Analyst Day 2018

November 21, 2018
u-blox Holding AG
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<td>10.05</td>
<td>Connecting the world</td>
<td>Thomas Seiler</td>
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<td>10.20</td>
<td>Strategy</td>
<td>Thomas Seiler</td>
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<td>R&amp;D – the growth engine of u-blox</td>
<td>Roland Jud</td>
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<td>Connecting the world: Cellular</td>
<td>Andreas Thiel</td>
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<td>Connecting the world: Short Range</td>
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<td>Connecting the world: Positioning</td>
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<td>Connecting the world: Services</td>
<td>Thomas Seiler</td>
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<td>12.05</td>
<td>Driving growth</td>
<td>Thomas Seiler</td>
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<td>12.20</td>
<td>Open to any further questions</td>
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<td>12.30</td>
<td>Lunch</td>
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Connecting the world
Connecting the world: It’s like a tide

Already today, **u-blox technology can be found everywhere**: in drones, in devices that track people or things, inside home-surveillance systems, in your car, in health-care devices – and daily there are more applications.

Furthermore, we are convinced that the **Internet of Things** will change every aspect of our societies, our businesses, and our everyday lives. That’s why we develop reliable and innovative positioning and wireless communication solutions that **securely connect** vehicles, industries, things, and millions of people around the world.
Megatrends and IoT growth areas

Mobility
Industry 4.0
Urbanization
New health

Connected vehicle
Connected industry
Connected city
Connected consumer
Megatrends are driving our growth

**Mobility**
More and more automation enables the autonomous driving car.

A quarter billion connected cars delivered between 2019 – 2023.
BI Intelligence 2018

**Urbanization**
Infrastructure becomes smart for better usage and service of the increasing population living in cities.

1 billion smart meters installed between 2019 – 2023.
ABI research 2018

**Industry 4.0**
Automation is linked with the cloud for closer control loops that enhance process efficiency.

More than 2 billion connected devices in 2023.
BI Intelligence 2018

**New Health**
The cloud delivers services to the mobile users and enhances insights into a healthy life.

Over a half billion sports and wellness trackers will be sold in the next 5 years (2019-2023).
TSR 2018
**IoT growth areas driven by megatrends**

**Connected vehicle**
The connected vehicle is a term for a vehicle equipped with wireless connectivity. Special technologies are often used in the vehicle so that this connectivity results in benefits for the driver.

**Connected city**
The connected city approach looks beyond isolated technological solutions in the search for intelligent systems geared to individual behavior patterns and individual needs. Connected cities aim to provide holistic solutions to a variety of problems in the city and to overcome these with interconnections.

**Connected industry**
The industry is aiming to achieve its next revolution: Industry 4.0. The vision is a production environment in which production facilities and logistics systems largely organize themselves without human intervention.

**Connected consumer**
Connected consumers wear computers that are placed on the body. With digital networking and innovative sensors, items of clothing, armbands, eyewear, etc., can respond to changes either in the body of the wearer or in the environment.
Connecting the world

**Connected vehicle**
- Vehicle telematics
- Emergency call systems
- Insurance boxes
- Autonomous vehicles

**Connected industry**
- Asset tracking
- Automation
- Precision timing
- Smart metering
- Point-of-sales terminals

**Connected city**
- Gas and water metering
- Smart traffic
- Security surveillance

**Connected consumer**
- Wearables
- Drones
- People and animal tracking
- Car accessories
- Mobile hotspots and routers
"Internet of Things (IoT) market worth USD 2,488 billion by 2022 at 20% CAGR"

Source: Ericsson Mobility Report 2018, ABI 2018
Strategy
Our vision

We deliver leading wireless technology to reliably locate and connect people and devices.

We are convinced that the Internet of Things will change every aspect of our societies, our businesses, and our everyday lives.

