



Overcoming the Global Chip Shortage with Cross-Platform Development

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Qt

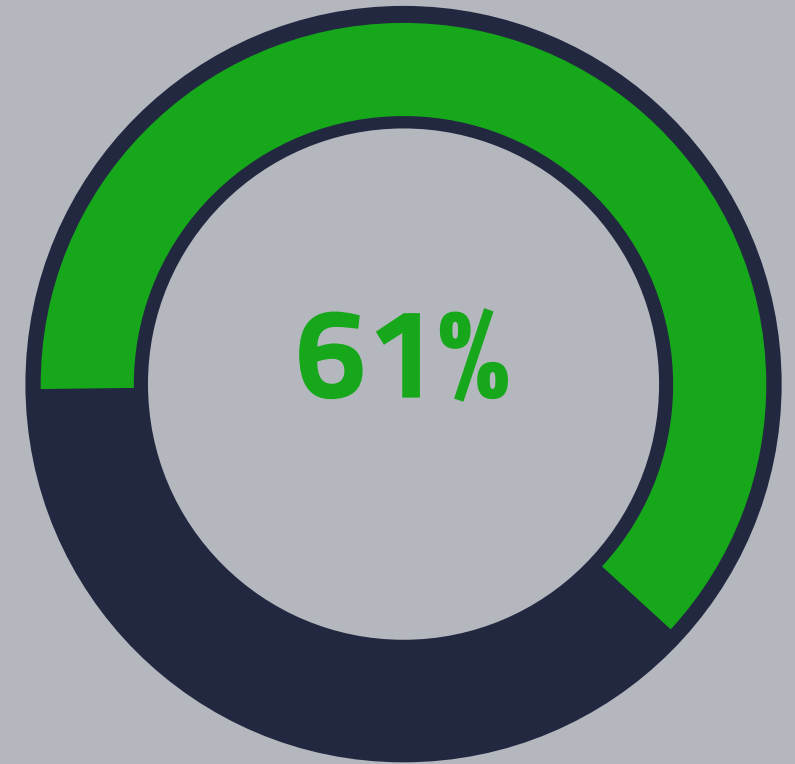


What other leaders think

“The current semiconductor shortage has negatively impacted our ability to deliver new products”

