Staying Ahead of Disruptions By Creating Your Own Emerging Technologies Radar

Mike J. Walker
@mikejwalker
Between 2018 and 2020, CEOs said that they are likely to change their business models. 63%
Digital Innovation “Matters” to CEOs

62% have a management initiative or transformation program to make the business more digital.

54% of our digital business ambition is transformation.

46% of our digital business ambition is optimization.

Base: All respondents, n = 460

*Please tell us about your organization’s top 5 strategic business priorities for the next 2 years (2018 and 2019)*

Percentage of respondents — ranked by summary top 3 mentions
CIOs Must Address the CEOs' Top Obstacle

Lack of talent and capability in workforce
Digital business cyber risks
Age/Inflexibility of technology assets
Lack of investment funding

Employee issues 20%
Talent and skills 16%
Capital
Change capability
Operating capacity
Inefficiency

CEOs Top
Digital Business Progress Inhibitors

Which of the following are the two biggest inhibitors to your company's digital business initiative progress?

1st choice
2nd

CEOs Top Constraints to Business Growth

(Internal Factors)

What are the two most significant external/internal factors acting as constraints on your company's growth?

Base: All respondents, n = 460

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Digital business is driving a great wave of technology innovation. IT leaders must get in front of the business strategy curve by increasing their focus on technology innovation:

- **Stay ahead of the market with trendspotting:** Scan the horizon for emerging technologies that could disrupt or create new opportunities for your business.

- **Reimagine your business:** Use emerging technologies as inspiration to provide deep insights into optimizing or creating new business models that drive competitive advantage through innovation.

- **The "futurist" advisor:** With the rapid pace of emerging technologies, there are more questions than answers. The enterprise architect has an opportunity to be the advisor with answers to those complex questions.

- **Skill up:** Developing and enhancing EA skills and competencies with innovation, emotional intelligence, and design thinking enable an EA program to be successful in the age of disruption.
What’s an Emerging Technology Radar?
Emerging Technology Radar

A tailored tool used to visualize high-urgency, emerging technologies that create a transformative impact on the future of the company.
An Emerging Technology Radar Is…

1 Early Warning System. Easy to consume high-impact visual of the emerging technologies that may pose the greatest impact to your organization.
An Emerging Technology Radar Is…

1. **Early Warning System.** Easy to consume high-impact visual of the emerging technologies that may pose the greatest impact to your organization.

2. **Flexible and Stylized.** A tailored visual for business and technology leaders that aids in bringing new insights and fostering decision making.
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<td>5</td>
<td><strong>More than a List.</strong> Used as an analysis method to distill the applicable emerging technologies to the organization, not as a general technology or trend watchlist.</td>
</tr>
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</table>
How do You Use an Emerging Technology Radar?
Use Radars to Inform Your Digital Transformation Journey
Where Emerging Technology Radars Fit In
Trend Identification and Insight Gathering Come First

1. Explore Disruptive Trend Ideation

- Trendspotting
  - Emerging Technologies Radar

- Ideation
  - Ideation Approaches, Deliverables and Best-Practice Research

- Scan
- Select & Analyze
- Recommend
How do You Create an Emerging Technology Radar?
Overview of Radar Creation

Scan
- Technology Scouting
- Technology Identification

Select & Analyze
- Impact Appraisals
- Technology PoVs
- Candidate Technologies
- Trendspotting Repository

Recommend
- Assessed Technologies
- Emerging Technology Radar
Scan: Identifying Candidate Radar Technologies

Scan

Refine

Recommend

Select & Analyze
Scan: Identifying Candidate Radar Technologies

Technology Scouts
- Define activity scope
- Tailor approach
- Engage sources

Curate Portfolio
- Identify candidate emerging technologies and trends
- Associate technologies with vendor innovations, industry use cases and independent market research

Investigate, Identify, & Triage Market Landscape

Recommendations & Candidate Technology Profiles
Scan: Identifying Candidate Radar Technologies

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Investigate, Identify, & Triage Market Landscape

