S60 platform:
Prospects, Opportunities
& Challenges

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T‑ ‑ ‑Mobile‑ ‑ ‑

Background: Why a platform approach?

Cost reduction

Better maintenance

Better TTM

Consistent quality

Predictable performance

Harmonisation

Scalability
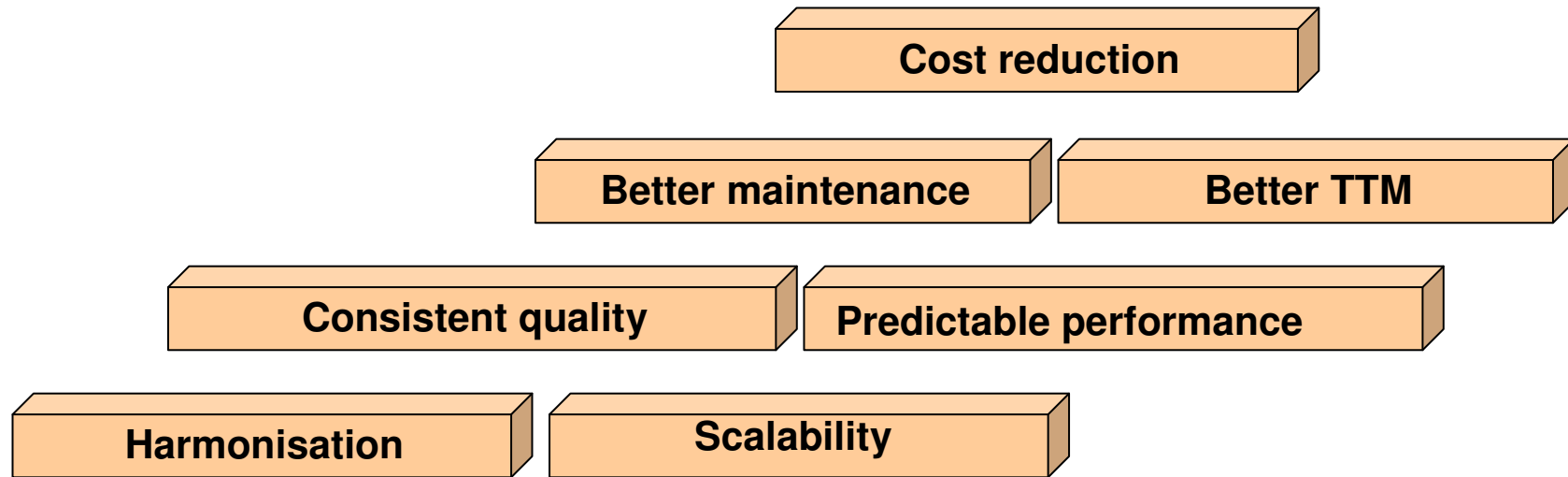
A platform approach is a key step to address challenges facing operators

What's the opportunity for operators

- **Standardization**
  - Opportunity to unify solutions across multiple vendors
  - Greater penetration and roll out of consistent quality services