That’s why we develop reliable and innovative positioning and wireless communication solutions that securely connect vehicles, industries, things, and millions of people around the world.
Four pillar strategy delivers

Market position
- Large product range ☑, ☐, ☐
- High quality and reliability

Technology and innovation
- Strong product road map
- Deep intellectual property

Operational excellence
- Fabless with strong long-term partners
- Lean organization

Strategic partnerships
- Many partnerships
- 14 acquisitions for acceleration so far
Our core intellectual property (IP)

**Cellular Technology:**
We are the only IoT supplier of chipsets and modules for a broad variety of cellular technologies, and we are a technology leader in NB-IoT and LTE-M.

**Short Range Technology:**
We offer the broadest portfolio of Bluetooth and Wi-Fi modules for industrial markets with superior built-in software. We provide a V2X chip that is enabling the next level of autonomous driving.

**Positioning Technology:**
We are the leading supplier of positioning chips and modules in the Industrial Internet of Things. We are the disruptive power that provides high precision positioning technology for mass markets.
### Unique technology and product line-up

Strong wireless technology IP

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<th>Short Range Communication</th>
<th>Positioning</th>
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**Integrated Circuits**

**Modules**

**Services**

- CellLocate® (modem based positioning)
- AssistNow™ (worldwide GNSS assistance service)
- GNSS Correction Data (for high precision)*
- FOTA (Firmware over the air)
- Lifetime Security

*through Sapcorda, a joint venture with industry partners

- u-blox wireless and positioning technologies are available in a unique combination of chips and modules
- Combining technologies provides for solutions that deliver extra value not available otherwise
- This strategic core delivers our inimitable market placement and drives our profitability
## Unique technology and product line-up

### Important strategic benefits

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<td><strong>Services</strong></td>
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**Important strategic benefits from the unique u-blox line-up:**

- Long-term sustained competitive position
- Strong synergies between the technologies
- Long-term control over product road map
- Sustained margins

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*through Sapcorda, a joint venture with industry partners
Why we are competitive

Efficient use of available resources

• Since our foundation as a spin off from ETH, we have maintained our innovative spirit. Our still-present founders are the guarantors of this attitude; their constant enthusiasm is the central driver in our product centers.

• We focus on our markets and customers with high dedication.

• We are lean and agile - we make innovative products with less resources and shorter turnaround times.

• Our large competitors focus on their large customers – not our realm.

• We have important markets shares in our market sectors and are often the undisputed leader.

• There is no comparable company with our unique strategic line-up.
2018 product highlights

**Cellular Communication**
- **SARA-R410M**
  Ultra-compact LTE-M / NB-IoT module with multi-regional coverage.
- **SARA-R412M**
  Ultra-compact multi-mode LTE-M / NB-IoT module with 2G fallback and multi-regional coverage.

**Short Range Communication**
- **UBX-P3 platform**
  The industry's smallest V2X communication chip for active safety and autonomous driving technologies.
- **ANNA-B1**
  Ultra-compact Bluetooth 5 module designed for applications for the Industrial Internet of Things (IoT).
- **NINA-W15**
  Multiradio and gateway modules with concurrent Wi-Fi and dual-mode Bluetooth connectivity.

**Positioning**
- **u-blox F9 platform**
  High precision positioning solutions for mass market industrial and automotive applications.
- **ZED-F9P**
  First high precision GNSS delivering centimeter-level accuracy in seconds.
Industry leaders select u-blox

- Bosch
- HMS
- Leica Geosystems
- HG
- Xirgo Technologies

- Autonomous driving
- Industrial automation
- Industrial tools
- Unmanned aerial vehicles
- Tracking solutions
Guidance 2018, and outlook 2019

• **Guidance for 2018** updated  
  • Decline in APAC in H1 2018 reversed  
  • Flat trend in Americas, but stronger H2  
  • Strong growth in EMEA, slower in H2

• **Outlook 2019** based on strong growth perspective  
  • APAC solid business in automotive, telematics, and infrastructure  
  • EMEA expanding with telematics and infrastructure  
  • Americas taking off with LTE-M1 deployments  
  • R&D amortizations increasing over 2018

