The Intelligent Enterprise Index

October 2019
In September 2016, the Technology and Entrepreneurship Center at Harvard (TECH) hosted the 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. 12 – Sept. 18, 2019 across the healthcare, manufacturing, retail and transportation and logistics industries. In total, 950 IT decision makers from nine countries were interviewed, including the U.S., U.K./Great Britain, France, Germany, Mexico, Brazil, China, India and Japan.
## Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 IoT Vision</td>
<td>Driving transformational innovation starts with a vision</td>
<td>10%</td>
</tr>
<tr>
<td>2 Business Engagement</td>
<td>Complex initiatives require a clear business case</td>
<td>10%</td>
</tr>
<tr>
<td>3 Technology Partner</td>
<td>Intelligent IoT solutions require a holistic perspective</td>
<td>10%</td>
</tr>
<tr>
<td>4 Adoption</td>
<td>New user adoption is one of the most cited challenges</td>
<td>10%</td>
</tr>
<tr>
<td>5 Change Management</td>
<td>Key to success is the end-user utilization</td>
<td>10%</td>
</tr>
<tr>
<td>6 Point-of-Use Application</td>
<td>IoT solutions offer contextual and situational awareness</td>
<td>5%</td>
</tr>
<tr>
<td>7 Security</td>
<td>IoT solutions need to be monitored to prevent disruption</td>
<td>10%</td>
</tr>
<tr>
<td>8 Deployment</td>
<td>Time to implementation is a key consideration</td>
<td>10%</td>
</tr>
<tr>
<td>9 Infrastructure</td>
<td>IoT execution requires a system to manage the technologies</td>
<td>5%</td>
</tr>
<tr>
<td>10 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 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

- **2019: 22%** scored between 25-50 points on the Index, using half of their “intelligence”
- **2018: 40%**

- **2019: 17%** scored above 75 points on the overall Index, considered “Intelligent Enterprises”
- **2018: 11%**

- **2019: 61%** are on the path to becoming “Intelligent,” scoring between 50-75 points on the Index
- **2018: 49%**

**Overall Score**
- **2019: 61.5**
- **2018: 55.9**
IoT Vision

39% Increase in average annual spend on IoT from 2018 to $6.4 million

19% invest between $500,000 - $1M in IoT annually

61% have an IoT vision and are currently executing their IoT plans

46% currently have company-wide deployments
Adoption

2019: 22%
2018: 24%

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

2019: 25%
2018: 20%

who expect resistance, have a plan to address it

2019: 34%
2018: 36%

do not expect resistance to the adoption of their IoT solution
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?
Point-of-Use Application

- **2019**: 50% share information from their IoT solutions with employees in real or near-real time
- **2018**: 39%

- **2019**: 40% provide actionable information to all employees via:
  - **Text**: 45% (2019), 37% (2018)
  - **Voice**: 44% (2019), 38% (2018)
How are you delivering your IoT information to your employees?

**2019**
- Voice: 44%
- Data: 66%
- Text: 45%
- Email: 66%
- Application-based: 45%
- Push notifications: 20%

**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?

<table>
<thead>
<tr>
<th>Option</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actionable information is provided to any / all employees</td>
<td>40%</td>
<td>32%</td>
</tr>
<tr>
<td>Actionable information is provided to a limited number of employees</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>Actionable information is provided only to management levels and higher</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>Actionable information is provided only to Senior-level management or higher</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>Actionable information is provided only to Executives</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>We do not provide actionable information</td>
<td>0%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Which of the following best describes how your company shares information from its IoT solution?

- We provide information from our IoT solutions to our employees in real-time: 50%
- We provide information from our IoT solutions to our employees periodically throughout each day: 32%
- 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%

2019

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

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- We provide information from our IoT solutions to our employees periodically throughout each day: 43%
- 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%

2018
Point-of-Use Application

How often do you share your IoT solution information?

- Real-time: 34%
- Near-real Time: 19%
- Several Times Each Day: 19%
- Once a Day: 10%
- Every Couple of Days: 7%
- Weekly: 8%
- Monthly: 3%
- Annually: 0%
- Don't Know: 0%

2019

How often do you share your IoT solution information?

- Real-time: 28%
- Near-real Time: 24%
- Several Times Each Day: 18%
- Once a Day: 12%
- Every Couple of Days: 6%
- Weekly: 8%
- Monthly: 4%
- Annually: 0%
- Don't Know: 0%

2018
Security

**2019:** 97% monitor their IoT security and employ standards to ensure integrity and privacy
**2018:** 95%

**2019:** 67% have some sort of proactive approach to IT security and network management
**2018:** 69%

**Constantly**

**2019:** 62%
**2018:** 58%

**Routinely**

**2019:** 35%
**2018:** 37%
Security

Which of the following best describes your company's IoT security?

