which is why it’s a little wary of the sudden appearance of Google’s Android platform in motor vehicles today.”
- “The connected-car market is expected to be worth more than \$50 billion by 2015, according to a 2013 forecast from the GSM Association of mobile operators, which is more than triple its value today. That’s a big opportunity for QNX—and its competitors, which includes not only Google, but also Apple, the world’s most valuable company.”
- “Currently QNX is widely considered to be the best in the business. But for how long? Experts suggest the company will continue to lead the market for at least a few more years, but mounting competition will inevitably erode QNX’s lead. Android is likely the firm’s biggest threat for the foreseeable future, followed by Linux. And of course there’s always the possible threat of a startup leaping in and disrupting everything.”

Dec. 17, 2014, The Motley Fool [article](#)

QNX controlled 53% of the embedded vehicle OS system market at the end of 2013. The vehicle OS market is expected to grow to \$14 billion by 2016. BlackBerry only earns \$3 per vehicle for each QNX installation. Bloomberg estimates that the low fees result in total QNX revenue accounting for only 2% of BlackBerry’s top line. BlackBerry may never see windfall profits from its QNX Car Platform.

- “Ford recently dumped Microsoft’s Windows Embedded Automotive OS from its new Ford Sync 3 infotainment system in favor of BlackBerry’s QNX. This change wasn’t surprising, since Ford already replaced Windows with QNX for their MyFord Touch system in several vehicles back in February due to frozen screens, poorly responsive haptic controls, and reboots while vehicles were in motion.”
- “Windows Embedded and QNX *should not* be confused with Apple’s [CarPlay](#) and Google’s [Android Auto](#). Windows Embedded and QNX are embedded operating systems that connect a vehicle’s climate control, navigation, and entertainment systems to dashboards provided by other companies. Apple CarPlay and Android Auto are two such dashboards that “hook” onto QNX. This allows iOS and Android users to mirror their smartphone screens on top of an automaker’s own infotainment dashboard.

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- “QNX controlled 53% of the embedded vehicle OS market in 2013, compared to Microsoft’s 27% share. Research firm Markets and Markets expects the global auto infotainment market to grow at a compound annual growth rate of 12.1% between 2011 and 2016, hitting a market value of \$14.4 billion by 2016.”
- “However, most of that money will go to infotainment hardware makers rather than software companies like BlackBerry and Microsoft. Research firm IHS believes that BlackBerry’s QNX software licensing fees come in at a mere \$3 per vehicle. *Bloomberg* estimates QNX revenues, tucked away in BlackBerry’s software revenues, only account for around 2% of its top line.”
- “Therefore, BlackBerry investors shouldn’t expect QNX revenue to suddenly surge and offset the company’s core problems of plunging handset and service revenues, which still accounted for 92% of its top line last quarter. But if BlackBerry’s market share keeps rising, it could gain more clout to negotiate higher license fees from automakers.”
- “Cars are quickly becoming extensions of our mobile devices. Gartner analyst Thilo Koslowski forecasts that 80% of new vehicles will be equipped with infotainment units by 2020, up from just 40% in 2013.”
- “Unfortunately, BlackBerry and Microsoft aren’t well poised to profit from that booming business, due to their anemic licensing fees. BlackBerry investors should focus more on BES (BlackBerry Enterprise Service) and BBM ([BlackBerry Messenger](#)), two components of its software business that are much better poised for meaningful sales growth than QNX. Microsoft investors, on the other hand, should focus on the company’s sweeping [cloud-based initiatives](#) for PCs and tablets.”

Additional research by Steve Evans and Eva Cahen.

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