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<tr>
<td>Revenue</td>
<td>403.7m</td>
<td>400m...410m</td>
<td>460m...490m</td>
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<tr>
<td>EBITDA</td>
<td>87.4m</td>
<td>70m...75m</td>
<td>70m...90m</td>
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<tr>
<td>EBIT</td>
<td>65.1m</td>
<td>47m...52m</td>
<td>30m...45m</td>
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**Exchange rate assumptions for 2019:**  
• EUR/CHF: 1.12  USD/CHF: 0.99  GBP/CHF: 1.27

**FX-sensitivity against CHF:**

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<th></th>
<th>USD</th>
<th>EUR</th>
<th>GBP</th>
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<tbody>
<tr>
<td>Revenue</td>
<td>+ 9%</td>
<td>+ 1%</td>
<td>0%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>+16%</td>
<td>0%</td>
<td>-1%</td>
</tr>
<tr>
<td>EBIT</td>
<td>+22%</td>
<td>-1%</td>
<td>-2%</td>
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R&D
The growth engine of u-blox

Roland Jud, CFO
Megatrends reflected in R&D

Mobility:
Highly precise and safe positioning and dead reckoning technology for next generation automated driving.

Urbanization:
Connectivity solutions for Low Power Wide Area networks.

Industry 4.0:
Secure connectivity for the Industrial IoT (IIoT).

New health:
Low power chips and Systems in Package (SiPs) for wearable applications.

SiP: System in Package: Several dies are packaged into one small case.
Innovation is our lifeblood
Our R&D investments keep us at the forefront of innovation and ahead of competitors

We have been first to market with many technologies.

We continue to invest in technologies that will push the industry forward for years to come.
u-blox proprietary wireless technology is unique

- **Long-term attitude**: Wireless chips and modules in the industrial and automotive markets have a 5-10 year life-cycle.
- **Mixed signal competence**: Analog radio and digital signal processing on one piece of silicon are our core technology and difficult to replicate.
- **High software content**: The specific software can only be developed by experts. It takes 70% of our R&D cost.
- **Core IP re-used**: Between generations of products and across the product portfolio. No risk of obsolescence.
- **Value adding services enabled**: Many types of services are based on our deep intellectual property (IP).
Why do we do this?
Achieving sustainable competitive advantage and value creation

• We **derive a larger part of the value chain** because we deliver more:
  • Enhanced functionality
  • Lower cost of ownership
  • Added services
• We **increase margins** over the lifetime of the product.
• **Independency** from 3rd party chipset roadmaps: Better fit to customer demand.
• Customers take **long-term commitment** with u-blox because of our control of core intellectual property (IP).
• **Better customer support** thanks to full insight and control.
What the balance sheet reflects
A rich technology socket comprised of highly valuable IP

- All technologies reflected in capitalized R&D – our core value.
- We capitalize R&D expense according to IFRS:
  - Between start of development and initial production, R&D expenses are capitalized.
- New technology platforms require investments between CHF 20m and 35m.
- Currently we are capitalizing six new platforms, the core value of u-blox.
- Cellular technology takes a higher share because this technology offers strong expansion potential.

Surface represents approximate share in activated R&D cost
Free Cash Flow
R&D intensity managed for positive free cash flow

- Free cash flow is our key KPI
- R&D intensity managed to achieve positive free cash flow
- From 2015 intense R&D periods for establishing cellular and short range chipsets – now turning to harvesting and positive free cash-flow
- Temporary supply issues requiring use of cash in 2017/2018, with very small risk of inventory obsolescence

Input to modeling R&D cost:
- Cash expense assures positive free cash flow
- Reflection in income statement:
  - 45% capitalization rate
  - Amortization lags capitalization by 2 - 3 years
EBITDA and Free Cash Flow

After intense R&D spending turning again to positive free cash-flow

Free cash flow negatively impacted by
- intense R&D periods for establishing cellular and short range chipsets
- supply issues requiring higher inventories for maintaining high delivery service level
Cellular

Andreas Thiel, Co-Founder, Head of Product Center Cellular
Product Center Cellular overview
Wide area connectivity

• 2G, 3G, and LTE (4G, 5G) solutions for
  • Industrial Internet of Things
  • Healthcare applications
  • Metering
  • Automotive and telematics
• The only IoT supplier with chipset and module intellectual property and product offer
• Broad portfolio of cellular technologies
• Technology leader in NB-IoT and LTE-M
• Adding services starting with a focus on security
Megatrends in Cellular

Mobility
The connected car improves the driving experience through high speed LTE.

