DISCLAIMER

This presentation contains statements related to our future business and financial performance and future events or developments involving Bureau Veritas that may constitute forward-looking statements. These statements are based on current plans and forecasts of Bureau Veritas’ management and may be identified by words such as “expect”, “forecast”, “look forward to”, “anticipate”, “intend”, “plan”, “believe”, “seek”, “estimate”, “will”, “project” or words of similar meaning.

Such forward-looking statements are by their nature subject to a number of risks, uncertainties and factors, including without limitation those described in the Document de Référence filed with the French Autorité des Marchés Financiers (“AMF”), that could cause actual results to differ from the plans, objectives and expectations expressed in such forward-looking statements.

These forward-looking statements speak only as of the date on which they are made, and Bureau Veritas undertakes no obligation, except to the extent required by law, to update or revise any of them, whether as a result of new information, future events or otherwise.
Strategy
CEO overview
BV 2020 Financial Roadmap
Executing the strategy

5 Growth Initiatives
Opex
Agri-Food
SmartWorld
Automotive
Building & Infrastructure

2 Priority Countries
North America
China

Digital@BV
Digital transformation
B&I France Grand Paris
CEO Overview
WELCOME TO BUREAU VERITAS’
INVESTOR DAYS 2017

« ACCELERATING
THE TRANSFORMATION
OF BUREAU VERITAS »

DIDIER MICHAUD-DANIEL
CEO
Profound changes in mega trends ... ... Impacting our ecosystem
SOCIAL
VALUES
& SOCIETY
PROFOUND
ASPIRATION
DIVERSIFY

2015

- **28%** from Growth Initiatives
- **72%** Base Business

- **2%** Automotive
- **4%** Agri-Food
- **11%** Opex
- **10%** Building & Infrastructure
- **12%** Latin America
- **14%** North America
- **39%** Asia, Middle East, Africa & Pacific

**2017**

- **33%** from Growth Initiatives
- **67%** Base Business

- **2%** Automotive
- **6%** Agri-Food
- **11%** Opex
- **12%** Building & Infrastructure
- **11%** Latin America
- **14%** North America
- **42%** Asia, Middle East, Africa & Pacific

(1) 9 months 2017
AGING INFRA IN WESTERN COUNTRIES ...

... & BOOMING URBANISATION IN ASIA ...

REQUIRING

MASSIVE INVESTMENT
FRANCE, CHINA, LATIN AMERICA
LEADING POSITION

NEXT STEP:
NORTH AMERICA PLATFORM
POWER
MANAGING EXISTING CAPABILITIES

& GOING GREENER
OPEX

Ensure business continuity
FOOD DEMAND INCREASING TRACEABILITY CONCERN AROUND FOOD & AGRI
AGRI-FOOD

IN 2 YEARS
INTERNATIONAL POSITION
CONNECTIVITY & SHIFT IN THE AUTOMOTIVE VALUE CHAIN
Got to regulate AI/robotics like we do food, drugs, aircraft & cars. Public risks require public oversight.
GDP growth projections for large economies

Year-over-year change

Source: IHS Markit
CHINA
COUNTRY
#1
AGILE DISRUPTION
Meeting our clients’ challenges
GROW

LEADING ROLE IN THE MARKET CONSOLIDATION

5% to 7% ORGANIC GROWTH BY 2020
MAIN FOCUS
MARGIN IMPROVEMENT
CASH GENERATION
BV’S GLOBAL AMBITION FOR 2020

CONFIRMED RETURN TO A 5-7% ORGANIC REVENUE GROWTH BY 2020

AN ADJUSTED OPERATING MARGIN TARGET ABOVE 17% IN 2020

INCREASED GROUP REVENUE BY c€1.5BN IN 2020 VS. 2015

CONTINUOUS HIGH FREE CASH FLOW GENERATION
People

Bureau Veritas
Greatest Asset
Improving trends YTD 2017

► Nine months organic revenue +1.6% – trending higher in Q3
  ♦ Strong organic growth momentum of Growth Initiatives +7.1% y/y
  ♦ External growth +2.7% with 9 acquisitions YTD supporting Building & Infrastructure / Agri-Food / SmartWorld / Automotive Initiatives
  ♦ Currency impact -0.3%, turning negative in Q3

► First half 2017 adjusted operating margin at a solid 15.2% despite some continuing cyclical headwinds

► First half Free Cash Flow improvement y/y adjusted from one-off tax items and cash impact of restructuring
Confirmed 2017 outlook

Full-year organic revenue growth expected to be slightly positive, with acceleration in the second half confirmed.

Full-year adjusted operating margin of around 16%.

Full-year cash flow generation to improve from FY 2016.
Reaffirmed 2020 ambition

Add €1.5bn of incremental revenue\(^1\)
Half organic
Half acquisition led

5-7% organic growth by 2020

Above 17% adjusted operating margin

Continuous high Free Cash Flow generation

---

(1) At initial plan exchange rates (as presented during October 2015 Investor Days)
Growth: two engines

- **Focused organic growth**
  - Initiative driven
  - Resilience enhanced, less cyclicality
  - Balanced portfolio

- **Targeted acquisitions**
  - All supporting our 5 Growth Initiatives and priority countries (USA and China)
  - Geographic footprint balancing
  - Primarily bolt-ons
  - Stringent financial criteria
  - Strong internal M&A execution

**BV ambition for the two growth engines**

- **5-7%**
  - Organic revenue growth by 2020

- **c€750m**
  - Incremental revenue added through acquisitions over 2015-2020
Growth: BV 2020 Revenue Ambition

Estimated annualized revenue from acquisitions of the year(s)
Applying consensus estimate of 1.8% organic revenue growth for FY 2017

Ramp-up with cyclical headwinds

Acceleration towards 5-7% organic growth by 2020

(1) Estimated annualized revenue from acquisitions of the year(s)
(2) Applying consensus estimate of 1.8% organic revenue growth for FY 2017
(3) At initial plan exchange rates (as presented during October 2015 Investor Days)
Growth: Combine Base Business & Growth Initiatives potential

Stabilizing Base Business

Accelerating Growth Initiatives

Perspective

- Returning to TIC market growth (c.3%)
  - Stabilizing Oil & Gas Capex markets
  - Recovering Metals & Minerals markets
  - Upcoming stabilized Shipping market

- Maintaining strong growth
  - Mid-single-digit organic growth YTD 17 for B&I, Opex & Agri-Food
  - High double-digit organic growth YTD 17 for SmartWorld & Auto
Profit: towards >17% adjusted operating margin in 2020
High Free Cash Flow generation

► TIC activities have a favorable cash model…
   ♦ High profitability
   ♦ Low capex requirements, even more for BV (more inspection than testing)
   ♦ High cash conversion rate over the cycle

► New Challenges
   ♦ Longer payment cycle for O&G, M&M and Marine customers

► Actions taken
   ♦ Specific programme initiative on working capital management: launch of Move 4 Cash
   ♦ Capex discipline