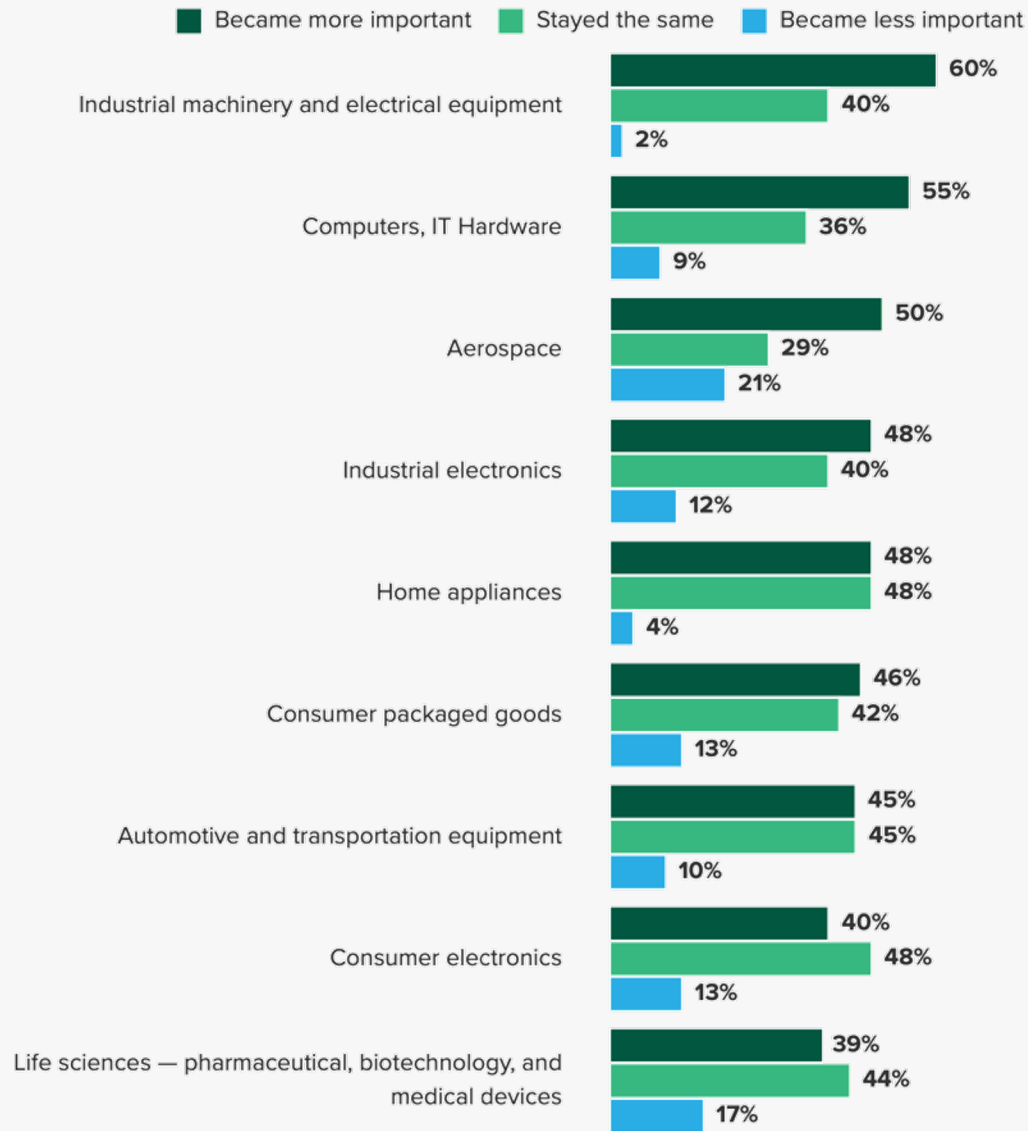
Source: Smarter Products Need Smarter Development, a commissioned study conducted by Forrester Consulting on behalf of Qt, May 2021

In this study, Forrester conducted an online survey of 262 embedded device and connected product development decision-makers at global enterprises to evaluate how companies are developing smart products. Survey participants included decision-makers in IT working at companies that are developing or planning to develop devices or products that require embedded software applications, connected products (designing and manufacturing internet of things-enabled [IoT-enabled] connected products and services), or devices or products that include digital user interfaces (e.g., touchscreens, digital displays). Questions provided to the participants asked about the development cycle, tools available to developers, and challenges. Respondents were offered an incentive as a thank you for time spent on the survey. The study began and was completed in March 2021.