- **Innovation**
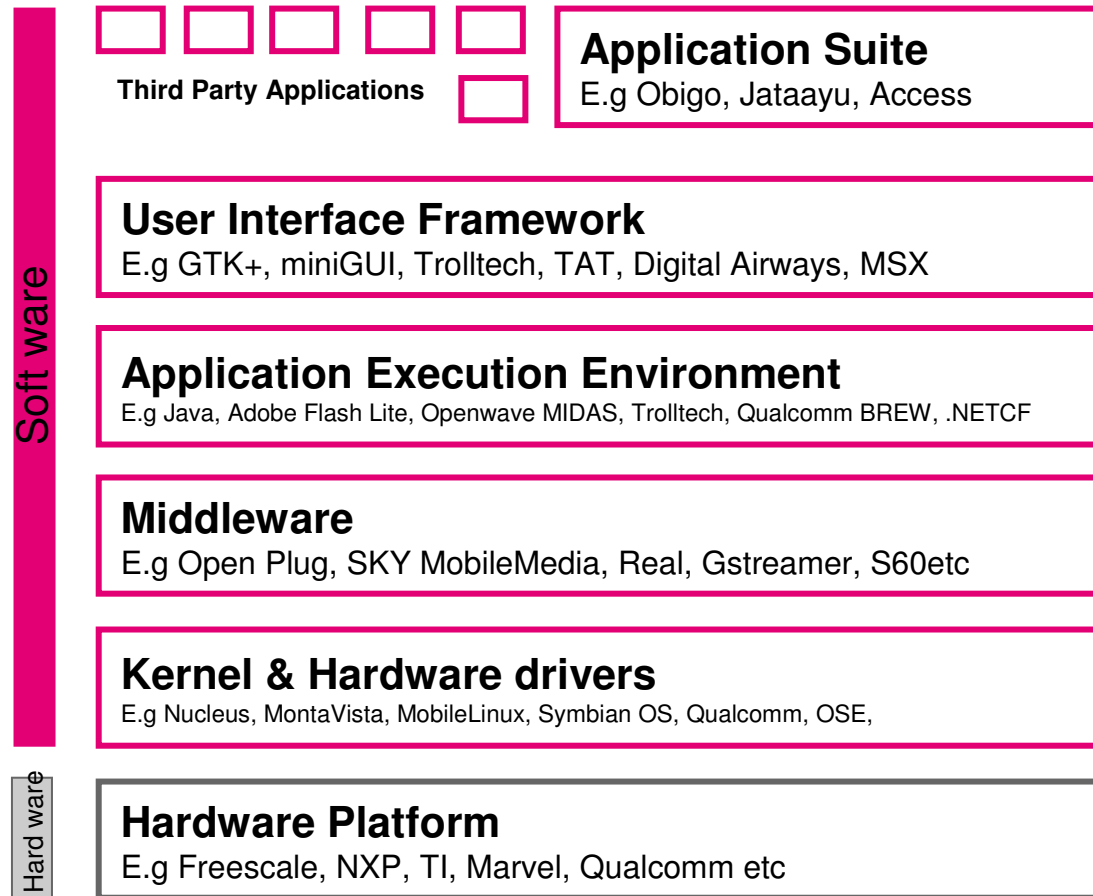 - Ability to try out services without having bespoke terminals built

- **Differentiate**
  - Operators can develop unique proposition without impacting the manufacturer's production process greatly