(1) As percentage of Group revenue, on average over 2010-16
Move For Cash

► A Group-wide working capital reduction program
  ♦ All locations and all operations covered with a tailored approach
  ♦ Dedicated KPIs and incentives
  ♦ Adapted tools and reporting

► Catalyze resources and expertise on a large scale
  ♦ Project Manager to oversee the project and share best practices
  ♦ “Cash Champion Network” to mobilize teams across the Group
  ♦ Training kit to share expertise rapidly

Reducing working capital to improve cash flow generation

- Revenue
- Operating profit
- Working capital requirement
- Tangible assets
- EBITDA
- Reduce capital employed
- Free Cash Flow
Cash: self-financed plan

► BV 2020 plan fully financed with:

♦ Unchanged solid investment grade credit profile

♦ Net Debt/EBITDA ratio well below 3.25x covenants

♦ Maintained dividend distribution policy

Financing bridge over 2016-2020 (€m)
Inflexion point crossed

- **Q3 2017 organic growth at +2.2%, the best quarter since Q2 2015**
  - 4 out of 6 businesses posting organic growth above +3% in Q3 2017
  - 2 businesses still declining but on improving or stabilized trends
  - All 5 Growth Initiatives maintaining strong momentum, up organically +7.2% y/y
Executing the Strategy
BV 2020 Strategic Plan highlights

- Expanded market coverage
- Large companies’ partner of choice
- Excellence @BV
- Balanced global footprint
- Leading role in consolidation

5 Growth Initiatives
- Enhanced offering
- Portfolio expansion

2 Countries
- USA
- China

4 Levers
- Human Resources
- Excellence @ BV
- Account Management
- Digitalization
## 5 Growth Initiatives: gaining momentum

<table>
<thead>
<tr>
<th>Growth Initiative</th>
<th>2020 Ambition$^{1}$</th>
<th>9M 2017 Revenue Performance</th>
</tr>
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<tbody>
<tr>
<td>Building &amp; Infrastructure</td>
<td>€350 – 400m</td>
<td>+4.7%$^{2}$</td>
</tr>
<tr>
<td>Opex</td>
<td>€300 – 350m</td>
<td>+6.5%$^{2}$</td>
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<td>Agri-Food</td>
<td>€250 – 300m</td>
<td>+5.3%$^{2}$</td>
</tr>
<tr>
<td>Automotive</td>
<td>€130 – 150m</td>
<td>+21.8%$^{2}$</td>
</tr>
<tr>
<td>SmartWorld</td>
<td>€110 – 150m</td>
<td>+14.4%$^{2}$</td>
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(1) Incremental revenue by 2020
(2) Organic year-on-year performance
Strategic Growth Initiatives

Contribution to 2020 objectives (€ million)

Level of Readiness

High
Medium
Low

Automotive
Agri-Food
Building & Infrastructure
Opex
SmartWorld

Size of bubbles = TIC market size
Executive alignment on Growth strategy

Strict Control over Revenue Mix and Growth by Operating Unit

Market Focused Global Support Organization

Market Leaders

9 Global

71 Regional
Completely renewed footprint in B&I
Expanded Agri-Food Lab network
Latin America is already a success story

Portfolio Diversification  Market Orientation  Organization Alignment

2015

2017
M&A is key to the achievement of the 2020 plan

Efficient M&A process

- M&A Committee
- Strategic Committee
- BV Board

- >50 companies reviewed by the M&A committee in 2017
- 9 acquisitions YTD in 2017
M&A is focused on Strategic Growth Initiatives

**2016 - 2017**

- 17 acquisitions supporting our Growth Initiatives (*)
- Cumulated revenue for Growth Initiatives: €260m (**) 

(1) Signed, closing pending

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**Building & Infrastructure**

7 Acquisitions c€140m

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**OPEX**

1 Acquisition c€10m

---

**O&G/Power/Chem.**

3 Acquisitions c€80m

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**Agri-Food**

7 Acquisitions c€140m

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**Automotive**

3 Acquisitions c€20m

---

**SmartWorld**

2 Acquisitions c€10m

---

(*) 21 acquisitions in total
(**) €280m in total including €20m in the Base Business
HR: A new Governance…

Executive Committee
- Leaner ExCom with 9 members
- Compensation aligned on strategic priorities

Executive Leadership Team
- 25 Top Executives
- Tasked on strategic / transformational issues
HR: Reinforced processes

Develop Leadership …

... in a 74,000 people company

Leadership Assessment
Succession Planning

Bureau Veritas: Making HR a Catalyst for Business Growth with SAP® SuccessFactors® Solutions

Managing a company with 66,000 employees in 1400 locations around the world is hard enough. But when each entity has its own HR processes and systems, ensuring data quality becomes an urgent concern. Bureau Veritas had a vision to create one HR system for its entire workforce as well as common HR standards. This vision became a reality with SAP® SuccessFactors® solutions.

- Balanced geographical spread
- Strong focus on diversity
Building on a good Lean momentum

Rolling out the Corporate program …

- >800 scorecards deployed
- Connected Lean community
- Efficiency gains on track

LEAN OPERATING SYSTEM

Solution Elaboration Using Lean Tools

Implement & Check

Gap Analysis

Measure

Generalize

… into various Operating Models

- Inspection
- Design Review
- Labs
- Admin Support
- Project Management
- Systemic approach
- Digital enabler
- Margin improvement
Focus on key accounts

Key Account Distribution

- ~150 Key Accounts
- >30% of BV Revenue
- Sector diversification

Major Clients
Sales Management requires a sustained effort

Sales Management

- Sales costs 4.4% of revenue
- 1,750 Sales FTE's

Sales Training

- Paris, March 2017
- Houston, June 2017
- Sao Paolo, August 2017
- Shanghai, September 2017
Client expectations on Digital in TIC Market

- Be compliant on new norms for digital products & models
  A new market for Bureau Veritas

- Get technology-enabled TIC services
  Technologies as a game changer

- Get cost-efficient offers for core services
  Digitally enhanced operating models

- Experience a seamless “one-stop-shop” interface
  A new engagement channel
Digital@BV focuses on 3 business priorities

DIGITAL EFFICIENCY

Boost Profitability of existing TIC Services

NEW DIGITAL OPERATING MODELS

Accelerate Growth with alternative models

NEW TIC DIGITAL SERVICES

Diversify in new market segments
5 Growth Initiatives
Our 5 Growth Initiatives

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Build recurring business models in fragmented markets, offering strong outsourcing opportunities

€300 – 350m
Growth Initiatives: Opex (Oil & Gas, Power, Chemicals)

Key Market Drivers

- License to Operate
- Risk Prevention
- Performance Improvement
- Brand Protection

Revenue ambition over 2016-2020e (€m)

<table>
<thead>
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<th>Year</th>
<th>Revenue ambition</th>
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<tr>
<td>2015</td>
<td>491</td>
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<tr>
<td>2016</td>
<td>529</td>
</tr>
<tr>
<td>2017F</td>
<td>593</td>
</tr>
<tr>
<td>2018E</td>
<td>841</td>
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<tr>
<td>2019E</td>
<td>791</td>
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@ original plan rate

Incremental Revenue (in €)