 Agree or Strongly Agree



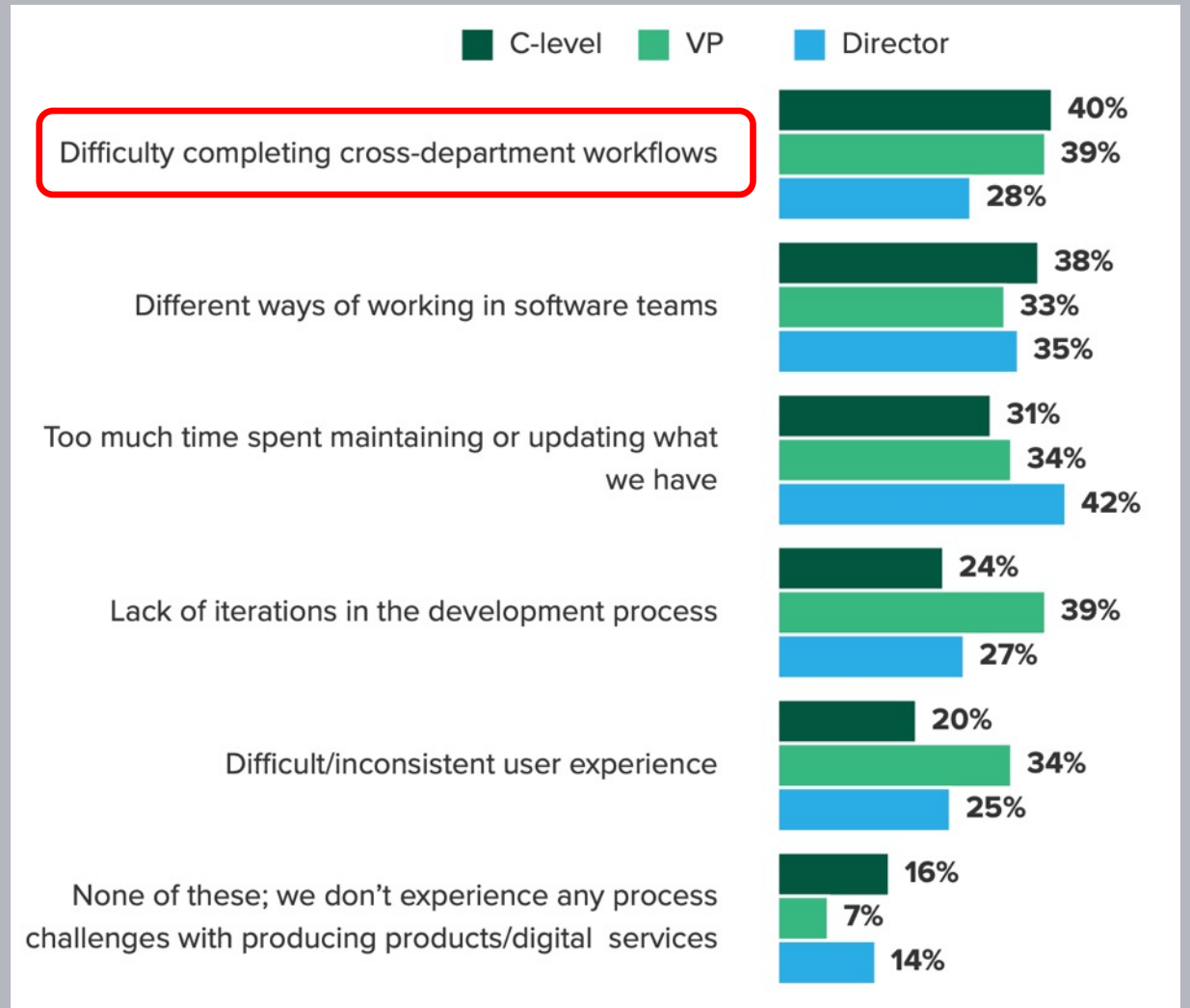


“Ensuring we have an adequate supply of semiconductors and other key hardware components for our products”



Source: Smarter Products Need Smarter Development, a commissioned study conducted by Forrester Consulting on behalf of Qt, May 2021

“What process challenges does your organization experience with producing products/digital services?”



Source: Smarter Products Need Smarter Development, a commissioned study conducted by Forrester Consulting on behalf of Qt, May 2021



1 Billion Devices

1 Million Users

5000 Customers

The Qt Company:
Enabling companies to
create industry-
leading products that
users love.



Software Development
Platform for Design,
Development, and
Testing.

Employees: 455

Revenue: 79,5 m

Growth: 28%



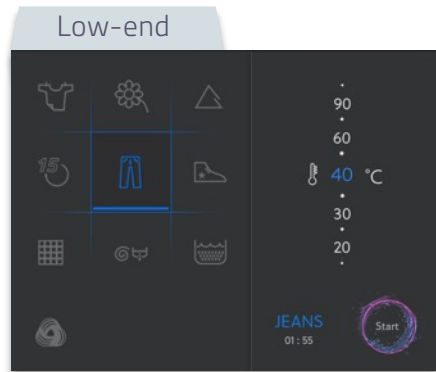
How to overcome future chip shortages?