- **Manageability**
  - Operators need better means of managing terminals to deliver quality service differentiation
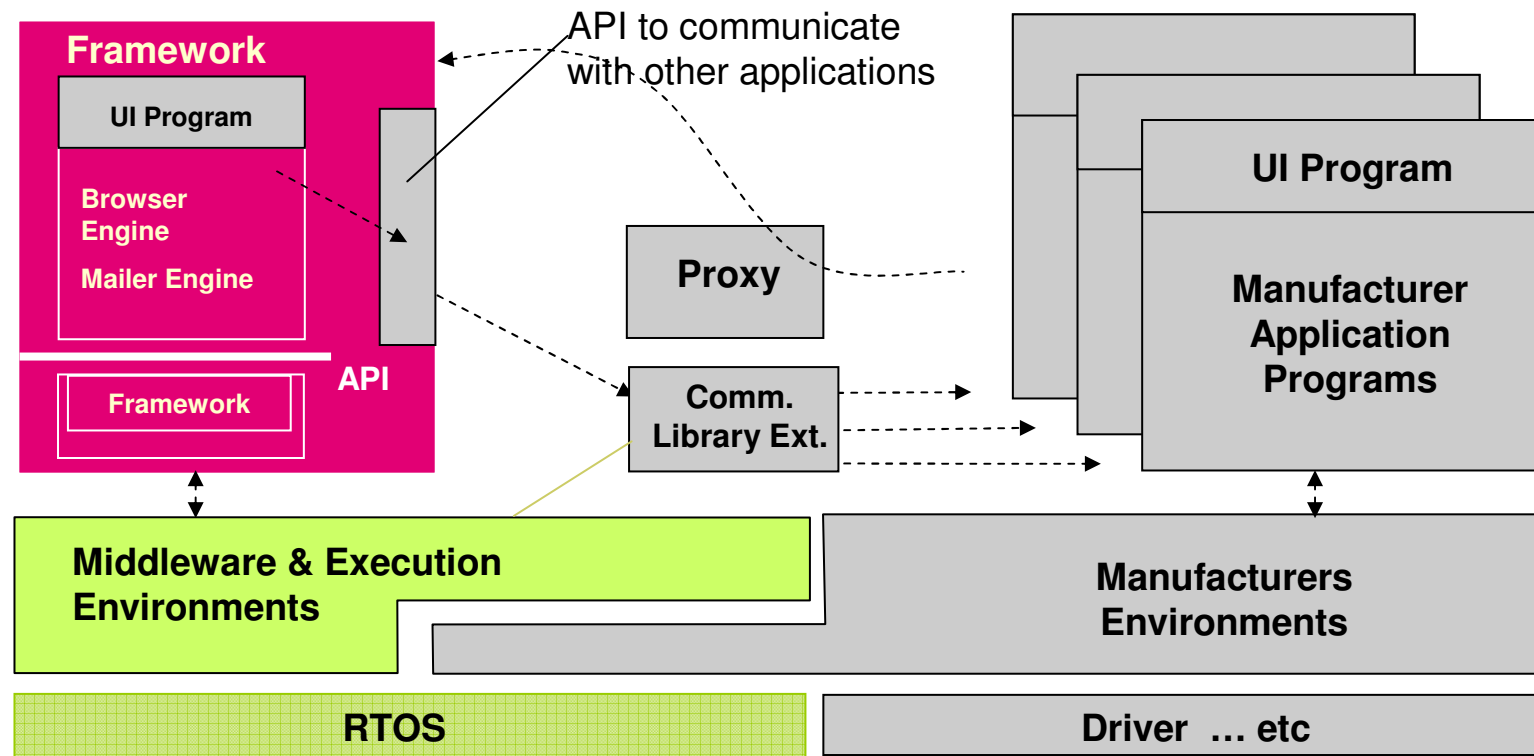
We wish it was so logical and simple!

Soft ware

Third Party Applications

Application Suite
E.g Obigo, Jataayu, Access

User Interface Framework
E.g GTK+, miniGUI, Trolltech, TAT, Digital Airways, MSX

Application Execution Environment
E.g Java, Adobe Flash Lite, Openwave MIDAS, Trolltech, Qualcomm BREW, .NETCF

Middleware
E.g Open Plug, SKY MobileMedia, Real, Gstreamer, S60etc

Kernel & Hardware drivers
E.g Nucleus, MontaVista, MobileLinux, Symbian OS, Qualcomm, OSE,