Ambition 2020

- Chemicals: €300 – 350m
- Power & Utilities: €102m
- Oil & Gas: €61%
- Power: 33%
- Chemicals: 6%
- Utilities: 61%

2017 Sep YTD Revenue split
A Huge Potential

€23bn market partially addressed
Execution Getting Traction

Marketing & Sales

Digital Delivery Models

Outsourcing
Opex Digital Solutions
Encouraging Results

SELECTED BUSINESS CASES
Oil & Gas Assets Integrity Management

- **Client:** Exxon Mobil Asia Pacific Hub in Singapore is the world biggest integrated Refining and Petrochemical complex
- **Scope of services:** Asset Integrity Management, including site / drone inspections and conventional / advanced Non Destructive Testing
Power Distribution Field Services

► **Client**: CPFL (owned by State Grid) is the leading power distribution Brazilian company serving more than 9 million customers

► **Scope of services**: Quality Control, Metering, Loss Prevention and Emergency Services
Chemical Assets Integrity Management

► **Client:** Antwerp is **BASF** 2nd largest “Verbund Site”, with **50 production plants** and 580 km of pipelines, included in a 6 km² area

► **Scope of services:** Piping Inspections / Testing, Quality Control and Risk Based Inspections
Investor Days December 7 & 8, 2017

Competitive Advantages & Benefits

GROWTH acceleration

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Portfolio RESILIENCE

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KEY ACCOUNT development

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EXTENDED TIC offer
# Our 5 Growth Initiatives

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Agri-Food

Expand in a large market driven by supply chain globalization, be recognized as a reference player

€250 – 300m
Growth Initiatives: Agri-Food

Key Market Drivers

- World population rising
- Globalization of Food Supply
- Consumer awareness driving regulations
- Food TIC outsourcing trend

Revenue ambition over 2016-2020e (€m)

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<tr>
<td>€m</td>
<td>187</td>
<td>233</td>
<td>289</td>
<td>487</td>
<td>437</td>
<td>487</td>
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@ original plan rate

Incremental Revenue (in €)

- 2015: ~€102m
- 2017F: €250 – 300m

2017 Sep YTD Revenue split

- Asia, Middle East, Africa & Pacific: 32%
- Europe: 31%
- N. America: 23%
- L. America: 14%
Across The Board Presence

Market Size

€6bn

€7bn

€4bn

RESPONSIBLE SOURCING
GMO TESTING
SEED & SOIL TESTING

CALIBRATION TESTING
AGRI/FOOD PRODUCTS INSPECTION

FOOD MANUFACTURING CERTIFICATION
NUTRITIONAL TESTING

SOCIAL AUDIT
PRODUCT INTEGRITY AUTHENTICITY TESTING

FOOD SAFETY INSPECTIONS
SUPPLY CHAIN RISK MONITORING

DIGITAL TOOLS
MICROBIOLOGY PATHOGENS TESTING
New Lab Openings Driving Organic Growth

2016 agri & food labs footprint

- < €1m Revenues
- < €10m Revenues
- > €10m Revenues
New Lab Openings Driving Organic Growth

Lab expansion since 2016

- Greenfield
- < €1m Revenues
- < €10m Revenues
- > €10m Revenues

12 new food labs
Agri-Food

SELECTED BUSINESS CASES
BV helps them to protect their brand image

Laboratory Testing

Tuna Responsible Fishing

Fast-food auditing and testing

Canada

Pacific Ocean

Europe

Laboratory Testing

Soy Harvest Inspection

Laboratory Testing

International

Brazil

Russia
Investor Days December 7 & 8, 2017

Agri-Food Digital Solutions

- **Drone Field Control**
- **Safe Supply**
- **Safe Ops**
- **Origin**

- **Crop Monitoring**
- **Supply chain risk management**
- **In-store app solution**
- **Consumer-facing Traceability**

Partners:
- delta drone
- CMX
- EEWORX
Agri-Food Growth Initiative

Bureau Veritas Differentiation

► Leading Regional Testing platforms
► Boots on the ground with leading audit capabilities
► Engaged with all value chain – from Agri to Food
► Innovative approach packaging digital solutions
Our 5 Growth Initiatives

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Leverage our #1 position, and address new needs arising from connectivity.

€110 – 150m
Growth Initiative: SmartWorld

Key facts

- **Fast**: rapid adoption of wireless connectivity
- **Complex**: many competing technologies. New requirements around connectivity and security
- **Everywhere**: all industries are integrating wireless
- **Global Leader in a Fast & Complex World**

Revenue ambition over 2016-2020e (€m)

- 2015: 61
- 2016: 72
- 2017F: 94
- 2018E: 211
- 2019E: 171
- 2020E: 211

@ original plan rate

Incremental Revenue (in €)

- 2015: ~€33M
- 2017F: €110 – 150m

2017 Sep YTD Revenue split

- Asia: 51%
- Americas: 30%
- Europe: 19%

---

(1) Testing of connected objects

Investor Days December 7 & 8, 2017
Market Dynamics and Challenges

► # Connections (Billion Units)¹

![Graph showing # Connections (Billion Units) from 2015 to 2020.]

- IoT (26% CAGR)
- Traditional Computing (2% CAGR)

► Global IoT connections by segment (2020F)²

![Circular graph showing global IoT connections by segment in 2020.]

- Smart Home: 29.3%
- Manufacturing & industry 4.0: 20.5%
- Smart buildings: 11.7%
- Consumer electronics: 7.2%
- Automotive: 17.6%
- Wearables: 9.5%
- Rest: 6.5%

More users, more devices, more data and more connectivity/technologies drives new risks around interoperability, quality of service, privacy and security.

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Bureau Veritas Position

1. Global Footprint

2. Cover all key technologies

3. Active participation on 40+ technical committees

4. Leader in most important segments

5. Comprehensive Service Portfolio
SmartWorld Journey

2011
+Consumer Electronics
+Mobile Phones
+Wearables

2013

2016
+Smart Home
+Smart City
+Smart Grid

2017
+Intelligent Transportation/V2X
+Smart Payment
+Products (Cybersecurity)
+Mobile Phones/V2X (5G)

2018

ACQUISITIONS/GROWTH

NEW LOCATIONS

NEW SEGMENTS

COMMITTEE MEMBERSHIP

Local Area Network
2G/3G/4G
Short Range
Smart Home
Smart City
Intelligent Transportation
Payment
Cybersecurity
Capabilities/services

24 locations. 150+ test environments.

