### SAMSUNG

### Whitepaper

## Rugged Smartphones & Tablets in Asia Pacific

## Enterprise Adoption, Use Cases and Benefits

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## Introduction & Executive Summary

This report provides insights into how Asia-Pacific businesses are adopting multi-use rugged smartphones and tablets to support the evolving needs of their operations and workforces.

With data from over 1,370 businesses in 8 countries, the report addresses the following questions:

- What is the impact on employee productivity and wage expenses if a smartphone or tablet fails?
- What is the overall adoption of rugged devices?
- Which industries and what uses cases are showing adoption?
- What are the benefits to business?
- What are the key characteristics of the new breed of rugged mobile devices?

To finish we have a short checklist that provides steps to support the creation of your company's rugged devices strategy.



### Amongst the key highlights from our research:

### 48%

of all companies surveyed are using rugged devices and related solutions such as mobile point of sale (MPOS), push-to-talk (PTT) and mobile scanning.

## US\$1,111 per week per employee

Lost productivity can cost a company between US\$42-\$1,111 per week per employee in wages payments when a smartphone or tablet fails.

# Additional device category

There is an additional device category (semi-rugged devices) that has expanded between smartphones and tablets and high-end rugged devices, opening new use cases to roles such as information and office workers as well as additional frontline employees

### Rugged device benefits

Rugged device benefits are significant with companies citing up to 25% reduction in total cost of ownership, 25% improvement in workplace safety, 15% increase in sales growth, 20% increase in customer satisfaction and 30% improvement in inventory management.

Except where otherwise indicated, the information contained in this whitepaper is based on TRA's research and survey.

## Past, present and people productivity



#### Single use rugged devices are a thing of the past.

In 1981, DVW Electronics launched possibly the first rugged computing device – the 'Husky'\*. Sporting a 32x4 monotone LCD screen (no touch), the Husky had a membrane keyboard, CMOS Z80 compatible chip clocking out at 4MHz, ran BASIC and boasted (for the time) a massive 16K of ROM. Weighing just under 1.5kg, the device was approximately half the size of an A4 page and could be programmed to undertake single use tasks.

Today its equivalent is a single device with multi-use including push to talk, mobile payments and scanning, sports a 6.3"FHD+ touch screen display (including gloves and wet touch), weighs approximately 218 grammes, incorporates augmented reality tools, biometric scanners, programmable hot keys and 4GB of RAM with expandable memory of just over half a terabyte. This evolution of rugged devices has occurred alongside a dramatic transformation of workforce technologies, practices and locations.

Consumer technology is more pervasive in business. This consumerisation of IT has, amongst other things, led to employees expecting high device specifications and performance with a greater emphasis on design and aesthetics. Edge computing and cloud services provide data metaphorically to our fingertips, while speed and operational efficiencies go hand in hand with providing higher levels of customer service and engagement.

We also know that in today's business environment, the where and how of the way we work has dramatically changed. TRA's research demonstrates businesses are moving towards work styles that are more mobile and flexible:

50%

of businesses provide flexible working hours to employees

## 60%

of employees in their company's physical office and related environments use more than one place for their work on any given day

## 1 in 3

will work in more than three different locations outside of their office on an average day

## 1 in 2

employees utilise a remote working option at least for some of their roles

\* Source https://archive.org/stream/byte-magazine-1985-09/1985\_09\_BYTE\_10-09\_Homebrewing#page/n367/mode/2up

The need for reliable smart mobile devices has increased in synch with the importance of the tasks employees perform on them. Businesses are potentially risking productivity as our research data shows that standard smart mobile devices experience 15% higher failure rates compared to their rugged cousins.

15% does not sound like a large delta yet it is. 15% more additional expenditure. 15% more device configurations. 15% more requisitions. 15% more lost productivity.

Consider this: Our data tells us that only 21% of those employees with failed devices are back at work within 1 working day. The majority, 46%, take between 2 to 3 days to receive a new device and return to performing the necessary tasks required. A further 18% take between 4 to 5 working days. These figures exclude related costs for services outage, operational downtime, impact on customers or operations, etc.