Hard ware

Hardware Platform
E.g Freescale, NXP, TI, Marvel, Qualcomm etc

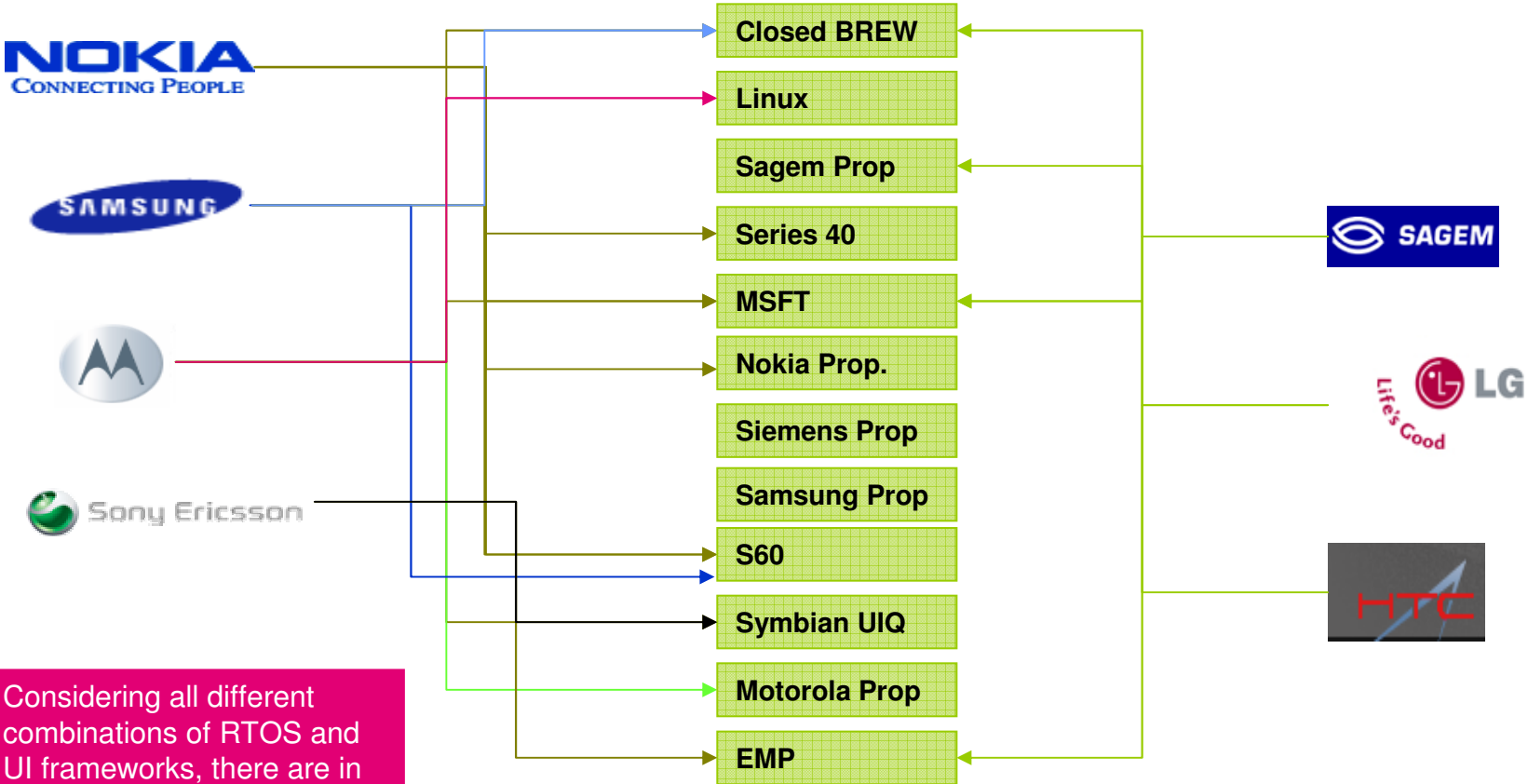**Source**: Arc Chart, Global Wireless Report Sept 06

Reality - environments are complex & unique

Application Framework

- ⬜ : Depends on handset vendor and operator
- 🟥 : Produced by framework provider
- 🟩 : Produced by chipset vendor

Framework

UI Program

Browser Engine

Mailer Engine

Framework

API

API to communicate with other applications

Proxy

Comm. Library Ext.