EMC/RF
Product electromagnetic interference and radio spectrum protection

Conformance
Software and network performance

OTA
Antenna Performance

Chemical
Restricted / hazardous chemicals

SAR
Human health RF exposure

Reliability
Mechanical and climatic conditions performance
 Positioned to meet client needs

AMERICAS
Argentina
Brazil
USA

EUROPE
France
Germany

ASIA
China
India
Japan
Taiwan
South Korea
SELECTED BUSINESS CASES
Growth Initiative: Cybersecurity

Market Dynamics

BUYER PROFILE

- Payment systems
- Government agencies
- Critical infrastructure operators
- Large - Middle-market companies
- SMEs
- Consumers

Increasing Regulations

- Critical Public / Financial market
- Industrial & Consumer markets

Market base (number of buying points)

IoT Device Cybersecurity growth

- Consumer & Business Devices
  - 2015: $9bn
  - 2020: $50bn
  - 41% CAGR

Primary concern of IoT

- Security: 19%
- Privacy: 10%
- Others: 72%

Investor Days December 7 & 8, 2017

(1) Source: CEA [Business Intelligence (2015), SBEM] - IoT device cybersecurity testing will represent a fast-growing segment within this total

(2) Source: CEA [Forbes/Evans Data Corporation (2015), surveys’ sample size of 509 developers includes a globally-based audience of technical professionals / one single answer accepted]
Growth Initiative: Cybersecurity

BV-LETI (CEA) Approach (MoU)

Solution Summary

► Technical Partner
  ◆ **Reference Lab** for the **French security** agency
  ◆ #2 innovation center in the **World**¹
  ◆ #1 innovation center in **Europe**¹

► Phase 1 Service Launch
  ◆ R&D Support – assess **all known cyber risks / vulnerabilities**

► Phase 2 Evolution
  ◆ **Automated** platform | **Time to Market**
  ◆ Personalized test plan | **Flexibility**
  ◆ Development of **certification** scheme | **Recognition**

► Validate product security robustness through its interfaces
► Verify standard protocol security functions
► Recommend security enhancements

(1) Source: https://www.reuters.com/article/innovative-institutions-ranking/the-worlds-most-innovative-research-institutions-2017-idUSL2N1GC1NG
SmartWorld Case Study: Smart Payment

► VISA / EMVCo accreditations
► Completes our Smartworld value chain solutions
► Recognized brand in smart payment market
► Experienced team >15 years in business
► Smart Payment Competence Center

Mobile payments growth¹

TRANSACTION VALUE

2016: $110.5bn
2021: $775.4bn
48% CAGR

Proximity payment users worldwide²

# OF MOBILE USERS

2016: 92 M
2019: 1,091 M
128% CAGR

(1) Source: Digital Market Outlook 2016
(2) Source: Statista Proximity payment Users 2014-2019
SmartWorld Growth Initiative

Bureau Veritas Differentiation

► Network: Spans the globe | 10 countries
► Scale: 1,000+ highly skilled personnel | 150+ test environments
► Reputation: 100+ accreditations / recognitions | Competent in all key wireless technologies
► Segment Leadership: Addressing all key markets
► Complete Service: Conformance, Performance, Regulatory & Smart Payment. Developing Cybersecurity

In summary

Global Footprint | Leading in Complex World
# Our 5 Growth Initiatives

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</tr>
</tbody>
</table>
Automotive

Capitalize on key expertise in supply chain services and connectivity to become a recognized player

€130 – 150m
Key Market Drivers

- Leading industrial economic sector: €9 trillion
- World fleet to reach 2bn cars by 2035 (from c1.2bn today) / only c2% of cars are electric today
- Yearly world car production of c90 million
- OEMs have recognized the need for Third party validations

Revenue ambition over 2016-2020e (€m)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue ambition (€m)</td>
<td>92</td>
<td>103</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Incremental Revenue (in €)

- 2015: €36m
- 2017F: €130 – 150m

2017 Sep YTD Revenue split

- N. America: 20%
- Europe: 20%
- Asia, Middle East, Africa & Pacific: 43%
- L. America: 21%
Automotive TIC Market: strong tailwinds

Market Dynamics and Challenges

- Technological Shift
- Automotive product is driven by Regulation
- Massive Recalls on the rise
- Independent third party involvement becomes mandatory

Bureau Veritas positioning

- Strong expertise in connectivity
- Development in China in testing homologation services
- Second-party and third-party audits strengthening with French OEMs

Autonomous, Connected, Electric and Shared (ACES)

Number of lines of source code (Millions)

- 787 Dreamliner
- F-35 JSF
- F-22 Raptor
- Chevrolet Volt
- S-Class Mercedes
Strategic Positioning: serve the full value-chain

New Activities
- Electric Cars
- Connected Cars
- Autonomous Cars
- Software Quality

Expansion Opportunities (conventional services)
- Testing & Homologation Europe & China
- Conformity of Production
- QC Outsourcing

TIC automotive services
- Testing (Shanghai Hub, E&E)
- Homologation (VEO)
- ISO TS
- Design review

TIC market estimate
- €4bn
- €1.5bn
- €0.5bn
- €4bn

Global Coverage
Partial Coverage
Fast Development of our testing capabilities

**TIRES PROVING GROUND**
- Set up in 2015
- The first proving ground set up by 3rd party institution in Asia
- Over 10,000 sqm

- **Lab testing:** rolling resistance, load/speed test, low pressure endurance test, peripheral dimension test, etc.
- **Track testing:** wet grip testing, noise emission testing
- **Certification:** e-Mark, Inmetro, GSO, CCC, etc.

**SHANGHAI AUTOMOTIVE HUB**
- Electrical & Electronics: HVAC, charging, lighting
- Interiors: panels, seats
- Powertrain & Chassis: braking, exhaust, steering
- Tires Testing & Certification
- Infotainment, SmartCar

**AUTO / EMC**
- Electro-Magnetic Compatibility testing: Emissions & Immunity
- Strategically critical for OEMs and Suppliers
- Labs across USA, Europe and Asia
- Bureau Veritas approved by major OEMs
Automotive – Digital Solutions

CYBER SECURITY OF CONNECTED VEHICLES
Best Practices

SOFTWARE GUIDELINES
Development & Assessment

EMC
Electromagnetic Compatibility Analysis
Automotive

SELECTED BUSINESS CASES
Real-driving emission measurement

- Protocol developed by PSA, T&E and Bureau Veritas to measure real-world figures
- Bureau Veritas acts as a specialized independent 3rd party

► Develop the Protocol
► Perform the Real-driving tests
► Record & Report the Results
► Verify information delivered to consumers

► Validate the protocol
► Ensure the application of the protocol
► Verify the integrity of the results

« ECOBEST 2017 »
European award received in 2017
Case Study: Tesla Global Compliance Mgmt.

