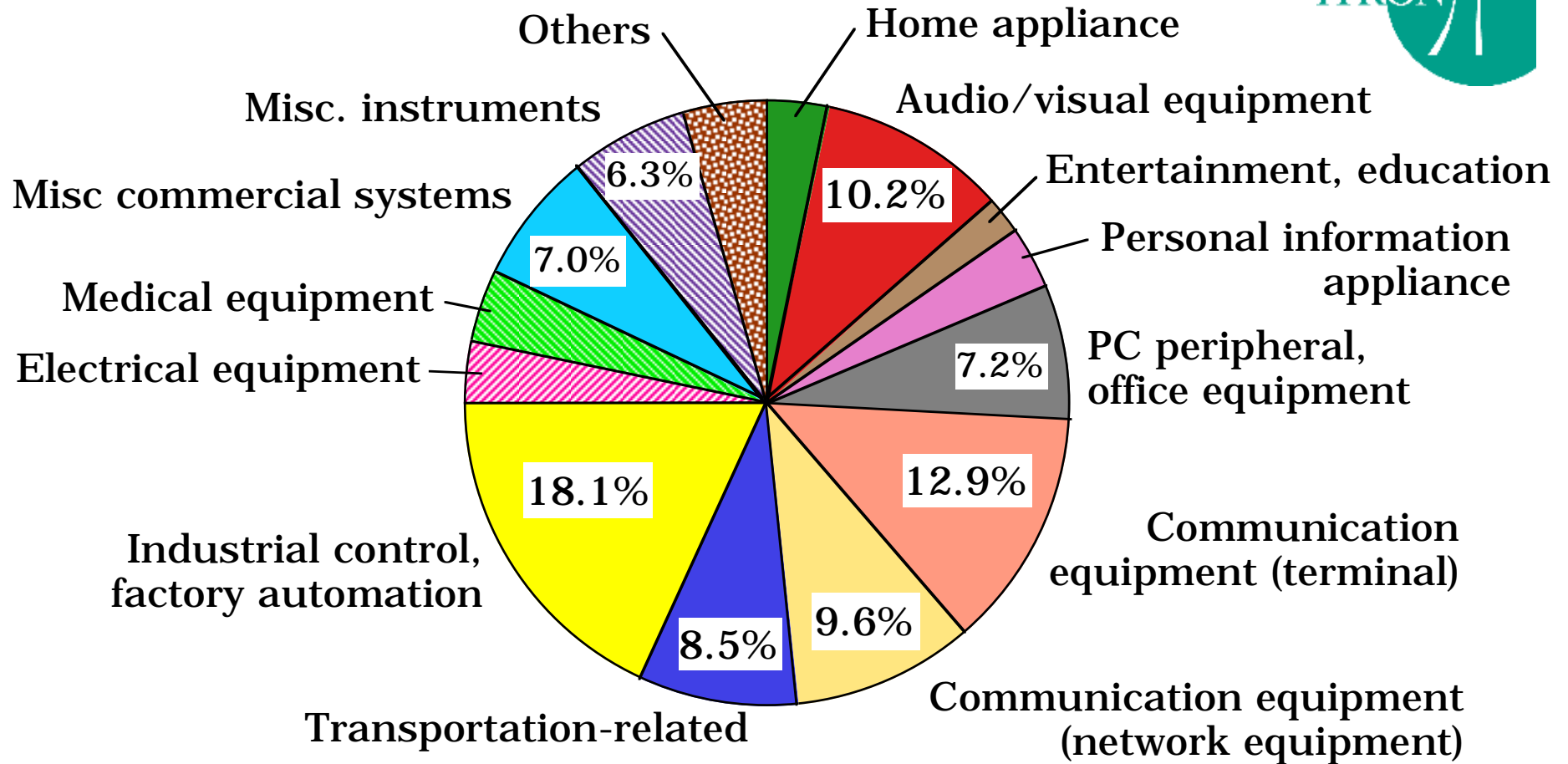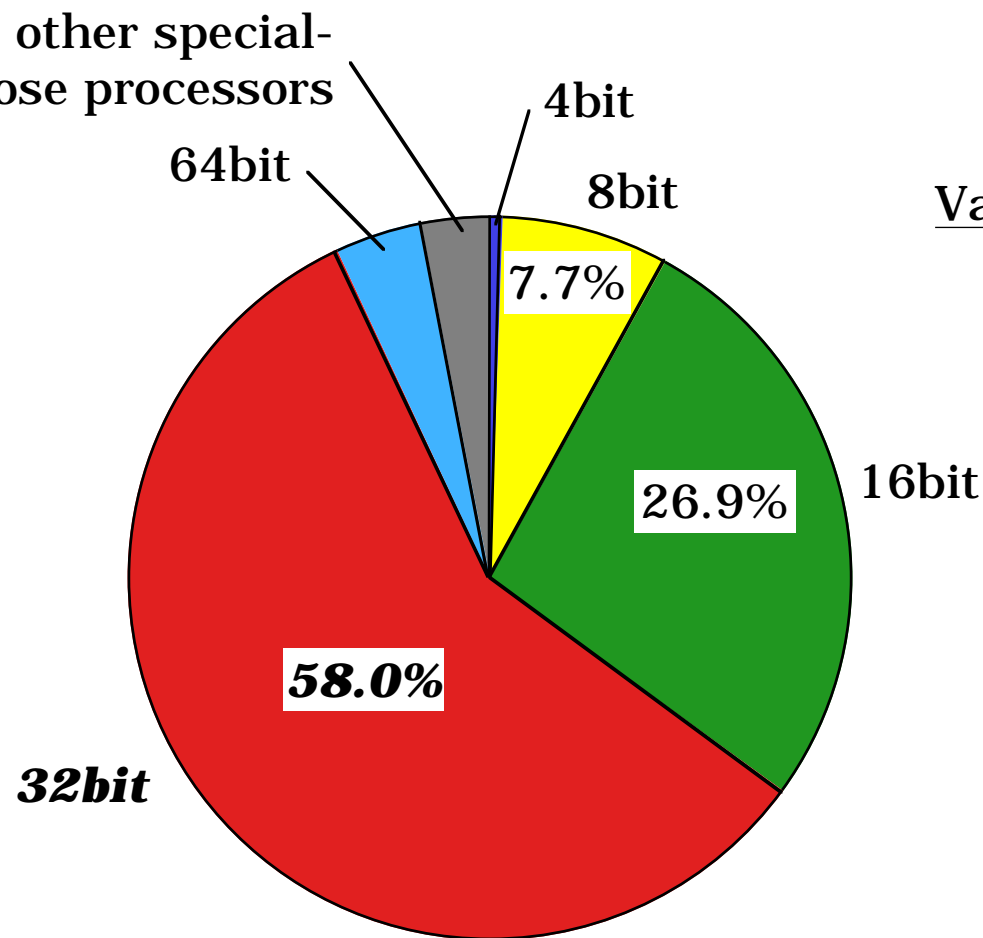Valid answers: 684