UI Program

Manufacturer Application Programs

Middleware & Execution Environments

Manufacturers Environments
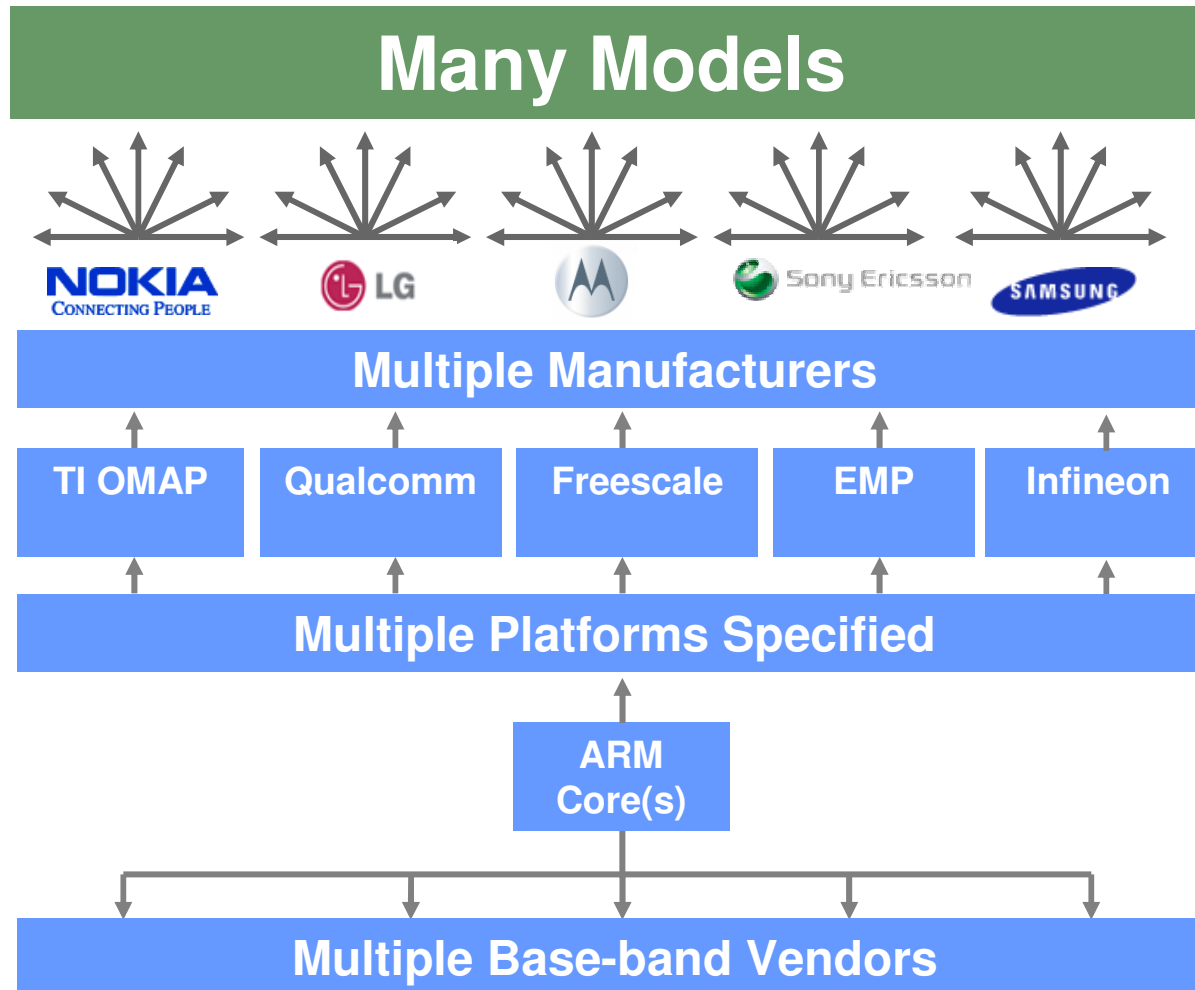
RTOS

Driver … etc

Pick & Mix: Many hybrid solutions available
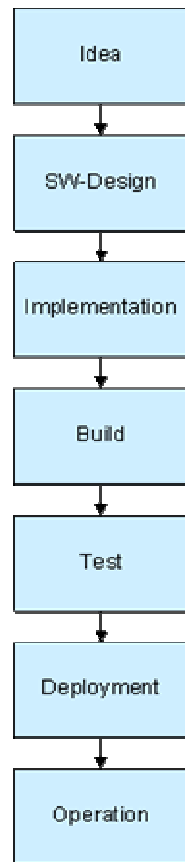

Considering all different combinations of RTOS and UI frameworks, there are in fact many more "hybrid" solutions

Snap shot of the market ....