CLIENT

Tesla

PROJECT

Tesla needed the compliance for:
► Car connectivity
► Antenna characterization services
► Type approval for Chinese market (Infotainment and Bluetooth)

BUREAU VERITAS ROLE

One Stop Shop solution Provider
► Mapping of Market Access Approval across Tesla target markets
► PM for International approval with new type products
► Global Platform for Testing support in USA, China, Japan and Europe
► Supply chain quality management
Case Study: V2X Spotlight

V2X
Vehicle to Everything
Safety, mobility & sustainably

1. V2V
Vehicle to Vehicle
- Safety applications
- Collision warnings

2. V2I
Vehicle to Infrastructure
- Traffic management
- Alerts based on traffic signals

3. V2P
Vehicle to Person
- Warnings to pedestrians
- Warnings to drivers

DSRC (v2x) installation (m units)

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>39</td>
<td>127</td>
</tr>
<tr>
<td>Growth</td>
<td>27%</td>
<td></td>
</tr>
</tbody>
</table>

DSRC (v2x) Market Size ($m)

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dollars</td>
<td>768</td>
<td>2,817</td>
</tr>
<tr>
<td>Growth</td>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>

(1) Source: Visiongain
(2) Source: Markets and Markets
**Case Study: V2X Successes**

**USDOT R&D Partner**
- Developed Test Specifications
- In partnership with OmniAir
- Active participant in Plugfests

**1st OmniAir Authorized Lab**
- Authorized by OmniAir
- BV is a Board Member & Chairs Technical Group
- DSRC RF/Conformance certification started October 2017

**Korea CITS Consortia Winner**
- Cooperative Intelligent Transportation System
- Sponsored by Intelligent Transport Society of Korea and MOLIT
- BV is a board member
- Consortia with 2 Technology Leaders
Bureau Veritas Differentiation

- Market entry through connectivity expertise
- Close relationships with OEMs
- Well positioned all along the Automotive Value-Chain
- Leveraging our digital capabilities to build a leadership position
Our 5 Growth Initiatives

<table>
<thead>
<tr>
<th>Growth Initiative</th>
<th>Description</th>
<th>Ambition (Incremental revenue by 2020)</th>
</tr>
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Leverage leading global position in sizeable and growing markets

€350 – 400m
Key Market Drivers

- €4 trillion annual global infrastructure investments
- Global population to reach 8 billion by 2023¹
- Middle class to become the majority of the world population by 2020 for the first time in history²
- Market challenges are:
  ♦ Provide housing and basic infrastructure in big cities
  ♦ Developing mass transportation systems
  ♦ Maintaining existing infrastructure

Revenue ambition over 2016-2020e (€m)

- 2015: 489
- 2016: 558
- 2017F: 611
- 2018E:
- 2019E:
- 2020E: 890

Incremental Revenue (in €)

- 2015: ~€122m
- 2017F: €350 – 400m
- Ambition 2020:

Revenue split

- Europe: 40%
- Asia, Middle East, Africa & Pacific: 32%
- N. America: 18%
- L. America: 10%

(1) Source: UN Population Division
(2) Source: Brookings
Evolution of Bureau Veritas B&I Business

1. From private properties to both private enterprises and public infrastructure assets

2. From building regulatory inspection to both building and infrastructure project management services

3. From a leadership position in European markets to fast development in emerging geographies and other developed countries thru replication and acquisitions
Extensive Scope of Services

Bureau Veritas present all along the B&I Value Chain
Strengthening BV’s Leadership Position

Acquisitions since 2015: diversifying our capabilities

2015
- Shandong Chengxin, China: €40m
- Shanghai TJU, China: €6m

2016
- HCD, UK: €10m
- Chongqing Lianseng, China: €30m

2017
- Shanghai Project Management, China: €50m
- California Code Check, US: €4m
- Primary Integration, US: €20m
- McKenzie Group, Australia: €10m
- INCA, Mexico: €12m

(1) Annual revenue at the time of the acquisition
(2) Signed, closing pending
Creating a Global Footprint

- **Acquisitions**
  - €0 to 10m
  - €10 to 30m
  - €30 to 50m
  - Above €50m

- **Organic**

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>China</td>
<td>ACR</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Singapore</td>
<td>Kanagawa Building Inspection</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>Jyutaku</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>SISTEMA PRL</td>
</tr>
<tr>
<td>2014</td>
<td>Japan</td>
<td></td>
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<tr>
<td></td>
<td>Brazil</td>
<td></td>
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<tr>
<td>2015</td>
<td>China</td>
<td></td>
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<td></td>
<td>China</td>
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<tr>
<td>2016</td>
<td>China</td>
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<td>UK</td>
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<tr>
<td>2017</td>
<td>China</td>
<td></td>
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<tr>
<td></td>
<td>US</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australia</td>
<td></td>
</tr>
</tbody>
</table>

*Signed, closing pending*
Going Digital

Digital Capabilities

- Service delivery based on multiple digital platforms
- BIM (Building Information Modeling) as a reality for B&I related TIC services
- Bureau Veritas’s proprietary Digital Cloning services: A new concept of 3D asset register

BIM for Minoritymass Sports Centre - China
Building & Infrastructure

SELECTED BUSINESS CASES
Business Cases: Building Estate

Sinar Mas Centre Shanghai
China
€500m INVESTMENT
Construction Supervision

DAMAC Luxury Properties
Kingdom of Saudi Arabia
€1,400m INVESTMENT
Construction Supervision

Emaar The Tower
Dubai
€1,000m INVESTMENT
3rd Party Structural Design Peer Review
Business Cases: Transportation

**France**
- Grand Paris Express
- €25,000m INVESTMENT
- Technical Control & Vulnerability Services

**China**
- Chendu Tianfu International
- €6,600m INVESTMENT
- Construction Supervision

**Brazil**
- Arteris Highway Operator
- OPEX Services
- Highway Infrastructure
Business Cases: Facilities

Texas Rangers New Stadium
- Location: US
- Investment: €1,100m
- Services: Plan Review and Inspection Services

Minoritymass Sports Centre
- Location: Inner Mongolia - China
- Investment: €90m
- Services: Construction Supervision

Meydan One Mall
- Location: Dubai
- Investment: €1,500m
- Services: 3rd Party Structural Design Peer Review
Competitive Advantages

Bureau Veritas Differentiation

► The Global Building & Infrastructure TIC Leader
► Diversified portfolio based on “Build; Buy and Borrow” strategy
► Digital oriented business model
► Covering the entire Building and Infrastructure value chain
2 Priority Countries
Country Focus: USA

Key facts

- **Infrastructure:** 10-year $1 Trillion plan
- **Construction:** 3.3% CAGR over 2015-2020
- **Chemical:** 310 projects and $185 Billion in capital investment
- **Industrial investment in the U.S. Gulf Coast** is expected to hit $51.9 Billion in 2018
- **FSMA** is the most sweeping reform of FDA's food safety authority in more than 70 years
- **U.S. petroleum** product demand increased 2.4% y-o-y

---

**GDP**
$19.5 Trillion
21.7% of the total global GDP

**GDP Growth**
+2.2%

**Government Spending on Infrastructure**
3% of GDP Annually

**Services account for**
80% of GDP

**TIC Services**
$43 Billion

**TIC Growth**
5.7% CAGR 2016 - 2024

---

(1) Source: World Bank
(2) Source: Industrial Information Resources
Key Market Trends