In this context, it is not surprising that businesses are looking for more than standard smart devices for certain employee roles.

Our data shows businesses are deploying devices that can sustain performance in harsh or exposed environments whilst retaining consumer features such as ease of use, familiarity and aesthetics that employees now expect from their devices.

Using wages data from national statistics departments and currency conversion to US dollar rates, the costs to businesses between 1 and 5 days of lost productivity per employee can be substantial:



## Current Adoption Patterns



Our survey data shows that on average, 48% of businesses across Asia currently use rugged devices, of which 68% incorporate MPOS solutions, 59% incorporate either click to call (C2C) or push-to-talk (PTT) solutions and 41% use mobile scanning.

The top three countries currently using rugged devices are Malaysia, Singapore and New Zealand. Australia and Indonesia can be regarded as fast followers with Thailand, Philippines and Vietnam showing earlier levels of market adoption. Examining the data based on company size and market vertical perspectives, it is clear there is a category (semi-rugged) that blends the familiarity, design and features of standard smart devices with highend specialised rugged ones, spanning use cases and functionality between the two.



Level of Device Design, Aesthetics & Features

This category reflects the growing deployment of rugged devices into new markets. Conventionally, rugged devices, MPOS, PTT and scanning solutions are typically deployed in 'heavy' industries that exhibit harsh environments and difficult conditions – mining, transport, construction, etc.

Our data tells us that we're seeing an emerging group of industries including professional services, banking and finance, government, front-end retail, that are also adopting this new category of devices as their workplace practices and technology platforms evolve.

The following table details the top market verticals that are using rugged devices, MPOS, PTT & C2C and mobile scanning solutions:

Rank	Rugged devices	MPOS solutions	PTT & C2C solutions	Mobile scanning solutions
1	Retail trade	Wholesale trade	Health & Social	Rental, hire, real estate
2	Health & Social	Transport/logistics	Technical services	Transport/logistics
3	Wholesale trade	Utilities	Wholesale trade	Utilities
4	Hospitality	Health & Social	Mining	Mining
5	Financial services	Professional services	Construction	Agriculture, forestry, fisheries
6	Manufacturing	Construction	Rental, hire, real estate	Construction
7	Mining	Media, IT&T	Manufacturing	Education & training
8	Construction	Manufacturing	Transport/logistics	Health & social
9	Transport/Logistics	Retail trade	Media, IT and Telecoms	Financial services
10	Utilities	Agriculture	Utilities	Hospitality

## Use cases

Analysing the adoption research data of rugged devices and additional functionalities, it is very clearly a multi-use, single device world for businesses.

Reflecting this, 68% of businesses agreed with the statement that "In today's business environment, rugged devices, MPOS, PTT and mobile scanning devices need to be capable of performing more than one dedicated role."

Overall, our data shows that organisations are using rugged devices and MPOS/PTT/scanning solutions in a wide range of situations. As noted in the introduction, these use case scenarios have expanded to incorporate knowledge and information worker situations as well as frontline service roles.

- 1 Manufacturing use cases such as IoT data access from machine tools.
- 2 Warehouse, construction, field services and transport & logistics environments
- 3 Mining sites and operations
- 4 Customer service roles
- 5 Education and training scenarios such as rugged devices equipped with augmented reality tools.

#### The top 3 uses for MPOS, PTT & C2C and Mobile Scanning on rugged devices

Rank	MPOS	PTT & C2C	Mobile scanning
1	Retail use cases	Warehousing	Transport and logistics
2	Customer service	Construction & logistics	Retail & Warehouse
3	Financial transaction processing such as order payments	Manufacturing	Customer service



Examples include:



A global engineering group that deployed rugged devices with augmented reality to improve information sharing and content access between in-field operators and remote experts.



An international diagnostic imaging solutions company that uses artificial intelligence eye monitoring, screening and predictive technology in multiple countries on rugged devices to bring low-cost, timely consultations to patients.