- 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: 62%
- IoT security is constantly monitored, but we do not employ standards to ensure integrity and privacy: 2%
- 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: 35%
- IoT security is routinely monitored, but we do not employ standards to ensure integrity and privacy: 1%

2019

Which of the following best describes your company's IoT security?

- 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: 58%
- IoT security is constantly monitored, but we do not employ standards to ensure integrity and privacy: 4%
- 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: 37%
- IoT security is routinely monitored, but we do not employ standards to ensure integrity and privacy: 1%

2018
### Security

#### How would you describe your network security and management practices?

<table>
<thead>
<tr>
<th>Approach</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no formal policy or dedicated resources focused on network security and management</td>
<td>12%</td>
<td>9%</td>
</tr>
<tr>
<td>Limited security measures exist: network management is reactive</td>
<td>21%</td>
<td>22%</td>
</tr>
<tr>
<td>We take a proactive approach to IT security and network management</td>
<td>25%</td>
<td>28%</td>
</tr>
<tr>
<td>IT security and management are proactive and integrated into our IT and business processes</td>
<td>42%</td>
<td>41%</td>
</tr>
</tbody>
</table>

2019: 42%  
2018: 41%

### Other relevant information:
- Limited security measures exist: network management is reactive.
- We take a proactive approach to IT security and network management.
- IT security and management are proactive and integrated into our IT and business processes.
Deployment

2019: 85% expect to complete their IoT implementations within 2 years
2018: 84%

Most companies are about
2019: 45%
2018: 37%
complete in implementing their current IoT plan
What is the anticipated timeline to complete your implementation?

**2019**
- 12 Months: 36%
- 12-24 Months: 49%
- 24-36 Months: 14%
- 36 Months or More: 2%

**2018**
- 12 Months: 33%
- 12-24 Months: 51%
- 24-36 Months: 13%
- 36 Months or More: 3%
Deployment

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.

2019

- 4% Just Starting
- 8% 2
- 14% 3
- 28% 5
- 27% 6
- 18% 100% Complete

2018

- 1% Just Starting
- 5% 2
- 14% 3
- 16% 5
- 28% 5
- 29% 6
- 8% 100% Complete
Technology Partner

2019: 36% Have strategic partners that together as a team to implement their IoT plans
2018: 43%

2019: 49% use strategic partners to manage the entire IoT solution
2018: 40%
Technology Partner

Which of the following best describes your company's use of technology partners for its IoT solution (beyond hardware purchases)?

2019
- We have a strategic partner that manages our entire IoT solution, including other 3rd parties: 49%
- We have several strategic partners that work together / work as a team to manage our entire IoT solution: 36%
- We have several strategic partners, each managing a different portion of our IoT solution: 7%
- We have several strategic partners that work together, but we completely manage our IoT solution internally: 5%
- We do not have strategic technology partnerships: 3%

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

2019: 63%
2018: 54%
are including storage into their data management plan
Which of the following are included in your IoT data management plan?

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

**2019**
- Acquisition: 45%
- Organization: 56%
- Assessibility: 57%
- Life-cycle Management: 58%
- Compliance: 50%
- Dissemination: 28%
- Analytics: 63%
- Storage: 63%
- Security: 62%
2019 Demographics

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>24%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>27%</td>
</tr>
<tr>
<td>Retail</td>
<td>26%</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>23%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>12%</td>
</tr>
<tr>
<td>UK / GB</td>
<td>11%</td>
</tr>
<tr>
<td>France</td>
<td>11%</td>
</tr>
<tr>
<td>Germany</td>
<td>11%</td>
</tr>
<tr>
<td>Mexico</td>
<td>11%</td>
</tr>
<tr>
<td>Brazil</td>
<td>12%</td>
</tr>
<tr>
<td>China</td>
<td>12%</td>
</tr>
<tr>
<td>India</td>
<td>12%</td>
</tr>
<tr>
<td>Japan</td>
<td>8%</td>
</tr>
</tbody>
</table>
Demographics

- $1 Billion or More (USD): 53%
- $500 Million to < $1 Billion (USD): 22%
- $250 Million to < $500 Million (USD): 8%
- $100 Million to < $250 Million (USD): 7%
- $50 Million to < $100 Million (USD): 7%
- $10 Million to < $50 Million (USD): 4%
Thank You