In September 2016, the Technology and Entrepreneurship Center at Harvard (TECH) hosted the 2016 Strategic Innovation Symposium: The Intelligent Enterprise, where leaders from across industries developed a list of criteria that define today’s Intelligent Enterprise.

Earlier this year, Zebra Technologies conducted an end-user survey tracking these criteria, essentially 11 metrics designed to conceptually understand where companies are on the path to becoming an Intelligent Enterprise.

The online survey was fielded from Aug. 6 – Sept. 14, 2018 across a wide range of segments, including healthcare, manufacturing, retail and transportation and logistics. In total, 918 IT decision makers from nine countries were interviewed, including the U.S., U.K./Great Britain, France, Germany, Mexico, Brazil, China, India and Japan.
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<thead>
<tr>
<th>#</th>
<th>Criteria</th>
<th>Description</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>IoT Vision</td>
<td>Driving transformational innovation starts with a vision</td>
<td>10%</td>
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<tr>
<td>2</td>
<td>Business Engagement</td>
<td>Complex initiatives require a clear business case</td>
<td>10%</td>
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<tr>
<td>3</td>
<td>Technology Partner</td>
<td>Intelligent IoT solutions require a holistic perspective</td>
<td>10%</td>
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<tr>
<td>4</td>
<td>Adoption</td>
<td>New user adoption is one of the most cited challenges</td>
<td>10%</td>
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<tr>
<td>5</td>
<td>Change Management</td>
<td>Key to success is the end-user utilization</td>
<td>10%</td>
</tr>
<tr>
<td>6</td>
<td>Point-of-Use Application</td>
<td>IoT solutions offer contextual and situational awareness</td>
<td>5%</td>
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<tr>
<td>7</td>
<td>Security</td>
<td>IoT solutions need to be monitored to prevent disruption</td>
<td>10%</td>
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<tr>
<td>8</td>
<td>Deployment</td>
<td>Time to implementation is a key consideration</td>
<td>10%</td>
</tr>
<tr>
<td>9</td>
<td>Infrastructure</td>
<td>IoT execution requires a system to manage the technologies</td>
<td>5%</td>
</tr>
<tr>
<td>10</td>
<td>Data Management Plan</td>
<td>One of the greatest challenges with IoT is how to best manage all the data</td>
<td>10%</td>
</tr>
<tr>
<td>11</td>
<td>Intelligent Analysis</td>
<td>Insights derived by data can be instrumental for the business</td>
<td>10%</td>
</tr>
</tbody>
</table>
The Intelligent Enterprise Index

2017:
- 47% scored between 25-50 points on the Index, using half of their “intelligence”
- 5% scored above 75 points on the overall Index, considered “Intelligent Enterprises”
- 48% are on the path to becoming “Intelligent,” scoring between 50-75 points on the Index

Overall Score
- 2018: 55.9
- 2017: 52.5

2018:
- 40% scored between 25-50 points on the Index, using half of their “intelligence”
- 11% scored above 75 points on the overall Index, considered “Intelligent Enterprises”
- 49% are on the path to becoming “Intelligent,” scoring between 50-75 points on the Index
IoT Vision

4% Increase in average annual spend on IoT from 2017 to $4.6 million
86% expect that number to increase in the next 1-2 years
49% expect their IoT investment to increase by 11-20%

55% have an IoT vision and are currently executing their IoT plans
38% currently have company-wide deployments
30% of remaining companies plan to deploy IoT company-wide in the future
Adoption

2018: 24%
2017: +50%

expect resistance to adopt their IoT solution, yet do not have a plan in place to address it

2018: 20%
2017: 21%

who expect resistance, have a plan to address it

2018: 36%
2017: 25%

do not expect resistance to their IoT plan
Adoption

- Are you experiencing / expecting to experience resistance to the adoption of your IoT solution? If so, do you have a plan to address the resistance?