Chipset Independence

- ➔ Cross-platform development supporting the separation of UI modelling, application logic & hardware-specific capabilities
- ➔ Code once, Deploy everywhere



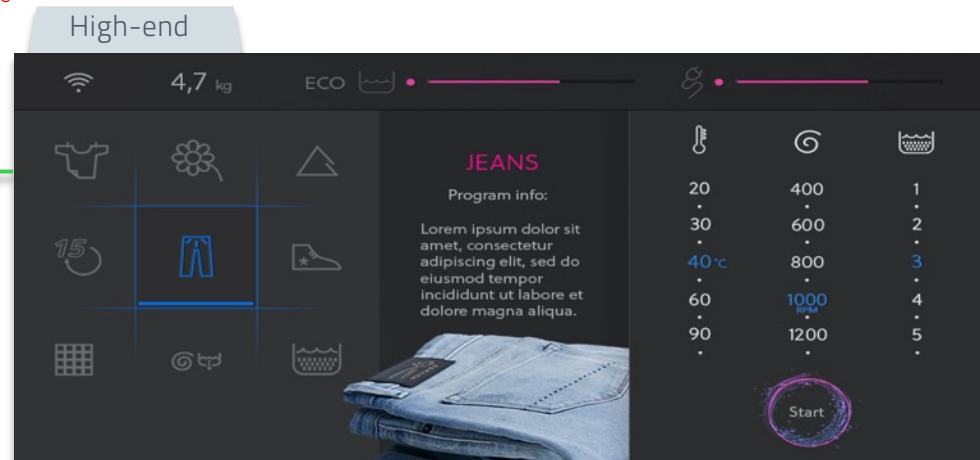
Effective Portfolio Development



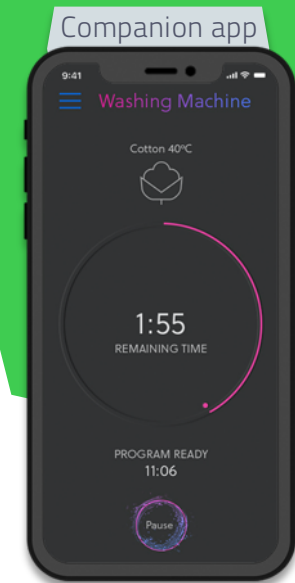
Cortex-M4 MCU (<10 EUR BOM) – 640x480



ARMv7A 32bit low end MPU (<30 EUR BOM) – 854x480



ARM-v8A 64bit Quad Core high end MPU (<100 EUR BOM) – 960x480



Qt Modelling Language (QML)

Declarative UI
Modelling:

Describes what the
outcome should
look like.

Imperative UI
Modelling:

Describes how the
outcome should be
built.

Cross-Platform Development

- › Qt supports different OS for embedded devices: eLinux, QNX, Integrity, RTOS, ...
- › Qt offers ready reference software images for various chip technologies: Intel, ARM, STI, Nvidia, Windriver, Qualcomm, NXP, ...
- › Other technologies can be supported as Professional Service



Qt Rendering Hardware Interface

Graphics abstraction layer allowing you to run your UI on different technologies without coding it again: Vulkan, Direct 3D, OpenGL, Metal