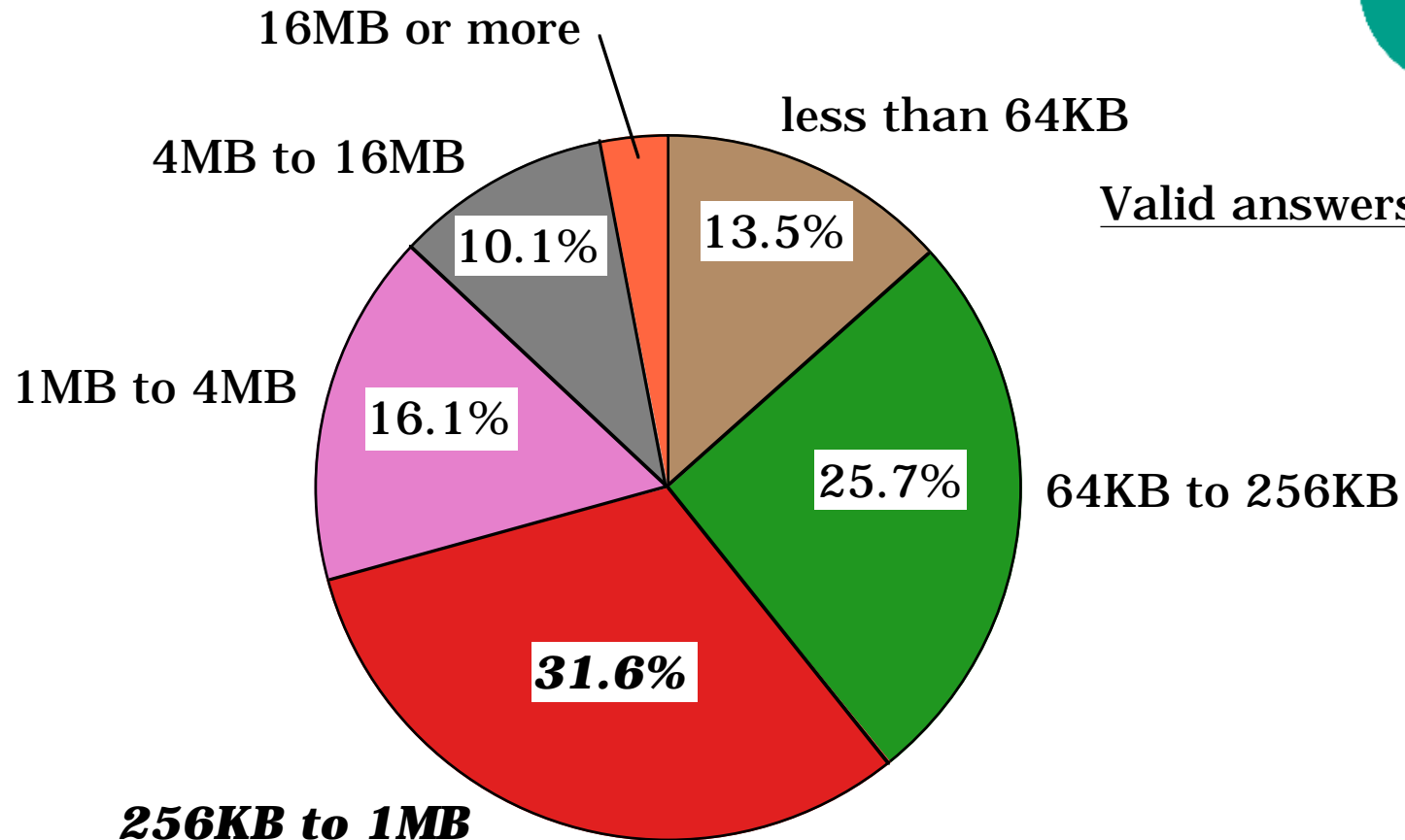
Application Fields of Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