Urbanization
NB-IoT and LTE-M technologies provide cost-effective connectivity for smart cities and utilities.

Industry 4.0
NB-IoT, LTE-M, LTE Cat 1 and LTE Cat 4 monitor and control machinery deep within buildings, increasing efficiency.

New Health
Health monitoring provides better and more automated data to providers via LTE-M and LTE Cat 1.
Product Portfolio

LTE Low Speed (NB-IoT, LTE-M and LTE Cat 1)
- Ultra low to medium data rates
- Broad spectrum of data, voice, and video-centric applications
- Low power consumption and low cost of ownership
- Connecting the IoT

LTE High Speed (LTE Cat 4, Cat 6, and 5G)
- Highest data rates
- Best for video transmission and infotainment
- Connecting cars, factories, and homes

2G / 3G Modules (GSM, UMTS, HSPA)
- Legacy network support, including data and voice

We make a difference
- Ownership of the core technology
- Reduced system complexity
- Global certifications
- Focus on security
Product highlights 2018

SARA-R410M
Ultra-compact LTE-M / NB-IoT module with multi-regional coverage.

SARA-R412M
Ultra-compact multi-mode LTE-M / NB-IoT module with 2G fallback and multi-regional coverage.

SARA-G450
Global GSM / GPRS in industry-proven SARA form factor, ideal for cost-optimized solutions.
Customers who chose u-blox in 2018
Xirgo Technologies – a leading provider of tracking solutions

- Xirgo embeds a global 3G module and GNSS chips from u-blox.
- Solutions comprise
  - Container tracker for one of the world’s largest container shipping companies
  - Insurance tracker for “pay as you drive”
  - Commercial vehicle & long haul trucking
  - Driver behavior monitoring and modification
Connecting the world
Vast market potential for cellular connectivity

The OEM-equipped **Connected Car** market will reach $2B in annual global market revenue by 2022, an ideal environment for high speed LTE devices.

**2bn**

**u-blox** serves the **Connected City** with a broad portfolio of LPWA products, reaching global market revenue of $700M in 2022.

**700m**

Industry 4.0 will see sustained growth, relying on LTE-M and LTE Cat 1 and reaching $500M market revenue by 2022 in industrial asset tracking alone.

**500m**

With global market revenue of **$225M** in 2022 and the need to securely transmit critical or sensitive data, **u-blox** is an ideal partner for the **Connected Health** market.

**225m**

Source: ABI 2018 and **u-blox** analysis
Cellular technology evolution
Continued evolution of the LTE standard towards 5G

2G
3G
4G LTE Cat 4
Cat 1
Cat 6
Cat 9
Cat 12
Cat 16
5G

Today

Evolution to high speed cellular
Evolution to cellular LPWA

- Enhanced Mobile Broadband
  - High bandwidth
  - High cost
  - High mobility

- Ultra Reliable Low Latency Communication
  - Ultra low latency
  - Highly reliable
  - Highly secure

- Massive Machine-Type Communication
  - High device density
  - Low bandwidth
  - Low cost
  - Low power

New Automotive product introductions
New LTE-M and NB-IoT product introductions, including new u-blox chipsets
LTE-M & NB-IoT (Cat M1 / NB1)
LTE-M & NB-IoT (Cat M2 / NB2)
Cellular product road map
Important business additions with LTE based products

Value

3G

2G

5G

LTE Cat 1 & Cat 4+

LTE-M and NB-IoT

u-blox LTE Cat 1 chipset

u-blox LTE-M and NB-IoT platform

u-blox 5G platform

Remark: Solely a qualitative representation of potential business value
Coffee break
Short Range

Herbert Blaser, Head of Product Center Short Range
Product Center Short Range overview
Point-to-point connectivity

• Wi-Fi and Bluetooth modules for
  • Industrial automation
  • Healthcare applications
  • Smart city/building/home
  • Telematics and in-car connectivity systems

• Vehicle to everything (V2X) chips and modules for
  • Traffic safety
  • Autonomous driving
Megatrends in Short Range

Mobility
Cars communicate with each other and infrastructures. **V2X solutions** will make transportation safer, more efficient, and more sustainable.

