Arm Limited
Q1 2019 Roadshow Slides
Technology trends that will redefine all industries

Artificial Intelligence in every device

Autonomous machines

Augmented reality

Hyperscale cloud and connectivity

Security and Privacy
Arm defines the technology that will redefine all industries

<table>
<thead>
<tr>
<th>Feature</th>
<th>Mobile and Consumer</th>
<th>Networking and Servers</th>
<th>Automotive and Robotics</th>
<th>Internet of Things</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial Intelligence in every device</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Autonomous machines</td>
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</tbody>
</table>
Arm introduction

- Global leader in technology licensing
  - R&D outsourcing for semiconductor companies

- Innovative business model
  - Upfront licence fee – flexible licensing models
  - Ongoing royalties on customer sales
  - Technology can be reused across multiple applications

- Long-term, secular growth markets
Arm’s business model

- Arm develops technology that is licensed to semiconductor companies
- Arm receives an upfront license fee and a royalty on every chip that contains its technology
Arm’s strategy

• Maintain or gain share in long-term growth markets
  • From mobile phones to networking infrastructure and servers to embedded smart devices and automotive

• Increase value of Arm technology per smart device
  • Invest in developing more advanced processors with higher royalty rates
  • Physical IP and multimedia IP further increase Arm's value per chip

• Explore and exploit new opportunities in emerging applications created by the Internet of Things

• Invest to create a sustainable business, fit for the long term
  • Create superior returns by developing new technology that will deliver increased profits and cash generation in the future
Arm’s main growth markets

Mobile and Consumer Devices

- Smartphones, tablets and laptops
- Apps processor, modem, connectivity, touchscreen and image sensors
- Growth coming from higher-value Arm technology such as Arm v8-A, more cores per chip, multimedia

$108bn
TAM 2028

Networking & Servers

- Base stations, routers, switches, and servers for cloud and data centres
- Networks evolve to cope with increased data at lower latency: virtualisation, integration and programmability
- Most major chip vendors have announced Arm-based products

$48bn
TAM 2028

Embedded Markets

- Automotive, white-goods, wearables, smart devices in industrial and utilities
- Microcontrollers, smartcards, embedded connectivity chips
- Over 300 companies have licenced Arm processors for use in embedded computing devices

$94bn
TAM 2028
History of Arm

Joint venture between Acorn Computers and Apple

1990

Designed into first mobile phones and then smartphones

1993 onwards

Now all electronic devices can use smart Arm technology

Today
Arm-based chip shipments

>150bn  33%

Arm-based chips shipped to date  Market share in 2018*

22.9bn  21.3bn

* Note that market share is lower than previously shown as market definition has been expanded.
Q1 Licensing: 28 is within the normal range

In June 2017, Arm introduced the DesignStart Pro (DS Pro) program which makes some Cortex-M processors available but for no upfront fee. These are not included in the licensing count.

In Q1, 31 DS pro licenses were signed for Cortex-M processors.
Licensing enables future royalties

- Arm signed 28 processor licences in Q1 2019
- Arm’s current royalty revenues are derived from licences signed many years ago
- Growing base yields royalty revenues over long period

>30% of Arm’s most recent licences are drivers of future royalty revenue

Significant Royalty Potential from Recent Licences

~600 licences signed since Q1 2015
### Arm’s expanding opportunity

<table>
<thead>
<tr>
<th>Category</th>
<th>2018 Market Share</th>
<th>2018 Market Value</th>
<th>2028 Market Value</th>
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<tbody>
<tr>
<td>Mobile</td>
<td></td>
<td></td>
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<tr>
<td>Applications processor</td>
<td>90%</td>
<td>$34bn</td>
<td>$47bn</td>
</tr>
<tr>
<td>Other mobile chips</td>
<td>40%</td>
<td>$18bn</td>
<td>$23bn</td>
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<tr>
<td>Infrastructure</td>
<td></td>
<td></td>
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<tr>
<td>Networking</td>
<td>30%</td>
<td>$15bn</td>
<td>$20bn</td>
</tr>
<tr>
<td>Data Center/Cloud</td>
<td>4%</td>
<td>$20bn</td>
<td>$28bn</td>
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<tr>
<td>Automotive</td>
<td></td>
<td></td>
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<tr>
<td>IVI and ADAS</td>
<td>75%</td>
<td>$7bn</td>
<td>$19bn</td>
</tr>
<tr>
<td>Other automotive chips</td>
<td>10%</td>
<td>$5bn</td>
<td>$12bn</td>
</tr>
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</table>

- **Other mobile chips** refer to applications processor and other mobile chips.
- **Other automotive chips** refer to IVI and ADAS and other automotive chips.