DSP and other special-purpose processors

64bit

4bit

8bit

7.7%

Valid answers: 684

26.9% 16bit

58.0%

32bit

CPU Used in Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

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16MB or more

less than 64KB

Valid answers: 684

4MB to 16MB

10.1%

13.5%

1MB to 4MB

16.1%

25.7%   64KB to 256KB

31.6%

256KB to 1MB

Program Size in Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

Programming Language Mainly Used
for Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON

C++ (including Embedded C++)

Java

Others

Assembly language

Valid answers: 684

7.3%

10.5%

80.1%
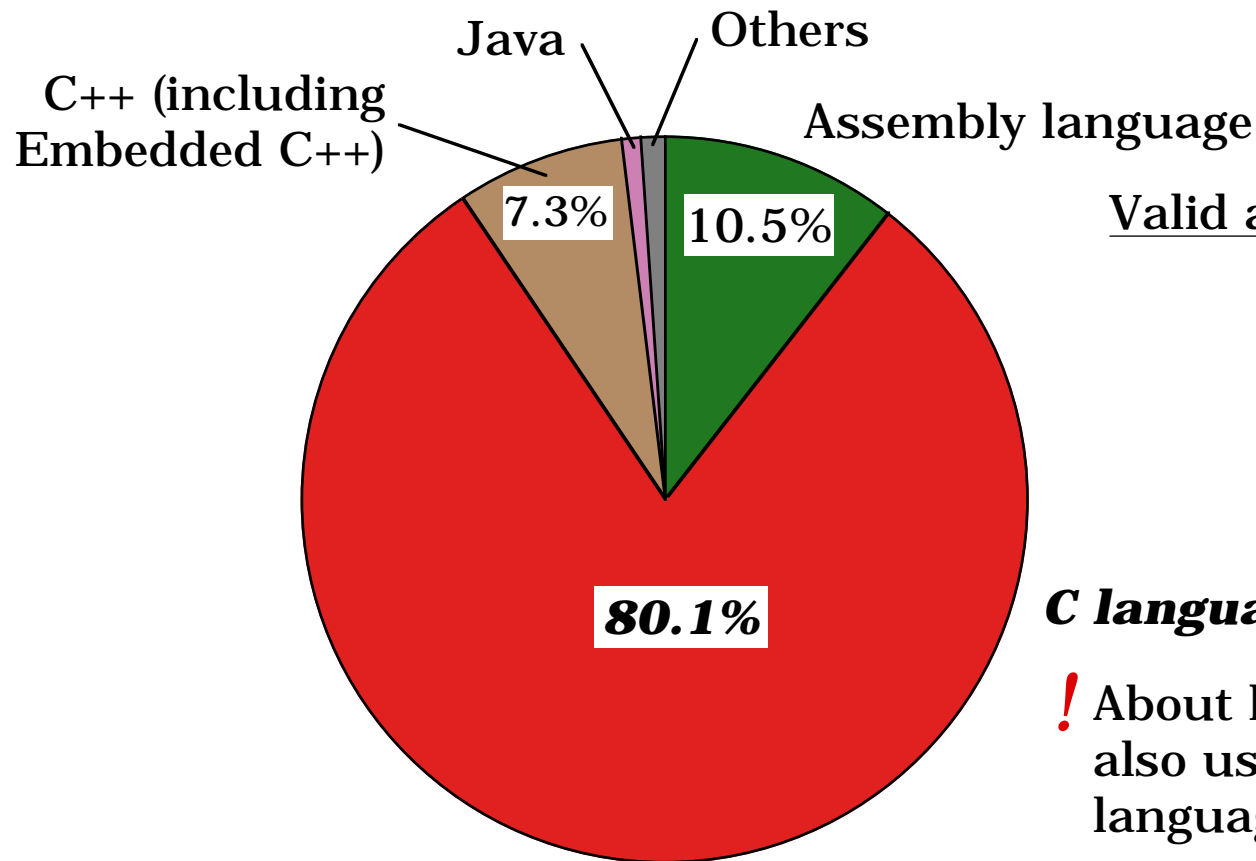
C language

! About half of them also use assembly language

OS not used because it is not necessary **18.7%**

In-house OS **22.2%**

Valid answers: 684

OS not used because of a problem **3.1%**

13.9%

OS from chip makers **16.2%**

Other commercial OS

Linux

OS-9

QNX

pSOS

Nucleus Plus

VxWorks

Windows 3.1/95/98/NT/2000

MS-DOS

Windows CE
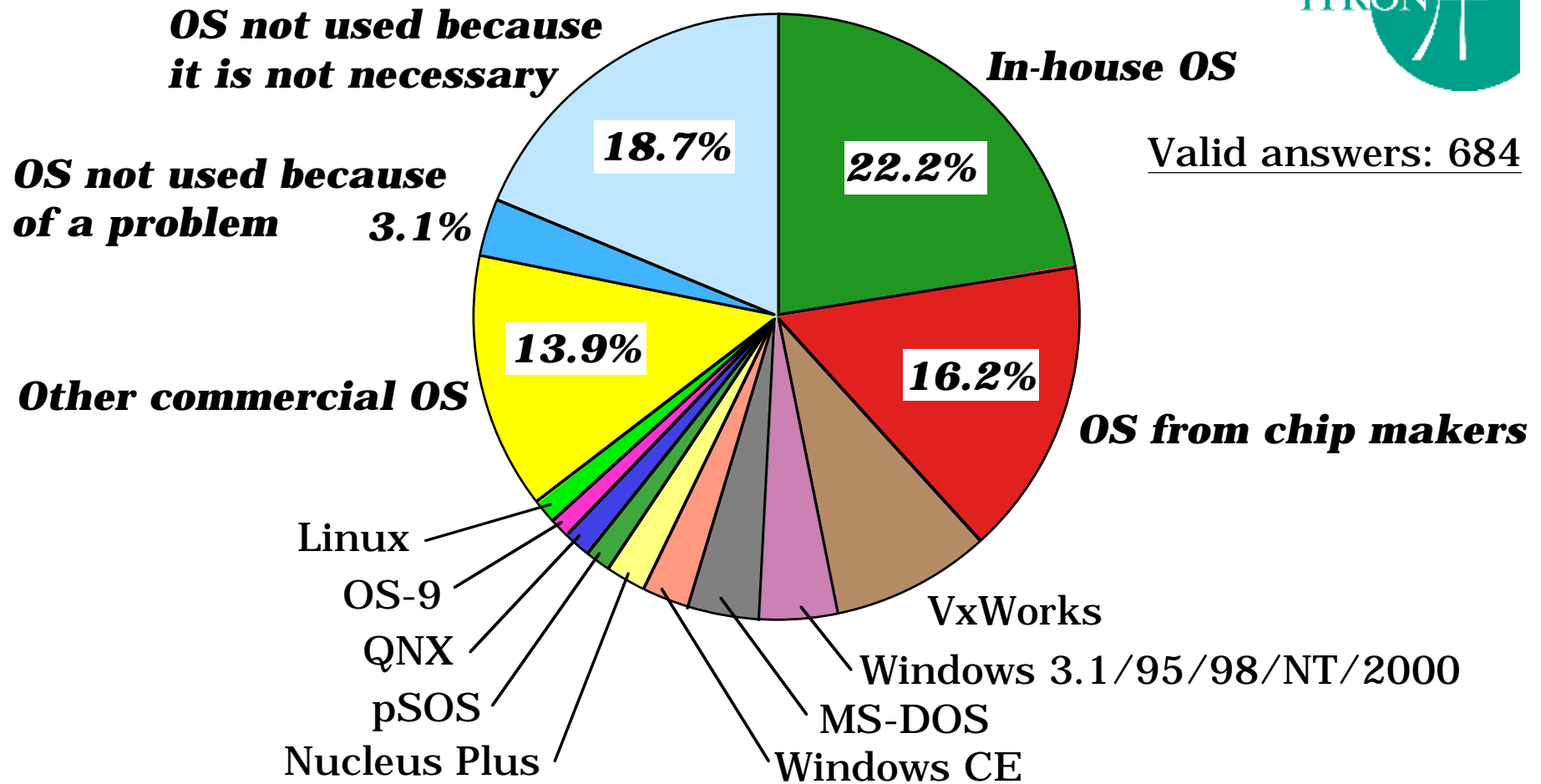
OS Embedded in Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association
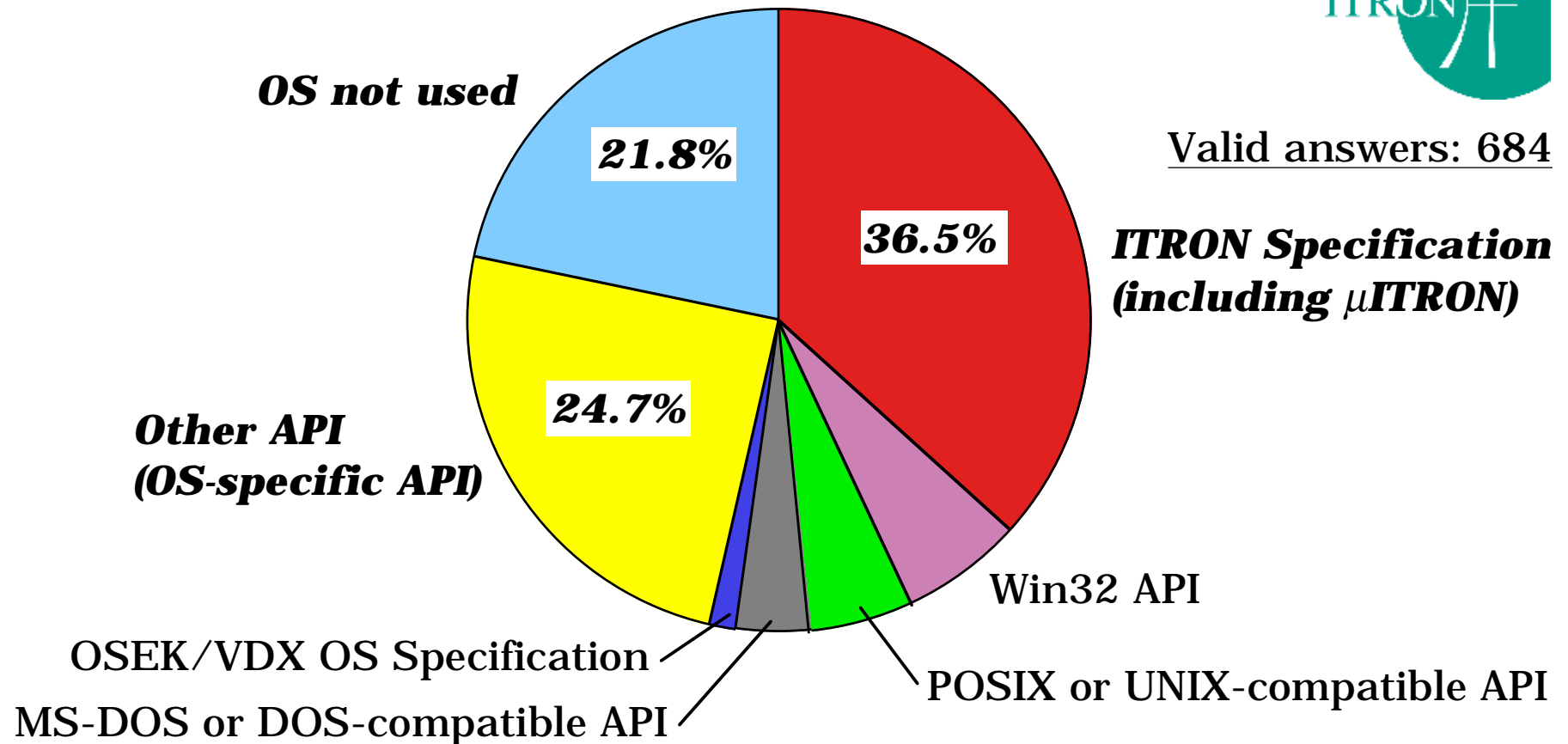
ITRON