Urbanization
**Mesh networks** enable a large number of devices to be connected. Data can hop from device to device to create a dynamic network.

Industry 4.0
**Connected machines** and tools allow for higher levels of efficiency, maintenance, and quality.

New health
Treatment and monitoring are moving out of hospital, and **health & fitness solutions** connect with the smart phone.
Product Portfolio

**Modules**
- Fast design-in and time to market
- Superior security with secure boot function
- Lower inventory costs and risk

**Chips**
- Specific V2X chip for next generation automotive solutions
- Optimized for high volume applications
- Expert knowledge needed

**We make a difference**
- Broad and flexible portfolio
- Outstanding connectivity software
- Global certifications
- Supports high level of security
Product highlights 2018

UBX-P3 platform
The industry’s smallest V2X communication chip for active safety and autonomous driving technologies.

ANNA-B1
Ultra-compact Bluetooth 5 module designed for applications for the Industrial Internet of Things (IIoT).

NINA-W15
Multiradio and gateway module with concurrent Wi-Fi and dual-mode Bluetooth connectivity.
Customers who chose u-blox

Leica Geosystems’ reliable cable-free instrumentation

- Leica Geosystems provides highly reliable geodetic instruments used in construction environments
- Utilizing wireless technology became particularly interesting for cable-free operation
- u-blox could offer reliable products, future-proof and backwards compatible over different module generations and with international approvals
- Benefits
  - Convenience of not having to find the right cable
  - Save weight of portable equipment
  - Highly reliable solution
Customers who chose u-blox
HMS enable industrial machines and devices to communicate

• HMS Industrial Networks has been connecting machines to industrial control systems for more than 25 years
• The wireless products – strong and fast growing members of the Anybus family
• Anybus Wireless Bolt awarded “Best Network Technology” by readers of Automation Inside portal
• Benefits
  • Flexible wireless technology choice (Wi-Fi / Bluetooth / Bluetooth low energy)
  • Form factor and functionality
  • Long-term availability

ODIN-W2 included in Anybus Wireless Bolt and Anybus Wireless Bridge
Industrial IoT made easy

Mobility
DSRC/802.11p penetration in new light vehicles is projected to reach an accumulated volume of **157 million** units by 2026 (US/EU/APAC). Adding smaller regions and aftermarket volumes reaching **206 million** units in total.

Urbanization

Industry 4.0
Significant growth expected in industrial wireless sensor networks. Smartphones and tablets are replacing the machine UI. **253 million** annual Bluetooth device shipments by 2022. 7x increase from 2017-2022.

New health
Medical grade devices are on a steady climb. Consumer wearables are getting more sophisticated. **670 million** annual Bluetooth device shipments by 2022.

Source: ABI Research, Intelligent Transportation Systems Market Data, QTR 4 2017 and Bluetooth.com 2018
Technology roadmap: Wi-Fi

More possibilities with Wi-Fi
Technology roadmap: Bluetooth

More than just replacing a cable

Mesh networks

Additional features enables new applications

High bandwidth
Low energy
Long range

Additional features

BT 1.2
BT 2.0  BT 2.1  BT 3.0
BT 4.0  BT 4.1  BT 4.2
Mesh 1.0
Mesh 1.x
Mesh 1.x
Mesh 1.x

2010  2014  2018  2020
Short Range product road map
Expansion with widening standards and added V2X

Remark: Solely a qualitative representation of potential business value
Positioning

Daniel Ammann, Co-Founder, Head of Product Center Positioning
Product Center Positioning overview