**Market Values:**
- **2018:** $34bn (Applications processor), $18bn (Other mobile chips), $15bn (Networking), $20bn (Data Center/Cloud), $7bn (IVI and ADAS), $5bn (Other automotive chips)
- **2028:** $47bn (Applications processor), $23bn (Other mobile chips), $20bn (Networking), $28bn (Data Center/Cloud), $19bn (IVI and ADAS), $12bn (Other automotive chips)
## Arm’s expanding opportunity

### 1. Embedded
- **Controller in IoT Devices**
  - Market Share: 90%
  - Market Value: $7bn
- **Microcontrollers/SIM Cards**
  - Market Share: 25%
  - Market Value: $18bn

### 2. Other Markets
- **Consumer Electronics**
  - Market Share: 40%
  - Market Value: $12bn
- **Other chips**
  - Market Share: 35%
  - Market Value: $15bn

### 3. Total Market
- **All chips with processors (current TAM)**
  - Market Share: 33%
  - Market Value: $150bn
- **All addressable chips (future TAM)**
  - Market Share: 25%
  - Market Value: $165bn

### Future Projections (2028)
- **Controller in IoT Devices**
  - Market Share: 90%
  - Market Value: $20bn
- **Microcontrollers/SIM Cards**
  - Market Share: 25%
  - Market Value: $22bn
- **Consumer Electronics**
  - Market Share: 40%
  - Market Value: $37bn
- **Other chips**
  - Market Share: 35%
  - Market Value: $21bn
- **All chips with processors (current TAM)**
  - Market Share: 33%
  - Market Value: $250bn
- **All addressable chips (future TAM)**
  - Market Share: 25%
  - Market Value: $270bn
Arm's current business

Arm primary business is the development of **intellectual property** (IP) blocks which are used in silicon chips.

Our partners combine Arm IP with their own IP to create complete chip designs.

We earn **license fees** when we deliver Arm IP to our partners and **royalties** when our partners ship chips that contain Arm IP.

Highly **profitable and cash generative**.
Accelerating investment to increase share gains

Generating profits and cash to be reinvested

Investing in new processor technology

- Machine learning processors
- Computer vision
- Augmented reality
- Platform security

Investing in new IoT software and services

- Device Management
- Connectivity as a Service
- Data Management as a Service
- Pelion platform
Pelion – Combining physical and digital insights

- Simplifying deployment and enabling scale
Return on Investments – Arm v8-A case study

- Arm incurs R&D costs many years before revenue starts

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2000</td>
<td>Research into 64-bit computing started.</td>
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<tr>
<td>2008</td>
<td>Arm v8-A Development starts.</td>
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<tr>
<td>2011</td>
<td>Architecture development and processor design.</td>
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<td>2015</td>
<td>First generation of processors.</td>
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<tr>
<td>2018</td>
<td>Multiple processors in development.</td>
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• **Revenues, investments and profits**

  Until 2016 revenues grew faster than costs as Arm constrained investment in R&D to enable increasing profits

  For the current phase of investment Arm expects costs to grow faster than revenues

  This should yield even greater profits in the future

  Note: Headcount in 2018 excludes 341 employees transferred to Arm China Joint Venture in June. By the end of Fiscal 2018, Arm China had 439 employees
### Arm Investor Relations Contact

<table>
<thead>
<tr>
<th>Contact</th>
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<th>Contact</th>
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<tbody>
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More content available on

- Arm’s website: [arm.com/ir](https://arm.com/ir)