OS not used

21.8%

36.5%

Valid answers: 684

ITRON Specification (including μITRON)

Other API (OS-specific API)

24.7%

Win32 API

OSEK/VDX OS Specification

MS-DOS or DOS-compatible API

POSIX or UNIX-compatible API

<u>OS API Mainly Used</u>
for Recently Developped Embedded Systems
(TRON Association Survey, late 1999 - early 2000, Japan)

Embedded OS for Each Application Field
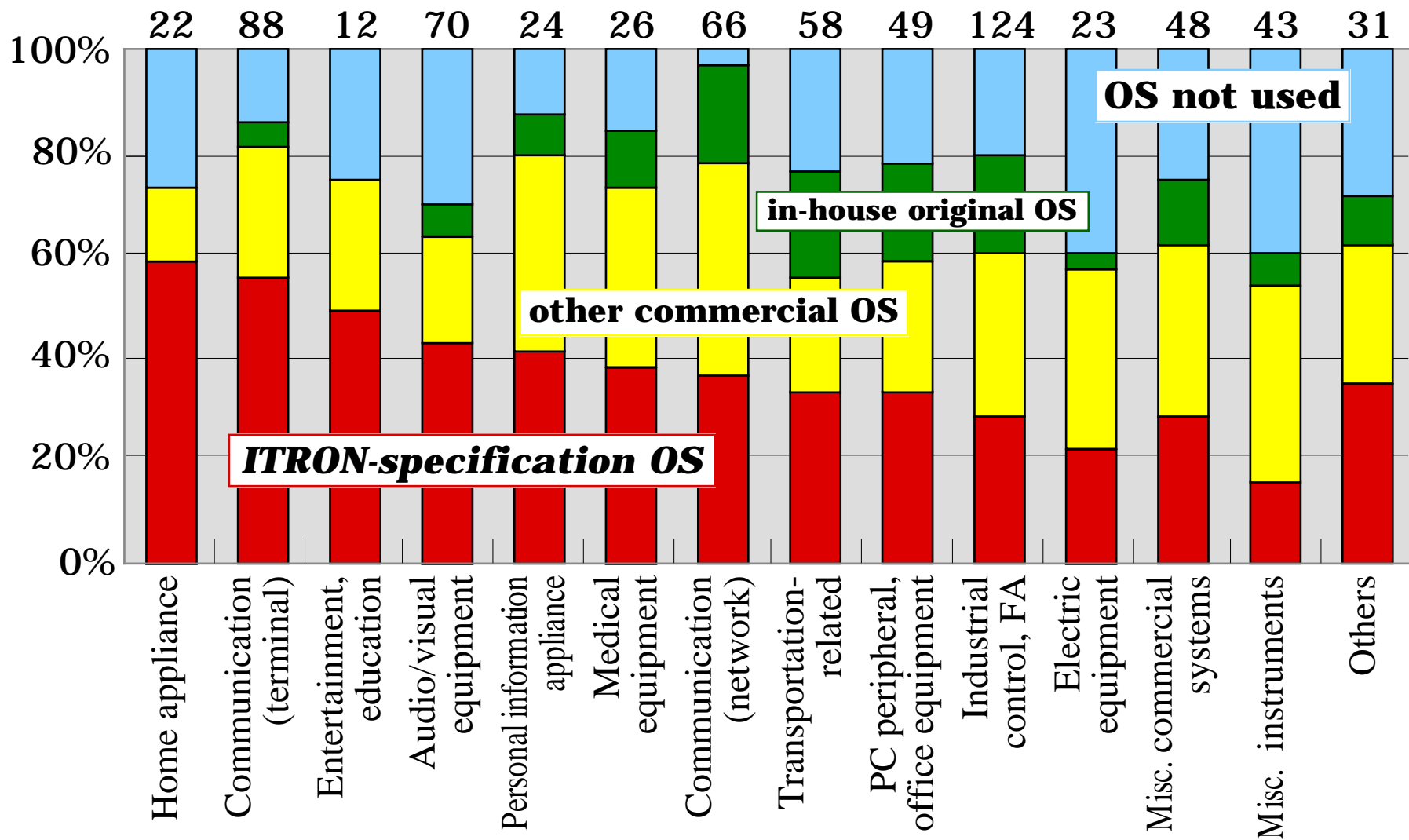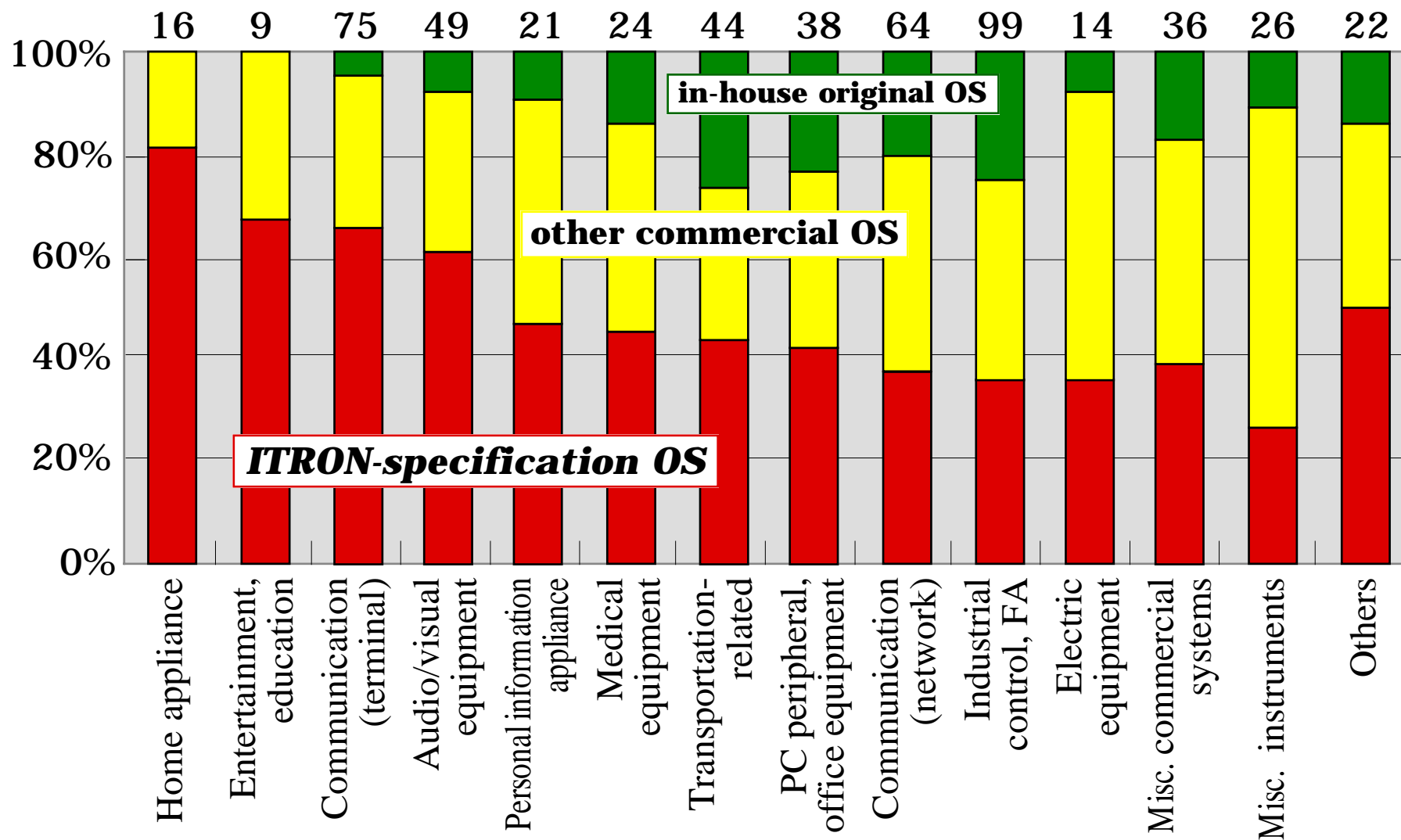(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