Many Models

NOKIA
CONNECTING PEOPLE

LG

Sony Ericsson

SAMSUNG

Multiple Manufacturers

| TI OMAP | Qualcomm | Freescale | EMP | Infineon |

Multiple Platforms Specified

ARM
Core(s)

Multiple Base-band Vendors

"The Gordian Knot for Operators"

PC world

Mobile World

PC world diagram:

Idea → SW-Design → Implementation → Build → Test → Deployment → Operation

- On Horizon, Feasibility Study
- Detailed Design
- Realization
- IOT
- Operations

Mobile World diagram:

Idea

SW-Design X → Implementation OS X
- Build device A → Test device A → Deployment A → Operation
- Build device B → Test device B → Deployment downloadmgr B → Operation

SW-Design Y → Implementation OS Y
- Build device C → Test device C → Deployment C → Operation
- Build device D → Test device D → Deployment downloadmgr D → Operation
- Build device E → Test device E → Deployment downloadmgr E → Operation
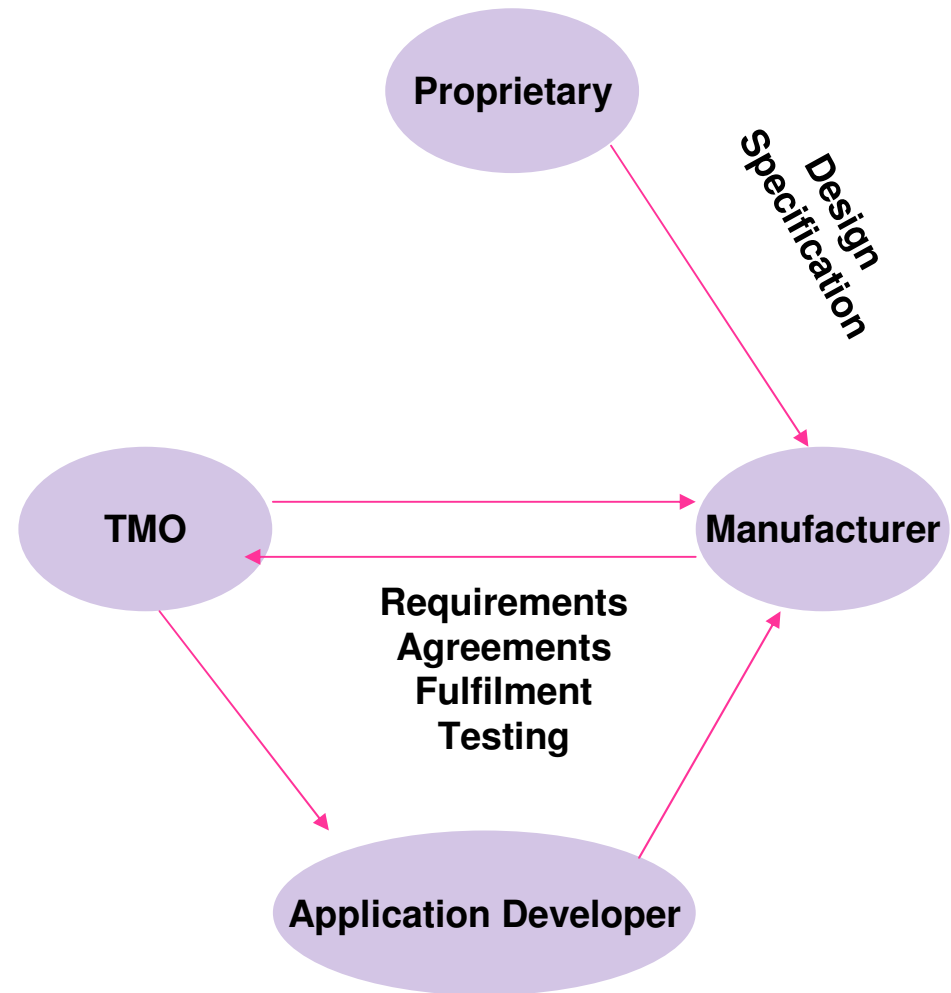
# Why S60? Problems with current approach.

Current Status

- Operators can influence minimal parts of the core requirements for terminals

➢ *Majority of requirements are tweaks*

- New services are difficult to deliver

➢ *Most are point solutions*

Proprietary

Design
Specification

TMO

Manufacturer

Requirements
Agreements
Fulfilment
Testing

Application Developer

Why S60? The way forward.