Gartner Industry Research
- Emerging Technology Hype Cycle
- Market Predictions
- Top 10 Strategic Trends Reports
- Cool Vendors Reports
- Maverick Research

Recommendations & Candidate Technology Profiles
## Identifying Candidate Radar Technologies

Leverage Gartner Technology Profile Research

<table>
<thead>
<tr>
<th>Technology Name</th>
<th>Market Context</th>
<th>Definition</th>
<th>Position</th>
<th>Time to Plate</th>
<th>Position and Adoption Speed</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected Home</td>
<td>All Inclusive</td>
<td>A connected home is networked to enable</td>
<td>3.peak</td>
<td>5-10 years</td>
<td>The connected home is a concept that overarches several technologies,</td>
<td></td>
</tr>
<tr>
<td>Connected Personal</td>
<td>All Inclusive</td>
<td>Connected personal hearing devices</td>
<td>5c.post-plateau 15%</td>
<td>3.5-10 years</td>
<td>PHDs amplify sound, making speech intelligible for the wearer. Hearing-aids integration.</td>
<td></td>
</tr>
<tr>
<td>Connected TVs</td>
<td>All Inclusive</td>
<td>Connected TVs, also known as smart TVs</td>
<td>6f.pre-plateau 20%</td>
<td>1. Less than two years</td>
<td>Almost 70% of TVs produced worldwide in 2016 were smart TVs, an upward trend.</td>
<td></td>
</tr>
<tr>
<td>Consensus Mechanisms</td>
<td>All Inclusive</td>
<td>A consensus mechanism is a</td>
<td>2c.pre-peak 35%</td>
<td>2. Two to five years</td>
<td>The PoW (Proof of Work) was the consensus mechanism used by the first</td>
<td></td>
</tr>
<tr>
<td>Constrained Application</td>
<td>All Inclusive</td>
<td>The Constrained Application Protocol</td>
<td>2f.pre-peak 20%</td>
<td>2. Two to five years</td>
<td>CoAP uses an interaction model similar to the client/server model of HTTP, but with constraints.</td>
<td></td>
</tr>
<tr>
<td>Consumer 3D Printing</td>
<td>Retail</td>
<td>Consumer 3D printing is the</td>
<td>3h.post-peak 40%</td>
<td>3. Five to 10 years</td>
<td>3D printing by consumers is an emerging market, but every home will</td>
<td></td>
</tr>
<tr>
<td>Consumer Energy Storage</td>
<td>All Inclusive</td>
<td>Consumer energy storage (as opposed to</td>
<td>4. peak-trough midpoint</td>
<td>4. More than 10 years</td>
<td>The need to integrate consumer-owned renewable generation into delivery</td>
<td></td>
</tr>
</tbody>
</table>
Scan: Identifying Candidate Radar Technologies
Leverage Gartner Hype Cycle for Emerging Technologies

Innovation Trigger
- Smart Workspace
- Brain-Computer Interface
- Autonomous Mobile Robots
- Deep Neural Network ASICs
- AI PaaS
- Quantum Computing
- 5G
- Volumetric Displays
- Self-Healing System Technology
- Conversational AI Platform
- Autonomous Driving Level 5
- Exoskeleton
- Blockchain for Data Security
- Neuromorphic Hardware
- Knowledge Graphs
- 4D Printing
- Artificial General Intelligence
- Smart Dust
- Flying Autonomous Vehicles
- Edge AI

Deep Neural Nets (Deep Learning)
- Carbon Nanotube
- IoT Platform
- Virtual Assistants
- Silicon Anode Batteries
- Blockchain

Connected Home
- Autonomous Driving Level 4

Mixed Reality

Smart Fabrics
- Augmented Reality

From "Hype Cycle for Emerging Technologies, 2018"
Select & Analyze: Qualifying & Selecting Technologies