Embedded OS for Each Application Field (without "OS not used")
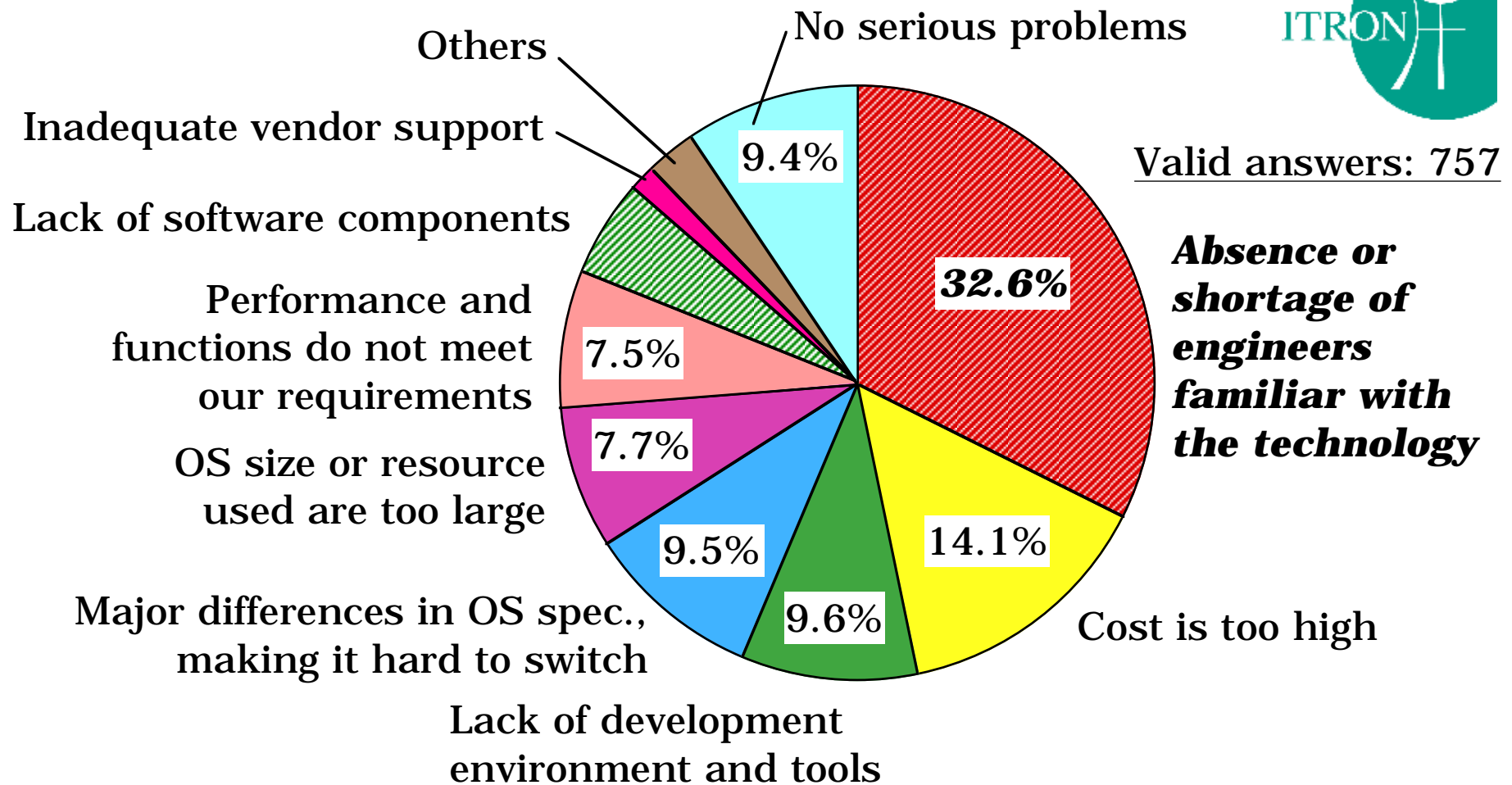(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association