An Asian-based shipping port is evaluating a combined rugged device and security solution to implement real-time monitoring capabilities to enable situational awareness including monitoring of workers' vital signs and the ability to take immediate decisions and actions to ensure their safety within the port premises.



A Japanese headquartered global manufacturing group deployed smartphones and tablets with scanning capabilities to improve barcode reading efficiencies, tracking inbound and outbound activities, shipments and returns with additional integration with the warehouse management system.



## **Benefits**

Where the argument for using rugged devices and related solutions become clearly compelling is the outcomes delivered to a business. We asked organisations did they quantify and track the benefits derived from their use. 36% of companies did, identifying a range of positive outcomes:



#### **Productivity:**

- Improvement in workplace safety performance of 10-25%
- Increase in field service productivity of 10-35%
- 25% improvement in workplace communications



#### Sales and Customer Service:

- 10-15% increase in sales growth
- 20% increase in customer satisfaction
- 20% reduction in customer processing time



#### Hardware and related device costs:

 10-40% reduction in device maintenance costs

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- 25% lower total cost of ownership compared to standard consumer devices
- 45% reduction in device breakage costs



#### Operations:

- 30% improvement in inventory management
- 33% faster data processing
- 35% improvement in order checking and shipping



## Device features and attributes



Durability and longevity have always been of paramount importance for rugged device and related services. MIL-STD and IP ratings were the supreme arbiters of rugged suitability and these were typically coupled with the availability of peripherals such as add-on cases or input devices. For extreme environments, these requirements continue to be leading considerations.

However, our survey respondents also told us that these factors added substantially to the total ownership cost of running a rugged device fleet. In fact, the costs of traditional rugged devices were cited as the most significant concern for the majority of businesses in our survey. The top 5 reasons organisations did not use rugged devices were identified as:

1	Cost of purchase
2	Servicing and maintenance costs
3	Cost of integration into business workflows
4	Costs of training
5	Concerns about device security

The new semi-rugged devices are more palatable. Businesses cited benefits including lower total costs of ownership, open platforms for integration into business workflows and greater user familiarity with user-friendly design attributes. Usage and design attributes (such as screen size and resolution, form factor, weight, battery size, etc) are also much more prominent in user needs and requirements. The following details respondents' answers to the question "What attributes are important for your organisation?"

Rank	Rugged device	MPOS	PTT & C2C	Mobile scanning
1	Connectivity	Connectivity	Connectivity	Connectivity
2	IP ratings	Integrated hardware and software security & device management	Integrated hardware and software security & device management	Integrated hardware and software security & device management
3	Integrated HW/SW security & device management	IP ratings	IP ratings	Scanning capability
4	Device design	Quick access button	Quick access button	Device design
5	Quick access button	Device design	Device design	Quick access button
6	Wireless charging	Wireless charging	Wireless charging	IP ratings

The data also highlighted issues with legacy rugged devices being difficult to integrate deeply into business systems in a way that provides easy device management and security. With rugged devices being deployed in increasingly new scenarios with a broader number of employees, ease of integration, customisation and security have all emerged as more important considerations.

## Future Considerations



#### A short note on 5G and Al-Bots

5G networks will bring significant benefits to users of smartphones and tablets and all countries surveyed have plans to progress 5G networks:



Alongside substantially higher connectivity speeds there are a number of key 5G attributes that will support extended functionality of rugged devices including: **Edge computing** refers to locating applications, general-purpose compute, storage, and associated switching and control functions close to end users.



Ability to connect multiple devices (such as IoT arrays)

- 3 Create localised 'site' networks through fixed wireless access (FWA)
  - Lower network latency which supports greater 'real-time' needs

With this in mind, organisations are already looking forward to additional functionality supported by higher bandwidth connectivity such as 4G and 5G. For example, we asked businesses about the importance of being able to incorporate 'AI-Bot' assistance in support of rugged devices, MPOS and PTT to support automation of business processes and workflows. 69% of firms stated that it is either 'very important' or 'important' to have this ability.

As IoT connectivity grows, edge computing brings analytics, storage and compute closer to the end-device, we envisage even greater benefits being unlocked by rugged devices for frontline, knowledge and heavy industry workers alike.