2017

- We are not expecting or experiencing resistance to adoption: 25%
- We are expecting / experiencing resistance to adoption and we do not have / are not developing a plan to address it: 32%
- We are expecting / experiencing resistance, but we are still developing a plan to address it: 22%
- We are expecting / experiencing resistance and we have a plan to address it: 21%

2018

- We are not expecting or experiencing resistance to adoption: 36%
- We are expecting / experiencing resistance to adoption and we do not have / are not developing a plan to address it: 24%
- We are expecting / experiencing resistance, but we are still developing a plan to address it: 20%
- We are expecting / experiencing resistance and we have a plan to address it: 20%
Point-of-Use Application

2018: 82%
2017: 70%

share information from their IoT solutions with employees more than once a day and approximately 2/3 of these share it in real or near-real time

2018: 32%
2017: 32%

provide actionable information to all employees via:

Email
2018: 66%
2017: 69%

Raw Data
2018: 65%
2017: 62%
How are you delivering your IoT information to your employees?

**2017**
- Voice: 38%
- Data: 62%
- Text: 37%
- Email: 69%
- Application-based: 43%
- Push notifications: 26%

**2018**
- Voice: 38%
- Data: 65%
- Text: 37%
- Email: 66%
- Application-based: 43%
- Push notifications: 20%
How broadly is actionable information from your IoT solutions shared with employees?

- **2017**
  - Actionable information is provided to any/all employees: 32%
  - Actionable information is provided to a limited number of employees: 38%
  - Actionable information is provided only to management levels and higher: 22%
  - Actionable information is provided only to Senior-level management or higher: 7%
  - Actionable information is provided only to Executives: 1%
  - We do not provide actionable information: 0%

- **2018**
  - Actionable information is provided to any/all employees: 32%
  - Actionable information is provided to a limited number of employees: 35%
  - Actionable information is provided only to management levels and higher: 23%
  - Actionable information is provided only to Senior-level management or higher: 8%
  - Actionable information is provided only to Executives: 2%
  - We do not provide actionable information: 1%
Point-of-Use Application

Which of the following best describes how your company shares information from its IoT solution?

**2017**

- We provide information from our IoT solutions to our employees in Real-time: 38%
- We provide information from our IoT solutions to our employees periodically throughout each day: 42%
- We provide information from our IoT solutions to our employees, but not on a daily basis: 18%
- We do not disseminate information from our IoT solutions to our employees: 2%

**2018**

- We provide information from our IoT solutions to our employees in Real-time: 43%
- We provide information from our IoT solutions to our employees periodically throughout each day: 39%
- We provide information from our IoT solutions to our employees, but not on a daily basis: 16%
- We do not disseminate information from our IoT solutions to our employees: 2%
How often do you share your IoT solution information?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-time</td>
<td>29%</td>
<td>28%</td>
</tr>
<tr>
<td>Near-real Time</td>
<td>21%</td>
<td>24%</td>
</tr>
<tr>
<td>Several Times Each Day</td>
<td>21%</td>
<td>18%</td>
</tr>
<tr>
<td>Once a Day</td>
<td>10%</td>
<td>12%</td>
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<tr>
<td>Every Couple of Days</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Weekly</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Monthly</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Annually</td>
<td>1%</td>
<td>0%</td>
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<tr>
<td>Don't Know</td>
<td>1%</td>
<td>0%</td>
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</tbody>
</table>

2017 vs 2018 comparison:
- Real-time: 29% in 2017, 28% in 2018
- Near-real Time: 21% in 2017, 24% in 2018
- Several Times Each Day: 21% in 2017, 18% in 2018
- Once a Day: 10% in 2017, 12% in 2018
- Every Couple of Days: 8% in 2017, 6% in 2018
- Weekly: 7% in 2017, 8% in 2018
- Monthly: 3% in 2017, 4% in 2018
- Annually: 1% in 2017, 0% in 2018
- Don't Know: 1% in 2017, 0% in 2018
Security

- Monitor their IoT security and employ standards to ensure integrity and privacy:
  - 2018: 95%
  - 2017: 96%

- Have some sort of proactive approach to IT security and network management:
  - 2018: 69%
  - 2017: 63%

- Routinely:
  - 2018: 37%
  - 2017: 47%

- Constantly:
  - 2018: 58%
  - 2017: 49%
Which of the following best describes your company’s IoT security?