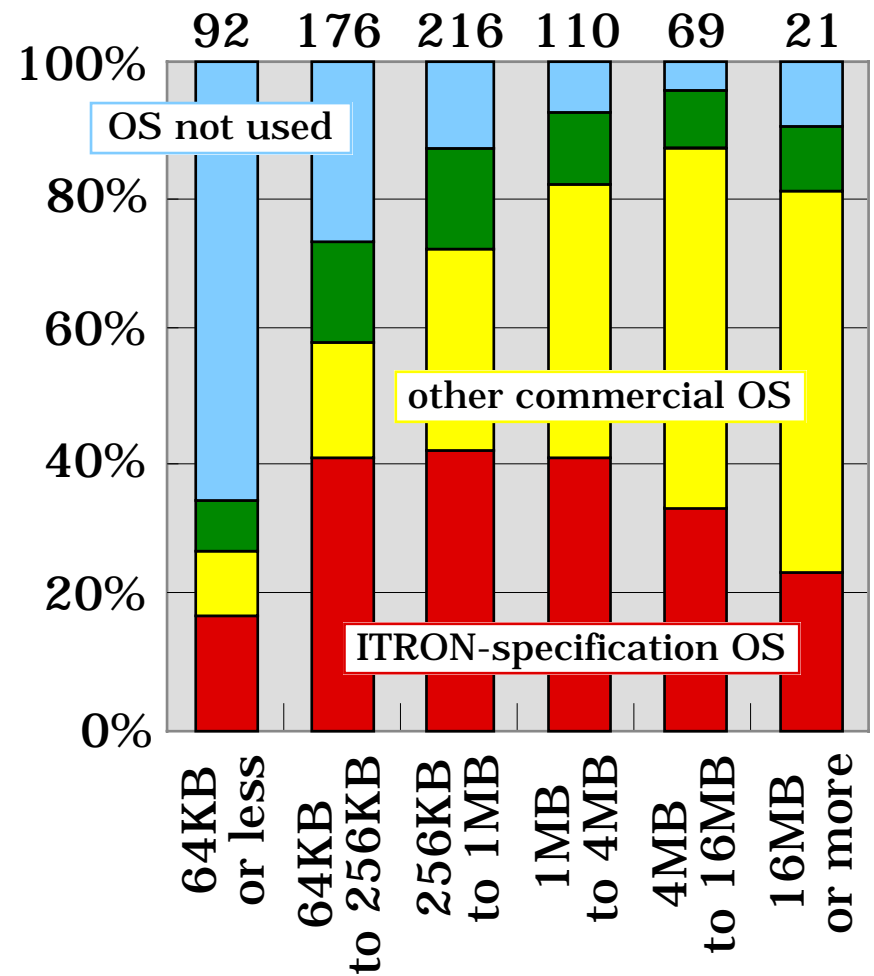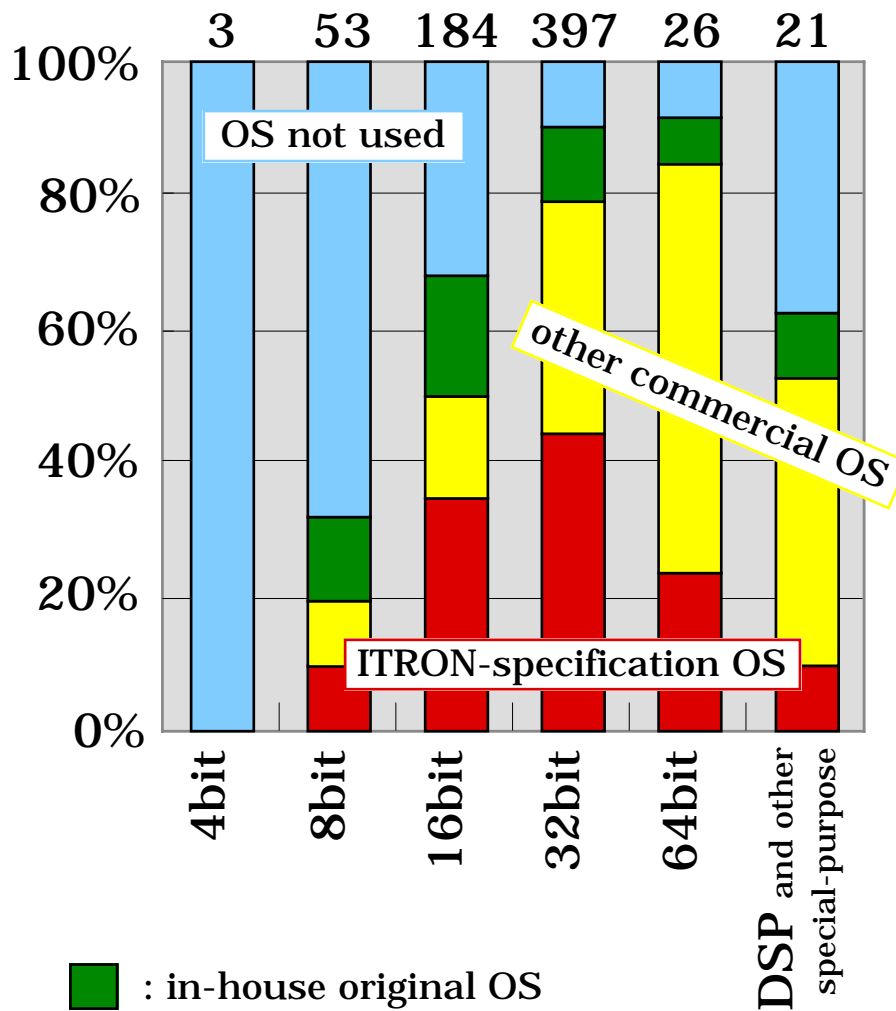
Embedded OS for Each CPU / Program Size
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