► Stabilizing Oil, Gas and Chemicals Sector

► Demand for visibility of the Supply Chain

► Increasing need of TIC services from BtoC Industry

► Disruptive technologies in Automotive and Transportation

► Cyber security risks, digital opportunities and challenges
Market Presence

129 Offices and Labs 6,000 Employees

**Northwest**
Top 10 players in HSE consulting services

**West Coast**
Largest provider of Code Compliance services on the West Coast and Texas

**Gulf states**
Top 3 O&G TIC Player
Own 16% of Oil Condition Monitoring US Market

**Canada**
Own 44% of food testing and 66% of environmental testing market in Canada

**Northeast**
Largest provider of elevator inspection services

**Southeast**
Own 12% of cargo inspection market in US

**Midwest**
Accelerating food testing expansion footprint in US
The ambition: growing and diversifying the portfolio

2015

- Oil & Gas: 53%
- Building & Infrastructure: 24%
- Agri & Food: 16%
- Power & Utilities: 7%
- Rest of Business: 1%

2020

- Oil & Gas: 41%
- Building & Infrastructure: 26%
- Agri & Food: 14%
- Power & Utilities: 9%
- Rest of Business: 10%

Major Expansion of B&I, Food & Agri and Power & Utilities

(1) Rest of Business includes Industrials, Services, Metals & Minerals and other industries.
Priority Markets

O&G & Chemicals
- Protect Core
- CAPEX Opportunities
- Extend to OPEX Market

Building & Infrastructure
- M&A targeted at B&I
- Geographic Expansion
- Leveraging Expertise

Agri-Food
- Maxxam Recovery
- Greenfield Investments
- Hub & Spoke
Oil & Gas and Chemicals

► Protect Core O&P business
► Extend TIC offer for OPEX Market
► Continue advancement of Lab Outsourcing and Mobile Lab Solutions
► Expand digital platform to build operational agility
“Dow’s Trusted service provider for Global Inspections of Capital Equipment.”

“The R&D department relies on Bureau Veritas for verification of test results during development of new subsea oil & gas equipment”
Building & Infrastructure

- Geographic expansion of existing code compliance services
- Active M&A strategy
- Robust and speedy integration of acquired companies
- Leveraging expertise and technologies from Bureau Veritas Network
“Providing construction QA/QC, project management assistance and code compliance services for 9,000 hotel rooms in 63 hotels at 24 US Army Installations”
“A leader in Data center commissioning with an exceptional industry reputation and technical capabilities across the US and globally”

- c£20m Annual Revenue
- 117 employees / 7 locations
- Key expertise:
  - Full Life Cycle Commissioning
  - Operational Risk Management
Agri-Food

► Establish a centralized US platform for Agri-Food

► Leverage food lab testing leadership of Maxxam and digital platforms of Safe Supply and SafeOps

► Accelerate geographic expansion in the US food market

► Strategic M&A to enhance service offerings
“General Mills’ responsible sourcing eyes and ears for global suppliers”

“Digital platform providing full view of supply chain and delivering efficiency and scalability”
Focus on Diversifying our Portfolio

Accelerate growth
- Investments in Sales Resources and Marketing; Matrix Sales Structure
- Cross-selling across businesses
- Leveraging global client relationships

Commercial discipline
- Commercial Team with focus on national reach and broad spectrum of services
- Market Leaders for selected markets and sub-segments
- Solutions Design Approach
- Robust Key Account Management and Pricing strategy

Agile operating model
- Integration of capabilities and sub-brands for single inspection platform
- Strengthen partnership with software and technology providers
- Supplier-enabled innovation
- Lean and Lab Automation
Management Team

► Strong and renewed leadership Team
► Strong Alignment
► Community Engagement

120 YEARS of Industry Experience

☐ Newcomers
China
Country focus: China

Key facts

- Second economy worldwide, to become the First by 2030\(^1\)
- Number one TIC market worldwide
- Number one BV country in terms of revenue and headcount (home of 14,000+ Bureau Veritas qualified employees)
- One Belt, One Road investment program to consolidate China as a Global Infrastructure powerhouse

GDP

- €11.6 Trillion
- 15% of the total global GDP\(^1\)

TREND OF GDP

- +7.3% CAGR
- From 2017 to 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (Trillion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>11.6</td>
</tr>
<tr>
<td>2018</td>
<td>12.7</td>
</tr>
<tr>
<td>2019</td>
<td>14.0</td>
</tr>
<tr>
<td>2020</td>
<td>15.4</td>
</tr>
</tbody>
</table>

HIGH SPEED RAIL

- 65%
- Will be in China by 2020

AIRPORTS

- 300
- To be build by 2020

% OF URBANIZATION

- 56.1%
- Target rate of 60% by 2020\(^1\) (% of Urb. in US: 82\%)\(^1\)

DEMOGRAPHICS

- 1.4 Billion Inhabitants
- $11,456 GDP / Capita
- +42% 2016 - 2020

(1) Source: World Bank, UNCTAD
Long history in China

• BV has a long story in China with strong growth momentum

<table>
<thead>
<tr>
<th>Est. in China</th>
<th>Marine services re-started</th>
<th>CPS initiated its services</th>
<th>GSIT services started</th>
<th>Commodities services started</th>
<th>Largest International construction supervision company</th>
<th>3 Major B&amp;I Acquisitions</th>
<th>CTS Lab Acquisition</th>
<th>SPM Acquisition</th>
<th>VEO China Acquisition</th>
<th>Break 1 Billion € mark</th>
</tr>
</thead>
</table>

Percentage represents the weight on BV Total Revenue

2017 Sep YTD @ actual rate
Country focus: China

Country mapping

Revenue split by end-markets

Diversified Portfolio

DOMESTIC c50%

EXPORT c50%

Consumer Goods 53%

Oil & Gas 10%

P&U 9%

B&I 11%

Auto 4%

Other 8%

Marine 5%

Test Laboratory

Office

Investor Days December 7 & 8, 2017
China TIC Market Liberalization

On-going Liberalization
- Opening Up Progressively
- Pilots
- Region and Segment
- Hybrid Ownership

New Accessibility
- BV Partnerships To Enable Penetration Into New Segments:
  - Construction
  - Electrical/Automotive/Wireless
  - Consumer Products

BV Focus
- Footprint, Capabilities, Market Share
- LTO to Penetrate into New Markets
- Build-Buy-Borrow
- Win-Win

In-House
Government / Public
Addressable / Open

€21bn
17
Current
4
2020 Liberalization Opportunity

Current 2020 Liberalization Opportunity

Government / Public
Addressable / Open
CIF China: Key Market Trends

- Investment & Trade
- Quality & Efficiency
- Liberalization
- Belt & Road initiative

- Country: 68
- Population: 4.4 Billion
- GDP: €25.4 Trillion
- Investment: €9.0 Trillion (Infrastructure 2016 – 2020)

---

**INVESTMENT**

- +15% growth
- < 1% growth

**FIX ASSET**

- +15% growth
- €6.0 Trn

---

FDI = Foreign Direct Investment
OFDI = Chinese Outwards Foreign Direct Investment

(1) Source: Ministry of Commerce, Trading Economics
(2) Source: National Bureau of Statistics of China + CITIC
Role of JV in China

Customer

▸ Customer Penetration
  ◆ Access Chinese Global Fortune 500 Companies
  ◆ Leverage Network in China and Overseas

Diversification

▸ Business Diversification
  ◆ Extension scope of Service, No 1# Jianli in China
  ◆ Moving from CAPEX to OPEX