## Individual Country Data

The following provides summary data points from businesses surveyed in each of the 8 countries that participated in the research.

#### Adoption rate: Rugged devices



### Australia

### **Summary Survey Data**

### How many organisations use rugged devices?

50% of Australian respondents currently use rugged devices which is slightly above the survey average of 48%. Australia ranks 4th amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

53% of businesses stated their preference is for a smartphone design, 10% lower than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 60% of Australian companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is slightly lower than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Australian firms compared with the total survey group.

Rugged devices	Australia	Average of Survey
Up to 1 day	28%	28%
2 to 3 days	36%	36%
4 to 5 days	18%	19%
More than 5 days	5%	8%
Unsure	13%	9%

#### What are the top 3 attributes important to users?

1		
2		

Device design and aesthetics

Wide range of connectivity options

3 IP rating

### What are the top 3 roles where rugged devices are used?

- Construction
  - Transport and logistics
  - Manufacturing

#### What are the top 3 business benefits companies told us they realised?

- 2
  - Higher workforce productivity
  - Reduced paper usage and subsequent improvements in electronic records, data management and accuracy
  - Longer device life

### **Summary**

Australia is a mature technology market and organisations are well-versed in understanding where rugged devices fit within their technology environment and the business benefits they generate.

### Indonesia

### **Summary Survey Data**

### How many organisations use rugged devices?

49% of Indonesian respondents currently use rugged devices which is almost the same as the survey average of 48%. Indonesia ranks 5th amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

72% of businesses stated their preference is for a smartphone design, 9% higher than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 73% of Indonesian companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 5% higher than the group average of 68%.

#### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Indonesian firms compared with the total survey group.

Rugged devices	Indonesia	Average of Survey
Up to 1 day	33%	28%
2 to 3 days	33%	36%
4 to 5 days	17%	19%
More than 5 days	12%	8%
Unsure	5%	9%

### What are the top 3 attributes important to users?

- Wide range of connectivity options IP rating 3 Integrated hardware, software and device security
  - management

### What are the top 3 roles where rugged devices are used?

- Customer services Warehouse asset management 3
  - Payments and financial transactions

#### What are the top 3 business benefits companies told us they realised?

2

- Higher workforce productivity
- Improved data gathering and accuracy
- 3 Incorporating multiple solutions on a single device to minimise device costs

### **Summary**

Indonesia is an enthusiastic adopter of devices and is deploying them in roles that include both the traditional sectors such as transport as well as in other areas such as customer service and retail environments.

### Malaysia

### Summary Survey Data



### How many organisations use rugged devices?

57% of Malaysian respondents currently use rugged devices, 9% higher than the survey average of 48%. Malaysia ranks 1st amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

60% of businesses stated their preference is for a smartphone design, 3% lower than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 74% of Malaysian companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 6% higher than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Malaysian firms compared with the total survey group.

Rugged devices	Malaysia	Average of Survey
Up to 1 day	28%	28%
2 to 3 days	41%	36%
4 to 5 days	19%	19%
More than 5 days	4%	8%
Unsure	8%	9%

#### What are the top 3 attributes important to users?

1	9
2	

Scanning capabilities

- Integrated hardware, software and device security management
- 3 W
  - Wide range of connectivity options

### What are the top 3 roles where rugged devices are used?

Warehousing
Manufacturing
Mining

### What are the top 3 business benefits companies told us they realised?

1

2

- Higher workforce productivity
- Improved data gathering and accuracy
- Incorporating multiple solutions on a single device to minimise device costs

### Summary

Malaysia tops the group in terms of rugged device usage with traditional sectors such as warehousing and manufacturing providing strong demand. The data suggests usage is expanding into less traditional sectors such as customer service and professional services outside of the top 3 use cases.

### **New Zealand**

Summary Survey Data



### How many organisations use rugged devices?

53% of New Zealand respondents currently use rugged devices, 5% higher than the survey average of 48%. New Zealand ranks 3rd amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

52% of businesses stated their preference is for a smartphone design, 11% lower than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 62% of New Zealand companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 6% lower than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by New Zealand firms compared with the total survey group.