Others

No serious problems

Inadequate vendor support

ITRON

9.4%

Valid answers: 757

Lack of software components

32.6%

Absence or shortage of engineers familiar with the technology

Performance and functions do not meet our requirements

7.5%

OS size or resource used are too large

7.7%

14.1%

9.5%

Major differences in OS spec., making it hard to switch

9.6%

Cost is too high

Lack of development environment and tools

Most Serious Difficulty in Using an RTOS
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

Wealth of functions

Good development environment and toos

Many engineers are familiar with it

High performance

Support a wide rage of processors

Small OS size and resource use

Others

No clear advantages

Valid answers: 638

Software portability is good

30.8%

7.6%

11.8%

14.5%

20.0%

Low cost

The specification is easy to understand
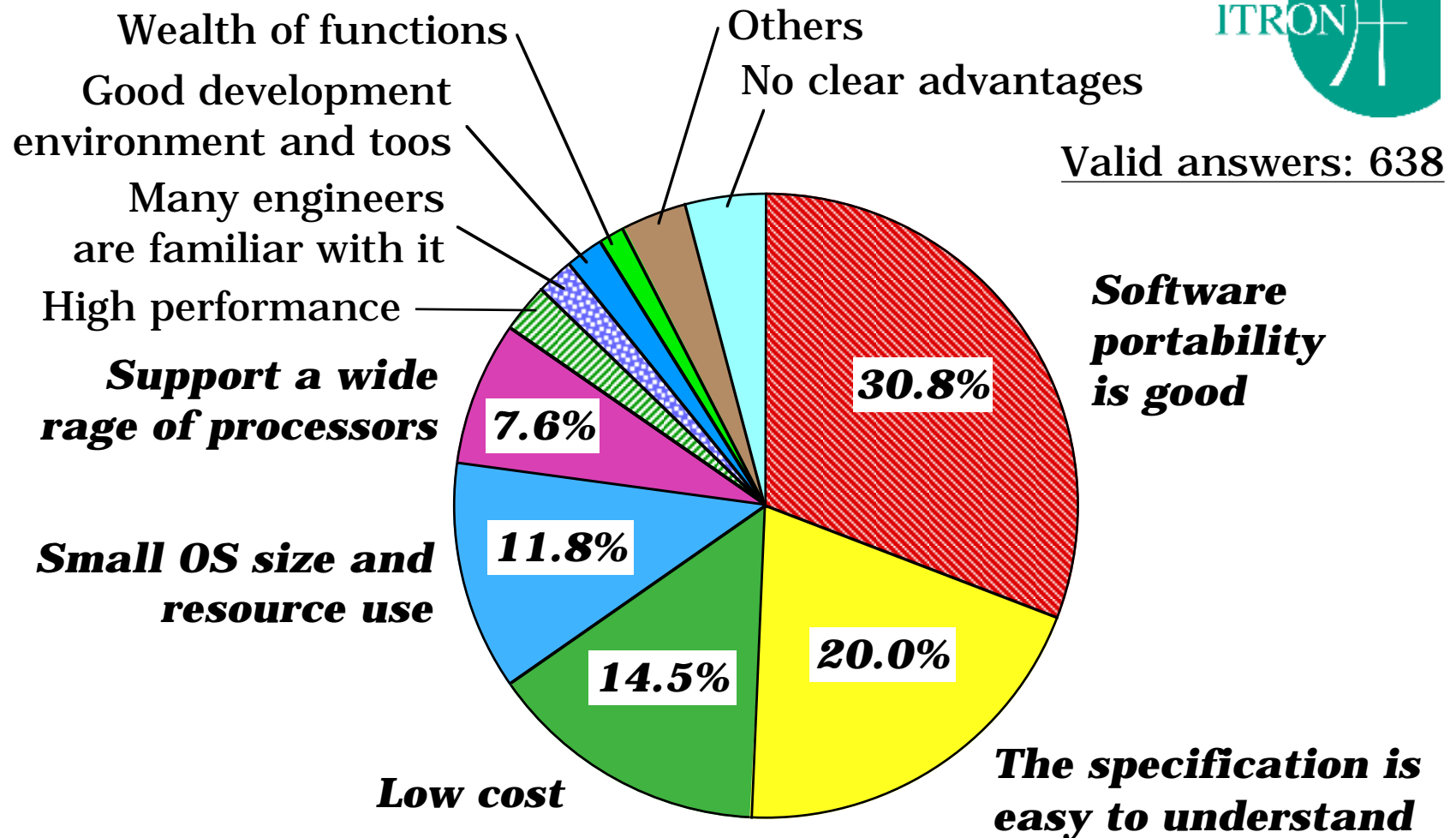
ITRON-Specification OS Advantages
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association

Lack of development environment and tools

No outstanding disadvantages

Others

Inadequate performance

Not enough processors are supported

Poor support

High cost

OS size and resource used are too large

The specification is difficult to understand

Inadequate functions

14.3%

19.2%

Valid answers: 651

13.4%

Lack of engineers familiar with it

12.1%

Lack of software components

11.4%

Software portability is bad

ITRON-Specification OS Disadvantages
(TRON Association Survey, late 1999 - early 2000, Japan)

ITRON Committee, TRON Association