Innovation

▸ Innovation China
  ◆ Develop Chinese BIM technology
  ◆ Digitalization and Big Data Management

Synergy

▸ Synergy BV Group
  ◆ Develop BV Revenue among the Belt & Road Initiative
  ◆ Competence enhancement in BV network
CIF China: Market Focus Organization

Market oriented organization – 7 divisions dedicated to Chinese main markets

► Reinforce Major projects Follow up
► Develop Chinese Key Accounts
► Accelerate Cross-Selling Initiatives
► Promote Innovation & Digitalization
CIF China - B&I Market Dynamics

Investment €907bn
Investment €507bn
Investment €1,040bn
Investment €267bn
Investment €7,733bn
Investment €267bn

► High Rise building
► Airports
► Light Rail & Metro
► Utilities
CIF China – P&U Market Dynamics

- Fossil: Investment €165bn
- Hydro: Investment €55bn
- Wind: Investment €95bn
- Nuclear: Investment €80bn
- Solar: Investment €100bn
- Grid: Investment €430bn

- Grid
- Renewable
- Overseas

China 13th Five Year Plan (2016 - 2020) @ Gov.net

Investor Days December 7 & 8, 2017
CPS in China: Key Trends

► Private Consumption Drives Domestic Demand

Private Consumption\(^1\)

\[ \text{\$4.2 Trillion} \]

9% CAGR Growth 2015-2020

► Persistent Decline in Exports Reversed in Key CPS\(^3\) Sectors H1 2017

Exports (H1 2017 vs 2016)\(^2\)

7.9%

► Liberalization will Continue
► Growth in Asia Strategic Vendor Management
► Technology Segment Acceleration

(1) Source: Economist Intelligence Unit, BCG Research
(2) Source: China Customs
(3) Consumer Products Services

CPS\(^3\) Geography

28 Locations hosting 50+ Labs/Offices

CPS Employees

7,500 60% of global CPS employees
CPS in China: Priorities

Expanding Platform

► +23 Locations Since 2015
► Organic + External + Partnership
► South / East / North Coverage
► Moving Central / West

Accelerate Technology Segments

► Electrical & Electronics
► Automotive
► Wireless/Smartworld

Optimize Supply Chain Quality Management

► Partner throughout the supply chain
Accelerate Technology Segments

Electrical & Electronics
- Global Solution
- UX Testing
- New Energy

Automotive
- Automotive Testing Hub in Shanghai
- Product Solution With Full Services
- Supply Chain Solution

Wireless / Smartworld
- Smart Home/Wearables
- Automotive: V2X | Connected Cars
- Consumer Electronics

INNOVATION & TECHNOLOGY CONVERGENCE
Solutions Across the Supply Chain (Environmental)

**EU BRAND**
- **PLAN** Develop the plan
- **BUY** Select Best in Class Suppliers
- **MAKE** Verify & Ship Product
- **SELL** Customer Insight
- **USE** Public Communication

**EU BRAND**
- **Market / Brand Review**
- **Environmental Policy Development**
- **Environmental Audit**
- **Chemical Discharge Management**
- **Finished Product RSL Testing**
- **Product Disposition**
- **Analyze customer comments**
- **IPE / ZDHC Upload**

**Consume with Confidence**
- **Regulations Management**
- **Emissions Evaluator**
- **Shipment Approval**
- **Supplier Scorecard**

**#1 EU Brand Green Rating**
CPS in China: Competitive Advantages

In Summary

- **Growing Market**: Domestic Market | Exports | Liberalization
- **Expanding Platform**: 7,500 Employees | 50 offices | 28 locations
- **Focus on Technology**: Electrical & Electronics | Automotive | Wireless / SmartWorld
- **Supply Chain Solutions**: Quality, Safety, Social and Environmental
- **OneSource**: Enterprise Ready Platform
- **Client Alignment**: 100% in sync with Customers Supply Chain Process

Key Enablers

- Technical Leadership
- World Class Service Delivery
- Global KAM
- Digitalization
Q&A
Bureau Veritas Investor Days

Plenary session
December 7, 2017
Digital Transformation
There are many digital disruptions to leverage …
Digital@BV focuses on 3 business priorities

**DIGITAL EFFICIENCY**

Boost **Profitability** of existing TIC Services

Cost-efficient offer for core services

**NEW DIGITAL OPERATING MODELS**

Accelerate Growth with alternative models

Digital customer engagement

Technology-enabled services

Conformity 4.0

One-stop-shop

**NEW TIC DIGITAL SERVICES**

Diversify in new market segments

Be compliant on new norms for digital products & models

Innovation program to incubate all new technologies
Digital@BV focuses on 3 business priorities

**DIGITAL EFFICIENCY**

Boost **Profitability** of existing TIC Services

- Cost-efficient offer for core services

**NEW DIGITAL OPERATING MODELS**

Accelerate Growth with alternative models

- One-stop-shop
- Digital customer engagement
- Technology-enabled services

**NEW TIC DIGITAL SERVICES**

Diversify in new market segments

- Conformity 4.0
- Be compliant on new norms for digital products & models

Innovation program to incubate all new technologies
Major initiatives already underway

**Laboratories: LIMS**

- **LIMS\(^1\) rationalization**
  - Simplified our LIMS landscape composed of multiple solutions
  - Simplified the process (LEAN)

**B&I: Project Management**

- **Sistema PRI**
  - Fully integrated solution for project management and delivery in LATAM
  - Under replication throughout the group

**Inspection Field Force Management**

- **Marine: integrated end-to-end platform**
Digitalization for Processes and People

Operational Processes

- End to end field management platform
- LIMS harmonization
- Data management

Workforce

- Next generation of digital workplace tools
- Digitalized shared service centers
- Training & Change management

FLEXIBLE AND SCALABLE INFORMATION SYSTEM MANAGEMENT
Digital@BV focuses on 3 business priorities

**DIGITAL EFFICIENCY**
Boost Profitability of existing TIC Services
- Cost-efficient offer for core services

**NEW DIGITAL OPERATING MODELS**
Accelerate Growth with alternative models
- Technology-enabled services
- One-stop-shop
- Digital customer engagement
- Conformity 4.0

**NEW TIC DIGITAL SERVICES**
Diversify in new market segments
- Be compliant on new norms for digital products & models

Innovation program to incubate all new technologies
One-Stop-Shop: a new engagement channel

International eCommerce platforms

- Easier and faster engagement for SMB
- Cost efficient model

lead.bureauveritas.com deployed in +10 countries

FOCUS TODAY ON CERTIFICATION, AUDITS AND TRAININGS FOR SMB

EXTENSION TO OTHER BV BUSINESSES, CPS AS THE FIRST TO COME

External inspectors Marketplace

- More agile & flexible model
- BV as a broker of ext. qualified inspectors

Managed 200k inspections in 2017

FOCUS TODAY ON ASSET VERIFICATION & INVENTORY AUDITS FOR LARGE CLIENTS

EXTENSION TO OTHER BUSINESSES, FOOD AS THE FIRST TO COME
Zoom on the RevoQuest platform of QuikTrak