Scan

Refine

Recommend

Select & Analyze
Select & Analyze: Qualifying & Selecting Technologies

Analyse Emerging Technologies

- Trendspotting Repository

Technology Analysis
(STRATEGIC RELEVANCE, VALUE POTENTIAL, RISKS AND DISRUPTIVE IMPACT)

Innovation Board

Select Technologies and Trends

- Candidate Technology Profiles

Recommendations

Communications & Education

- Trendspotting Newsletter

Impact Appraisals

## Select & Analyze: Qualifying & Selecting Technologies

Create Technology Profiles

<table>
<thead>
<tr>
<th>Technology</th>
<th>&lt;Enter Technology Name&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>&lt;Insert a brief description of technology&gt;</td>
</tr>
</tbody>
</table>

### Strengths and Opportunities
- ...
- ...
- ...

### Business Feasibility
- easy
- medium
- difficult

### Technology Maturity
- low
- moderate
- high

### Value Potential to Company
- high
- medium
- low

### Technology Maturity Velocity
- slow
- average
- rapid

### Strategic Relevance
- low
- medium
- high

### Investment Required
- low
- medium
- high

### Vendors
- ...
- ...
- ...

### Dependencies
- ...
- ...
- ...

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## Overview

Emerging technologies are disruptive by nature, but the competitive advantage they provide is not yet well-known or proved in the market. However, most will take more than five to 10 years to reach the Plateau of Productivity. These examples illustrate the impact of key emerging technologies in the near term and the longer term.

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### Related Research

- "Hype Cycle for Emerging Technologies, 2016"

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### Select & Analyze: Qualifying & Selecting Technologies

Leverage a Priority Matrix to Put Technologies Into Context

<table>
<thead>
<tr>
<th>benefit</th>
<th>years to mainstream adoption</th>
<th>6 to 10 years</th>
<th>more than 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>transformational</td>
<td>less than 2 years</td>
<td>Machine Learning</td>
<td>3D Printing, Autonomous Vehicles, General-Purpose Machine Intelligence, Human Augmentation, Neuromorphic Hardware, Smart Dust</td>
</tr>
<tr>
<td>high</td>
<td>2 to 5 years</td>
<td>5G, 11.1 Sim</td>
<td>Quantum Computing</td>
</tr>
<tr>
<td>moderate</td>
<td>5 to 10 years</td>
<td>Affective Computing, Gesture Control Devices, Virtual Reality</td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>more than 10 years</td>
<td>Brain-Computer Interface, Enterprise Taxonomy and Oncology Management, Volumetric Displays</td>
<td></td>
</tr>
</tbody>
</table>

As of July 2016
## Select & Analyze: Qualifying & Selecting Technologies

Qualify Technologies by Assessing Their Opportunities and Threats

### Candidate Technologies

#### Emergent Disruption
- **Societal**
  - Majority of population will live in cities
- **Business**
  - Millennial workforce
- **Technology**
  - Drones

#### Potential Opportunities
- **Societal**
  - Higher market potential
  - Effective asset deployment
  - Take share from smaller players
- **Business**
  - Drive innovation
  - Build future leaders
- **Technology**
  - Faster and more reliable property appraisal
  - Fraud detection on foreclosures

#### Challenges
- **Societal**
  - Higher operating costs
  - Competition
  - Rural operations?
- **Business**
  - Traditional workplace
  - Competing for talent
- **Technology**
  - Airspace regulations
  - Customer privacy

---

Highly Applicable Technologies Affected by Market Disruptions
Select & Analyze: Recommendations

- **Always put into context.** Use technology profiles to understand a technology's applicability to the company.

- **Analysis on priority technologies.** For each technology that qualifies for analysis develop and maintain a technology profile.

- **Pick the right analysis approach for the right result.** Pick the participants, engagement type and level of depth based on value potential and strategic relevance of the emerging technologies.

- **Engage business partners early and often.** Educate with technology profiles in community forums, 1:1s, or special sessions.