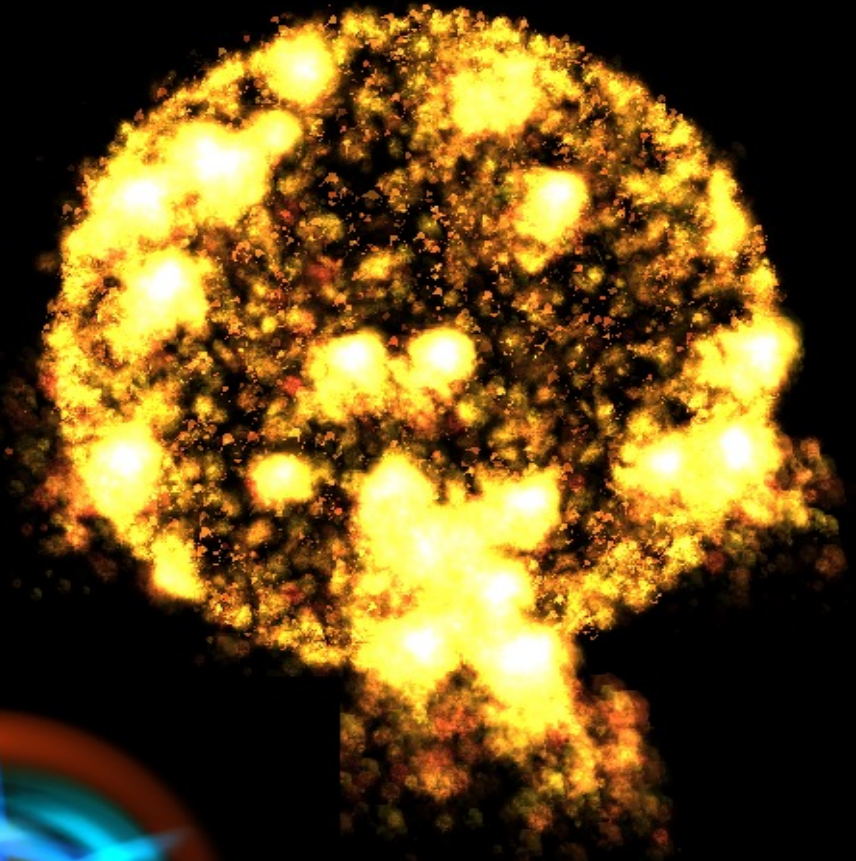
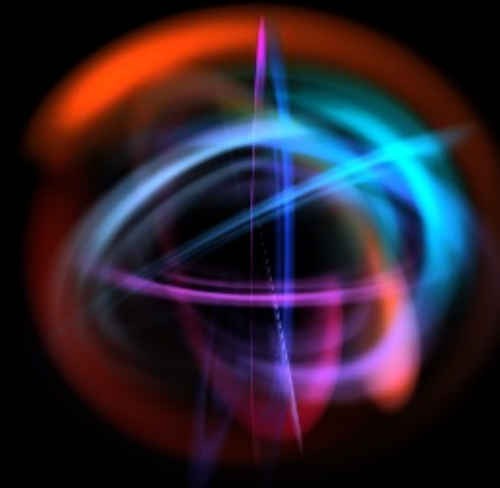


Qt Shader Tools

Abstraction layer for hardware-accelerated drawing of surfaces, light, shadows, etc.

Different chips “speak” different languages:

- › OpenGL Shading Language (OpenGL)
- › High Level Shader Language (Direct3D)
- › Metal Shading Language (Metal)



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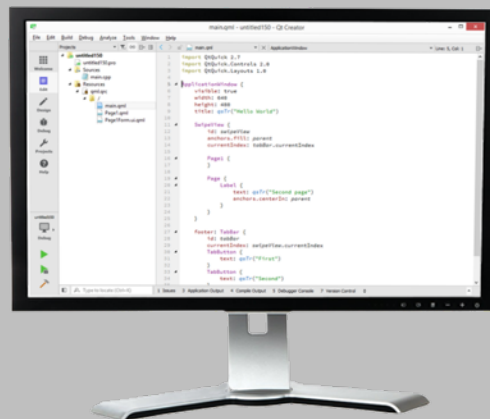


Design



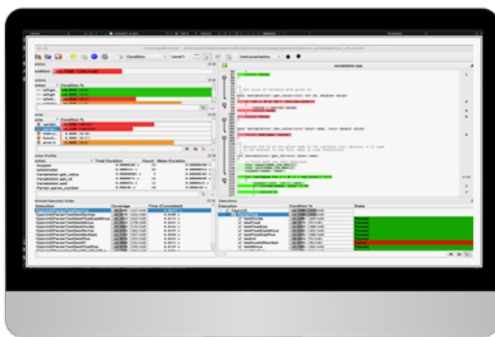
Qt Design Studio

Develop

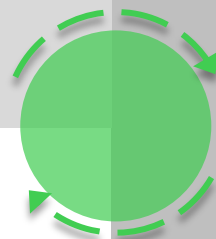


Qt Creator IDE

Test



Squish, Qt Test, Coco



Enabling Collaborative, Iterative Development

Mercedes Benz

MBUX





Fresenius

Dialysis Machines



▶ HomeChef App

▶ Coffee Machine

▶ Smart Watch

Yuneec Drone

▶ Home Thermostat

75

LG TV

Consumer Electronics



Take the first step to chip independence

Making it Happen

Start Small:

- › Arrange Cross-Platform Development workshop with Qt Professionals

Identify:

- › Future software architecture options
- › Effective product development organization opportunities

Plan for:

- › Proof-of-Concept



Summary

- › Cross-platform development increases chips independence
- › Integrated software platforms increase agility



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