Rugged devices	New Zealand	Average of Survey
Up to 1 day	25%	28%
2 to 3 days	33%	36%
4 to 5 days	22%	19%
More than 5 days	4%	8%
Unsure	16%	9%

### What are the top 3 attributes important to users?

Wide range of connectivity options

2

Integrated hardware, software and device security management

3 IP rating

### What are the top 3 roles where rugged devices are used?

Construction
Manufacturing
Field services and support

### What are the top 3 business benefits companies told us they realised?

1

3

- Higher workforce productivity
- 2 Longer device life
  - Reduced paper usage and subsequent improvements in electronic records, data management and accuracy

### Summary

New Zealand has a number of industry sectors that exhibit strong demand for rugged devices and this is reflected in the country ranking 3rd amongst the group for device adoption. A mature market where businesses are always looking for innovative ways to bring improved services and solutions to customers.

### Philippines

**Summary Survey Data** 

#### How many organisations use rugged devices?

38% of Philippines respondents currently use rugged devices, 10% lower than the survey average of 48%. The country ranks 6thamongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

82% of businesses stated their preference is for a smartphone design, 19% higher than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 87% of Philippines companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 19% higher than the group average of 68%

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by New Zealand firms compared with the total survey group.

Rugged devices	Philippines	Average of Survey
Up to 1 day	32%	28%
2 to 3 days	42%	36%
4 to 5 days	9%	19%
More than 5 days	11%	8%
Unsure	6%	9%

#### What are the top 3 attributes important to users?

1	IP rating
)	Wide range of connectivity options

Integrated hardware, software and device security management

### What are the top 3 roles where rugged devices are used?



3

- 3 Warehousing

#### What are the top 3 business benefits companies told us they realised?

1

2

- Incorporating multiple solutions on a single device
- Improved data gathering and accuracy
- Higher workforce productivity

### Summary

Philippines is a relatively low adopter of rugged devices and typically deploys these in traditional sectors such as transport and warehousing. There is a small but growing awareness of use cases for non-traditional markets as well as incorporating technology such as augmented reality for training and education.

### Singapore

**Summary Survey Data** 

#### How many organisations use rugged devices?

55% of Singapore respondents currently use rugged devices, 7% higher than the survey average of 48%. The country ranks 2nd amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

66% of businesses stated their preference is for a smartphone design, 3% higher than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 61% of Singapore companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 6% lower than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Singaporean firms compared with the total survey group.

Rugged devices	Singapore	Average of Survey
Up to 1 day	26%	28%
2 to 3 days	32%	36%
4 to 5 days	29%	19%
More than 5 days	6%	8%
Unsure	7%	9%

### What are the top 3 attributes important to users?

- Device design and aesthetics
- Wide range of connectivity options
- 3
- Use of screen when wet

### What are the top 3 roles where rugged devices are used?

- Construction Field services and support ٦

  - Transport and logistics

### What are the top 3 business benefits companies told us they realised?

- Reduced paper usage and subsequent improvements in electronic records, data management and accuracy
- Higher workforce productivity
- Improved data gathering and accuracy

### Summary

Singapore is a mature user of rugged devices, especially in traditional sectors such as construction and field services. There is growing adoption in non-traditional sectors including training and education scenarios, as well as patient care within the healthcare industry.

RA

## Thailand

Summary Survey Data



### How many organisations use rugged devices?

44% of Thai respondents currently use rugged devices, 4% lower than the survey average of 48%. The country ranks 6th amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

64% of businesses stated their preference is for a smartphone design, just 1% higher than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 66% of Thai companies wanted multi-use functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 2% lower than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Thai firms compared with the total survey group.

