The Rise of Smart, Connected Products and the Challenge to Build Them

Scott Roth
CEO, Jama Software
7/12/17
Methodology and Survey Respondents

285 respondents from Harvard Business Review audience of readers

56% high-level executives

49% manufacturing, technology, healthcare, and financial services

Get the report: jamasoftware.com/HBR
Digital Transformation: Here and Now

86% of survey respondents said they’re either implementing digital products now or planning to do so in the future.

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
The Increasing Time-to-Market Pressure

- 80% are already experiencing somewhat or significantly increased time-to-market pressure.
- 89% expect increased pressure in the next 18 months.

**Source:** Harvard Business Review Analytic Services Survey, March 2017
They face pressure, both in front from the customer and from behind by the disruptor.

RICHARD PASTORE, THE HACKETT GROUP

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
From Marketing Tech to Product Development
Jama Software is the Product Development Platform for companies building software-driven, connected products.

- **80%** 4-Year Subscription Revenue CAGR
- **550+** Customers
- **140+** Employees
- **$30M** Capital Raised
Jama Product Development Platform

Platform
- Live, real-time traceability
- Product collaboration and reviews
- Reporting and analytics
- Test execution

Integration Hub & API's

Requirements Management
Test Case Management
Workflow Management
Compliance Management
Product Line Management
Top Five Challenges of Going Digital
AN EXECUTIVE-LEVEL PROBLEM
Top Challenges of Going Digital

FIGURE 3
GOING DIGITAL’S BIGGEST CHALLENGE
Percentage of respondents stating the biggest challenges that their product developers face in the application of digital technologies to the product/service development process

- While new smart products must work within a diverse ecosystem of other connected products, planning for those complex interactions is a challenge. 38%
- Traditional design methodologies for physical products often conflict with more agile methodologies required for digital transformation. 34%
- Hiring and/or training engineering talent for digital transformation are difficult. 24%
- With sensors gathering large amounts of customer data, planning to manage and secure this data requires a serious effort. 24%
- The methodologies for co-developing physical products that are digitally transformed are still immature. 20%
- The tools for co-developing physical products, software, and other digital elements are still immature. 18%
- The sensors, software, platforms, and other components for digital transformation change too quickly and unpredictably. 14%
- Engineers who work on physical products don’t communicate well with software (digital) engineers, and vice versa. 10%

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
While new smart products must work within a diverse ecosystem of other connected products, planning for those complex interactions is a challenge.
Conflicting Methodologies

34%

Traditional design methodologies for physical products often conflict with more agile methodologies required for digital transformation.

There is a constant pull between the hardware and software teams, and their goals are not always the same.

Jonathan Sweedler, NVIDIA

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
Attracting Qualified Talent

24%
Hiring and/or training engineering talent for digital transformation is very difficult

54% Strongly or somewhat agree:
We often encounter difficulty recruiting and hiring qualified software engineers to implement digital technologies

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
Jama for Education
For students, the Jama platform reduces overhead in terms of structuring the information so they can focus on content creation and hence maximize learning.

DR. CÉCILE PÉRAIRE, CARNEGIE MELLON SILICON VALLEY
Managing and Securing Customer Data

24%

with sensors gathering large amounts of customer data, planning to manage and secure this data requires a serious effort.

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
Immature methods for co-developing digitally-infused physical products

20%

The methodologies for co-developing physical products, software, and other digital elements are still immature

SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
Top Challenges of Going Digital

1. Platform & ecosystem thinking
2. Conflicting methodologies
3. Attracting qualified talent
4. Managing and securing customer data
5. Immature methods for co-developing digitally-infused physical products
The Path To Building Better Products Faster
Adapting to Change

Percentage of respondents undertaking these activities to improve their ability to implement digital technologies in the next two years

- Partner with appropriate software or other companies to assist with our digital transformation: 52%
- Adopt new development methodologies that bridge the differences between physical product design and digital design: 45%
- Acquire appropriate software or companies that are a good fit: 35%

**SOURCE:** HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MARCH 2017
Three Keys to Success: Take a Systems Approach

Old Dumb Bulb

New Lighting Ecosystem

- LED illumination
- Radio, connectivity, embedded processor
- App to control hue
- Talks with home automation system to turn itself on and off automatically
- Orders replacement for itself
- Consumes 90% less power
Three Keys to Success: Unlock Collaboration

FORRESTER

State of Modern Product Delivery

87% of companies have multiple teams building their products
Three Keys to Success: Leverage Real Time Visibility & Information

When Bad Requirements Happen to Nice People

Rework can consume 30 to 50 percent of total development cost. Requirements errors account for 70 to 85 percent of the rework cost.
Leaders Unlocking Success
Leaders Unlocking Success

Panasonic

Schneider Electric

NVIDIA
Panasonic and the State of Colorado
NVIDIA
Key Takeaways

• The number of companies developing complex digital products is growing and it’s not going to stop

• Digital product design is still a young discipline and the pressure is increasing to get it right, quickly

• Top challenges of developing digitally infused physical products are company-wide & need executive-level support

• Winning organizations are digitally transforming their product development process into a competitive advantage
Thank you!

Get the Harvard Business Review Analytic Services report: jamasoftware.com/HBR