- **Comprehensive analysis.** Strategic relevance, value potential, risks and disruptive impact are a few aspects that are important.
Recommend: Create Radar

Scan

Refine

Select & Analyze

Recommend
Recommend: Create Radar

Select Technologies and Trends

Candidate Technology Profiles

Market Business Scenarios

Emerging Technology Radar

Analyze Market Findings

Communications & Education

Trendspotting Newsletter

Quarterly Emerging Technologies Radar Publication

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Recommend: Steps to Create Radar

1. **Establish workshop.** Gather technology scouts with other key business decision makers to use the candidate technologies to build the radar.

2. **Analyze candidate technologies.** Facilitator uses a physical radar construct (large printout, whiteboard or easels) for participants to plot final candidate technologies with Post-it notes.

3. **Iterate with rank and scoring.** Iterate to group, consolidate and remove technologies along with using a preferred method of evaluating the final technologies.

4. **Postworkshop.** The final handwritten results are used to revise or create a new emerging technologies radar after the workshop.
Recommend: Component Overview
Four Components of the Emerging Technology Radar

Rings of Relevance
The radar has four rings. The nearest to the center is the most strategically relevant, and as the rings go out, the less relevant these technologies are to the company.

Zones of Topics and Themes
Specific zones can be optionally defined based on generic technology relationships or meaningful zones to your business, such as strategic themes or major areas of business.

Icons of Risk Factors
Pick easy-to-understand and simple icons to quickly convey meaningful data about these technologies. Simplicity is key because these icons should answer top-of-mind concerns for your stakeholders. Below are some examples of common icons:

- High Regulatory Impact
- Ethical/Social/Readiness
- Competitive/Monetary

Blips of Technology Value Potential
Continuing with the radar theme, "blips" are the specific emerging technologies. Size denotes the level of anticipated value potential of a given emerging technology. This isn't an absolute but an educated hypothesis based on analysis.

- Transformational
- High
- Moderate
Radar Recommendations

- **Use what works for you.** Find the right methods that fit the culture of the company rather than a prescriptive approach. Building an emerging technologies radar is a creative process and isn't meant to be created in only one way.

- **Stay up-to-date.** Innovation leadership team validates, prioritizes and nominates candidate emerging technologies monthly.

- **Keep the technology out.** To foster better idea generation, use manual methods including whiteboards, easels and Post-it notes.

- **Frequent refinements.** Consider publishing your emerging technologies radar on a quarterly or biannual basis.

- **Break into small working teams.** Smaller working teams of two to three often enable better collaboration and yield higher results.
Wrap-Up: How Radars Fit Into Trendspotting

Continuous Radar Refinements
- Revise radar quarterly
- Leverage in strategic planning and decision making
- Use in providing market intelligence to broader organization

Identifying Candidate Technologies
- Defined radar scope and sources
- Identified technologies and trends
- Creation of technology profiles

Create the Radar
- Create radar with final technologies and with innovation leaders
- Leverage in ideation workshops

Qualifying & Selecting
- Classify technology based on business impacts and applicability
- Create points of view (PoVs) on key technologies
- Create impact appraisals

Scan
Refine
Select & Analyze
Recommend

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- Leveraging Enterprise Architecture to Enable Business Value With Smart Machine Innovations Today
- Leveraging Enterprise Architecture to Identify Business Opportunities in a Computing-Everywhere Future
- Enterprise Architects Should Leverage a Risk-Based Approach to Understand Security in the Digital Business Ecosystem
- Toolkit: EA Identifies Transformational Digital Disruptions Through Strategic Value Assessments
- Toolkit: Workshop for Creating EA Personas in Digital Business Diagnostic Deliverable Analysis

My Latest Research

- Emerging Technology Hype Cycle, 2017
- Top 10 Strategic Technology Trends for 2017
- Information of Everything
- Advanced Machine Learning
- Autonomous Agents and Things
- Advanced System Architecture
- Vanguard Enterprise Architects Will Lead Bimodal Mode 2 Innovations
- Using Enterprise Architecture to Maximize Cloud Strategy Business Outcomes
- Toolkit: The Information Architect’s Playbook for EIM

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More Info