QUIKTRAK
Digital@BV focuses on 3 business priorities

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Innovation program to incubate all new technologies
Conformity 4.0: a game changer for inspection

DISRUPTION 1
DRONES + IMAGE RECOGNITION

DISRUPTION 2
SENSORS + ROBOTICS

DISRUPTION 3
ANALYTICS MODEL

DISRUPTION 4
SUPERVISION PLATFORM IN ASSET REGISTER / DIGITAL TWIN

Inspection
Apply Expertise
Report at a time T
BV has been a pioneer in 3D Asset Register

Full digital TWIN of a Marine and Offshore asset accessible on a web browser, shared with the overall ecosystem and integrating all the data related to the integrity of the ship at a time T

Collaborative “reality model” of an existing Industrial asset leveraging photogrammetry and laser scan technics, classification of the various equipment as well as integration in the model all the inspection report
BV and Avitas Systems partner to go beyond

- **Global leader** in Industrial inspection
- **Neutral positioning/Accreditations**
- **A strong technical expertise all over the world** for advanced inspections
- **A collaborative and trustful relationship** with most for the Fortune 500 clients on advanced inspection
- **Digital Asset Registers up and running**

- A **cloud-based platform** designed to perform sensor-based automated defect recognition and risk-based optimization analytics
- A **strong combination of industry experts, data scientists, development engineers**
- Access to the expertise & assets of the **GE ecosystem**
- A **network of robotics/licensed drone operators**

Bureau Veritas partners with Avitas Systems to build the next generation of Inspection Services based on Advanced Analytics
Towards next generation AI-based inspections

Automate Data Collection
- REMOTE VISUAL & INFRARED AERIAL INSPECTION
- PERMANENT SENSORS / ROBOTICS

AI¹ to define risk & severity over time
- DEEP LEARNING NETWORKS TO IDENTIFY DEFECTS
- SENSOR-FUSION BASED ANALYTICS TO ASSESS RISK SEVERITY

Review results & focus inspections
- DASHBOARDS TO ORGANISE FOCUSED INSPECTIONS
- INSPECTION REVIEWER

Share & collaborate over time
- ASSET INTEGRITY MANAGER

Increase asset & operational reliability

Improve safety & conformity

Boost efficiency

¹ AI: Artificial Intelligence
Digital@BV focuses on 3 business priorities

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Innovation program to incubate all new technologies
Assets are now digital assets…

The connected car

SMARTPHONE CONNECTIVITY
UX SAFETY
SAFETY SENSORS
DIGITAL ENGINE SAFETY AND SECURITY
V2X / DSRC SAFETY AND SECURITY
REMOTE NETWORK CONNECTIVITY
CYBERSECURITY
DATA PRIVACY
MGT SYSTEM (ISO 27K)

BV SMART WORLD
BV CERTIFICATION
… linked to a growing number of Digital Norms

Evolution of the number of IoT objects

Evolution of the number of digital Norms

Source: CEA
It is starting with Systems Certification…

Cybersecurity Certifications

- ISO 27K, IEC 62443, …
- Cyberessentials accreditation (UK Scheme)
- Multiple guidelines + Software Analyzer (with CEA\(^1\))
- SYS-COM class notation (Marine)

Data Privacy Certifications

- Suite of certifications to ensure transparency & the proper use of personal data
- Addresses article 42 of the E.U. General Data Protection Regulation (GDPR)

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(1) CEA – French public government-funded research organisation
… but the largest opportunity will be on testing

Bureau Veritas strategic position in the digital testing space – SMART WORLD

Healthy Pipeline for acquisitions of specialized players

Building Strong Relationships with Global Brands
Digital is the new wave of the TIC Market
Digital@BV focuses on 3 business priorities

**DIGITAL EFFICIENCY**
Boost Profitability of existing TIC Services

Cost-efficient offer for core services

**NEW DIGITAL OPERATING MODELS**
Accelerate Growth with alternative models

One-stop-shop

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Digital customer engagement

Technology-enabled services

**NEW TIC DIGITAL SERVICES**
Diversify in new market segments

Be compliant on new norms for digital products & models

Innovation program to incubate all new technologies
BV is incubating new tomorrow’s technologies…

Remote inspection through glasses deployed in US/UK/CN

Artificial intelligence to automate lab decision deployed for OCM & Spectral Chemometrics Analysis

Drone Field Control on-going POCs

Blockchain on-going POCs
Digital as a key lever of the 2020 plan

**DIGITAL EFFICIENCY**

- Boost **Profitability** of existing TIC Services
- Cost-efficient offer for core services

**NEW DIGITAL OPERATING MODELS**

- **Accelerate Growth** with alternative models
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**NEW TIC DIGITAL SERVICES**

- **Diversify in new market segments**
- Be compliant on new norms for digital products & models
Market structured between:
- Capex services (Building Control, Safety on Site)
- Opex services (Regulatory In-Service Inspections on assets or equipment and Health & Safety inspection)

BV is leader in this concentrated market, with around 20% market share (and even 25% in Building Control)

Strategic Initiatives:
- Continuously improve our delivery model (process reengineering and digital tools)
- Address both mass market and key accounts
- Develop new services
B&I Digital suites of tools

Suitable suites of production tools covering all the steps of the process from scheduling to data management

LEAN
Industrialize
Shared Services

WITH
Planning optimization

LETO Compliance

Report automation
Mobility
Productivity
Quality & Compliance

PROVIDING
Data

Client portals
Mass market
New services
Mobile applications

MANAGEMENT CONTROL & DECISIONS

Investment priorities
Construction programs rebound since the end of 2015, driven by the housing market and large infrastructure projects. However still below 2007 pre-crisis level.

BV B&I Capex sales have captured this market rebound both in building and infrastructure markets.

Production of these construction programs will spread over the next coming years.

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(1) A rebound of the housing market with 3-4 years projects
(2) Grand Paris project spread over 15 years
Grand Paris Express: Europe’s largest urban project

► Grand Paris Region:
♦ 12 million inhabitants
♦ 1/3rd of French GDP

► An ambitious project to develop the existing transport network
♦ 30 € Billion investments
♦ 200 km of new underground metro lines (doubling the existing network)
♦ 68 new rail stations around Paris

► The project will generate 100 new urban neighborhoods around Paris, connected to the urban transport network
♦ 140km² of new mixed-used neighborhoods = 1.4 x Paris
♦ 300 000 new housing units
BV’s role, sales and opportunities

- €20m contracts already won: BV captured 30% market share
- €20m offers currently in the pipeline
- More opportunities to be seized
- To be delivered over the next 15 years

BV’s solutions:
- Structural audits of the existing upper structures
- Building control / design review
- Safety on-site
- Quality Audit / Quality Control
- Environmental audits
- Excavation materials monitoring…
A full BIM\textsuperscript{1} project

(1) BIM: Building Information Modelling

Investor Days December 7 & 8, 2017
Q&A
Key Takeaways

► Strategy execution well underway, already delivering results

► Bureau Veritas: the TIC leader in digital

► Confident in achieving our 2020 ambition