- **Market leader in GNSS for**
  - In-car navigation systems
  - Time synchronization for cellular base stations
  - Unmanned aerial vehicles (drones)
  - People trackers
  - Asset tracking
- **Benchmark** in performance and cost-effectiveness
- **Innovator** in high precision, anti-spoofing, power efficiency, small size, and low cost
Megatrends in Positioning

**Mobility:** Reliable and safe **positioning** information is crucial for next generation automated driving.

**Urbanization:** 5G networks that make megacities need more **accurate timing**.

**Industry 4.0:** Trend towards unmanned vehicles and robots increases the need for highly precise **positioning**.

**New Health:** Extremely low **power** consumption fuels all battery driven small devices.
Product Portfolio

Chips
- Minimal cost of ownership for high volumes
- Configurable to specific customer needs
- Expert knowledge needed

Modules
- Fast design-in & time to market
- Less testing and low production set-up effort
- Less external components needed, low BoM cost
- Lower inventory costs and risk

Smart Antennas
- All of the above, plus no antenna integration or GNSS know-how needed

We make a difference
- Broad and versatile portfolio
- Reliable products with high performance
- Cost-efficient solutions
- Built-in security for highest robustness
Product highlights 2018

u-blox F9 platform
High precision positioning chipset for mass market industrial and automotive applications.

ZED-F9P
First high precision GNSS module delivering centimeter-level accuracy in seconds.
Partnership with Bosch
The position system for highly automated driving

• “Our new vehicle motion and positioning sensor (VMPS) will hit the road in 2020 and will be one of the first GNSS inertial positioning systems using correction data for highly automated driving.”

• “We are working in partnership …with u-blox for automotive safe positioning…”

• “Together with Mitsubishi Electronics and Geo++, we are a stakeholder of the Sapcorda joint venture, whose target is worldwide safe and precise correction data.”

Michael Baus, Program Director at Robert Bosch GmbH
http://insidegnss.com/munich-hot-licks/
High precision GNSS: NEO-M8P, ZED-F9P
Getting a lot of market traction

• HighGreat, a company based in Shenzhen, China
• 400 drones with the u-blox NEO-M8P to celebrate opening of World Intelligent Congress
• u-blox high precision technology at the core of these ecological fireworks
The leading GNSS provider

Total GNSS sales to the automotive market (factory fit) was 58 million units in 2017. We have > 60% market share in head units.

Drone market was 18 m units in 2017 and is expected to grow at a CAGR (17-22) of 26.8%. u-blox has 80% share of the prosumer drone market.

Total GNSS sales to industrial tracking and telematics market is 45 million units. We have 40% market share.

The GNSS timing and synchronization market is around 8 million units in 2017. u-blox has 25% market share.
Positioning product road map
Expanding platforms for value differentiation

Remark: Solely a qualitative representation of potential business value
Services

Thomas Seiler, CEO
Services – new opportunities for growth

Services enhance products

- Services enhance the performance and robustness of our products.
- Deep value resides in our core technology: highly differentiating.
- Service will be monetized over lifetime of products.
- Our customers are our partners, not our competitors.
- Economies of scale in service components – re-use common components across vertical market segments.
- Partnerships assure covering the full value chain.
Services apply to the whole ecosystem
Increase of performance and robustness

- **At OEM level**
  - Lifetime management
  - Assuring root of trust
  - Enhance product performance hence differentiation

- **At end user level**
  - Lifetime product availability
  - Continued upgrades
  - Trusted secure data handling
  - Lower cost of ownership

- We build on a long lasting service experience that we haven’t yet monetized

Requests per month for existing services
Services – source of future recurring revenue

Services carry high customer value

- Recurring revenue over lifetime of product
- Pricing will follow perceived value by customers
- Services reported in the service segment
- Service platform under construction
- Sapcorda and Kudelski are our partners and serve our end customers
IoT security - a core service offer
Providing trust and integrity based on several elements

Unique device identity
An immutable chip ID and hardware-based Root-of-Trust provides the foundational security.