<table>
<thead>
<tr>
<th>Option</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT security is constantly monitored and we employ a set of standards to ensure system integrity and privacy is protected and addressed properly and legally</td>
<td>49%</td>
<td>58%</td>
</tr>
<tr>
<td>IoT security is routinely monitored and we employ a set of standards to ensure system integrity and privacy is protected and addressed properly and legally</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>IoT security is constantly monitored, but we do not employ standards to ensure integrity and privacy</td>
<td>4%</td>
<td>4%</td>
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<tr>
<td>IoT security is routinely monitored, but we do not employ standards to ensure integrity and privacy</td>
<td>1%</td>
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</tbody>
</table>
How would you describe your network security and management practices?

2017

- There is no formal policy or dedicated resources focused on network security and management: 9%
- Limited security measures exist: network management is reactive: 28%
- We take a proactive approach to IT security and network management: 27%
- IT security and management are proactive and integrated into our IT and business processes: 36%

2018

- There is no formal policy or dedicated resources focused on network security and management: 9%
- Limited security measures exist: network management is reactive: 22%
- We take a proactive approach to IT security and network management: 28%
- IT security and management are proactive and integrated into our IT and business processes: 41%
**Deployment**

- **2018:** 84% expect to complete their IoT implementations within 2 years
- **2017:** 80%

- **2018:** 69%
- **2017:** 75%

Most companies are about complete in implementing their current IoT plan.
Deployment

What is the anticipated time line to complete your implementation?

### 2017
- 12 Months: 25%
- 12-24 Months: 54%
- 24-36 Months: 18%
- 36 Months or More: 3%

### 2018
- 12 Months: 33%
- 12-24 Months: 51%
- 24-36 Months: 13%
- 36 Months or More: 3%
On a scale of 1-7, where a 1 represents "just starting" and a 7 represents "completed", please rank how far along your company is in its current plan.

### 2017

<table>
<thead>
<tr>
<th>Percentage</th>
<th>0%</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
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### 2018

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<tr>
<th>Percentage</th>
<th>0%</th>
<th>5%</th>
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<th>14%</th>
<th>16%</th>
<th>28%</th>
<th>29%</th>
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<tr>
<td>Just Starting</td>
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**2018**
Technology Partner

2018: 43% work with strategic partners as a team to implement their IoT plans
2017: 40%

2018: 40% use strategic partners to manage the entire IoT solution
2017: 33%
• Which of the following best describes your company’s use of technology partners for its IoT solution (beyond hardware purchases)?

- We have a strategic partner that manages our entire IoT solution, including other 3rd parties (33% in 2017, 40% in 2018)
- We have several strategic partners that work together / work as a team to manage our entire IoT solution (40% in 2017, 43% in 2018)
- We have several strategic partners, each managing a different portion of our IoT solution (11% in 2017, 7% in 2018)
- We have several strategic partners that work together, but we completely manage our IoT solution internally (14% in 2017, 8% in 2018)
- We do not have strategic technology partnerships (3% in 2017, 2% in 2018)
Data Management Plan

2017: 60%
2018: 66%

have a plan on how to organize and analyze data
Which of the following are included in your IoT data management plan?

2017

- Acquisition: 40%
- Organization: 60%
- Assesibility: 58%
- Life-cycle Management: 44%
- Compliance: 57%
- Dissemination: 34%
- Analytics: 63%
- Storage: 54%
- Security: 57%

2018

- Acquisition: 36%
- Organization: 54%
- Assesibility: 54%
- Life-cycle Management: 55%
- Compliance: 52%
- Dissemination: 25%
- Analytics: 66%
- Storage: 54%
- Security: 63%
2018 Demographics

- US: 11%
- UK / GB: 12%
- France: 11%
- Germany: 10%
- Mexico: 12%
- Brazil: 11%
- China: 12%
- India: 11%
- Japan: 10%

Industries:
- Healthcare: 24%
- Manufacturing: 25%
- Retail: 26%
- Transportation and Logistics: 25%
Demographics

Role in the Influence of the Information Technology (IT) Direction / Strategy

- I Manage IT Direction / Strategy: 23.8%
- I Influence IT Direction / Strategy: 18.1%
- I Am Responsible for IT Direction / Strategy: 58.1%