Moving forward with S60

- S60 offers an opportunity to agree which core enablers are required

- It can ensure manufacturers conform to agreed operator specifications

- S60 can provide consistent platform-testing

Application Developers

S60

Design Specification Agreements

Testing

TMO

Manufacturer

Requirements Fulfilment
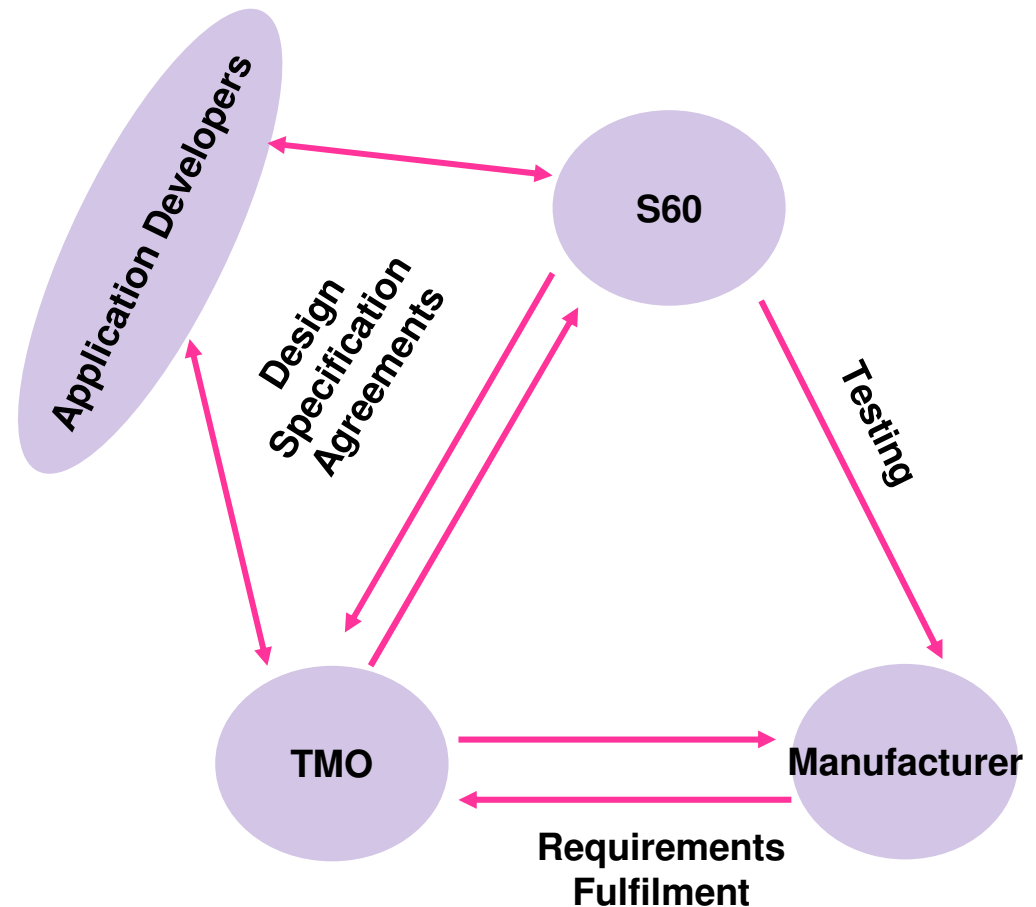
S60: Realising the potential
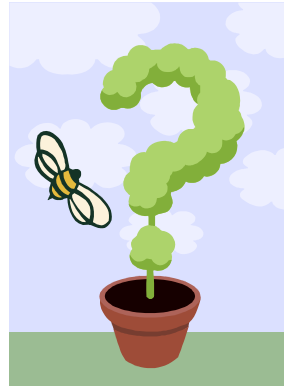
- **Cross pollination**
  - Across many hardware platforms
    - More <u>family</u> of products on a variety of hardware

- **Reducing cost of ownership**
  - S60 has to address the midrange price bracket to ensure long term success

- **Maintaining the momentum for excellence**
  - Improving key performance indicators
  - Increased platform modularity

Any questions
for answers I have prepared?!!