Hardware-backed crypto functions
Secure libraries allow generation of crypto functions and keys that securely connect to the cloud.

Trusted boot sequence & secure updates
Only authenticated and authorized firmware and updates can run on the device.

Root-of-Trust based authentication
HW protected, unique keys authenticate communications to ensure integrity and confidentiality.
Driving growth and outlook
Megatrends guide our strategy

Exciting technologies form our intellectual property

• Megatrends guide our long term business strategy:
  • Mobility, urbanization, and Industry 4.0 are driving the expansion of cellular networks toward 5G.
  • Autonomous driving, mobility, and unmanned vehicles need robust, reliable, and safe connectivity and positioning technologies.
  • New health and urbanization need a seamless connectivity for the many types of devices.
  • Secure and lifetime connectivity from a trusted supplier becomes core in the automotive and industrial field.
u-blox has solutions for our markets

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<th>Positioning</th>
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</thead>
<tbody>
<tr>
<td>Integrated Circuits</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Modules</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
</tbody>
</table>
| Services    | CellLocate® (modem based positioning)  
AssistNow™ (worldwide GNSS assistance service)  
GNSS Correction Data (for high precision)*  
FOTA (Firmware over the air)  
Lifetime Security | | |

*through Sapcorda, a joint venture with industry partners

- **Off-the-shelf products** make it possible to serve the broad market
- **Unique cross selling power**
- **Solutions as product combinations** deliver strong customer value
Driving growth
Extract more from the value chain

- Continuous technology innovation
  - More technological capabilities open new application possibilities.
  - Innovation at IP core assure continued margin expansion.
- New standards expand application possibilities
  - 5G → higher performance requirements.
  - Bluetooth and Wi-Fi standards expansion → capillary IIoT.
  - New satellite signals → higher availability and precision.
- Cloud enables adding services with recurring revenue on top of our product sales
  - Sold to OEM (u-blox customer).
  - Sold to end customer (via partners).
Regional outlook
Strong geographical diversification

- **APAC**
  - Strong technology momentum in China, boosted by increased investment into technology.
  - Japan, Korea, and Taiwan entail rich territory for IIoT and automotive, and profiting from China growth motor.
  - Innovation front-runner in consumer products.
- **EMEA**
  - The automotive world leader.
  - Huge industrial potential for IIoT.
- **Americas**
  - Cellular network issues resolved.
  - Industry expanding driven by tax reform.
  - Strong potential in tracking and automotive.

Our product origins stand outside the US-CN trade tensions.

IIoT: Industrial Internet of Things
Solid basis for growth

Our many product initiatives pave the way into expanding markets

• We **participate in market expansion** driven by increasing mobility and expansion of cloud services.
• Our **product initiatives** preempt important megatrends in the industry – we have invested in new platforms in all our technologies
• We are preferred by the **leading customers** for our technology IP and innovation leadership.
• Our technology core assures the basis for **resilient value adding services**.
• Our product diversification by customers, applications, and geography assure stability in growth.
• Economies of scale **strengthen profitability**.
Positive impact on financial position
Continued long term investments pay off

• With our several new platforms we have created important pillars of IP that will allow to **sell at premium prices**.
• Next generation product will profit from **increased R&D efficiency** due to re-use of IP blocks.
• All our six new platforms allow the creation of **services that we can monetarize**.
• **Cross selling effects** are further strengthened.
• Our business volume delivers sizable **economies of scale**.
## Long term outlook - 2022

Substantial growth ahead

<table>
<thead>
<tr>
<th>Revenue M CHF</th>
<th>Free Cash Flow %</th>
<th>EBIT %</th>
<th>EBITDA %</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>7%</td>
<td>12%</td>
<td>22%</td>
</tr>
<tr>
<td>800</td>
<td>10%</td>
<td>15%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Before acquisitions and extra-ordinary effects
Our promise

Wireless technology for industry leaders

Solid strategy execution aligned with market megatrends

Broad and diversified access to markets

Excellence in product quality and performance

Outlook for strong growth in 2019

Mid term growth to CHF 800m revenue
Connecting the world!