Rugged devices	Thailand	Average of Survey
Up to 1 day	27%	28%
2 to 3 days	33%	36%
4 to 5 days	19%	19%
More than 5 days	14%	8%
Unsure	7%	9%

#### What are the top 3 attributes important to users?

Wide range of connectivity options

Integrated hardware, software and device security management

3 **IP** rating

### What are the top 3 roles where rugged devices are used?

- Field services and support 2
  - Payments and financial transactions

Improved workforce safety

3 Transport and logistics

#### What are the top 3 business benefits companies told us they realised?

1

2

- Incorporating multiple solutions on a single device
- Better device uptime compared to non-ruggedised devices

### Summary

Thailand is slightly atypical compared to the rest of the countries. Adoption rates fall at the lower end of the scale, there is broader variation in the desired attributes, yet devices are deployed in a more diverse range of roles and industries.

### Vietnam

### Summary Survey Data

#### How many organisations use rugged devices?

23% of Vietnamese respondents currently use rugged devices, 25% lower than the survey average of 48%. The country ranks 8th amongst the 8 countries surveyed for adoption.

### What is the most preferred form factor?

72% of businesses stated their preference is for a smartphone design, 9% higher than the survey average of 63%.



### How important is it for companies that rugged devices are multi-use?

The data clearly shows that multi-use is an important factor for rugged devices. 74% of Vietnamese companies wanted multiuse functionality that incorporates, amongst other things, MPOS, PTT and barcode scanning. This is 6% higher than the group average of 68%.

### How many work days are lost due to the failure of a device?

The table shows the percentage of days lost by Vietnamese firms compared with the total survey group.

Rugged devices	Vietnam	Average of Survey
Up to 1 day	22%	28%
2 to 3 days	50%	36%
4 to 5 days	15%	19%
More than 5 days	10%	8%
Unsure	3%	9%

#### What are the top 3 attributes important to users?

- IP rating Wide range of connectivity options
- 3
- Use of screen when wet

### What are the top 3 roles where rugged devices are used?

Transport and logistics
Learning and training
Retail

### What are the top 3 business benefits companies told us they realised?

- Incorporating multiple solutions on a single device
  - Higher workforce productivity
- 3 Improved workforce safety

2

### Summary

Vietnam exhibited the lowest rate of adoption amongst the survey yet the least 'traditional' deployment scenarios of the group. Companies are actively using rugged devices in training and education scenarios and the broad focus on customer service advantages is also evident.



## In Closing

In today's workplace, rugged devices are expanding their presence into more areas, verticals and use cases. Sleeker, more aesthetically pleasing with powerful combination of solutions such as MPOS, PTT, mobile scanning and augmented reality, these devices integrate into workflows with robust security and enhanced connectivity options in a consumer friendly form factor. Regardless of the sector, benefits are clear; the data reveals improvements in customer satisfaction, lower total cost of ownership, productivity improvements and better access to data and information in real-time.

For organisations contemplating the deployment of rugged devices to support their business operations, we have included a short checklist to start you on your way.



## A checklist for your business

TRA offers the following considerations as your organisation contemplates its rugged device strategy. They are not intended to be exhaustively comprehensive nor act as a silver bullet. Every organisation is different and these considerations should not replace proper due diligence. However, we trust they stimulate new thinking for informing your approach.



**Employee profiling.** Do your considerations incorporate role-based profiling for employees and how will employee roles change in the future? What critical business initiatives are coming in the next 1 year, 2 years, 3 years that will influence how, where and with what your employees perform their jobs?



Match device specifications to roles. Roles in more extreme environments may well require more specialised rugged devices. Ensure that you have clearly identified the key functional requirements for the role and matched this to the environment.



Seek to balance performance with solutions. With the multi-use capability of today's devices, consider whether you need to have 'shortcut' to a function such as scanning. However if the frequency of scanning is moderate to high, the efficiencies, integration and workflows offered by a mobile scanning will be greatly more effective.



Device convergence and operating system strategy? How is your organisation managing the difficulty of multiple operating platforms such as Windows, Android and iOS on multiple form factors? Another factor to assess is which OS will you use for devices? The end of life of Windows Mobile (or even Windows CE), a common operating system for many older rugged devices, means that future integrations may be problematic.



**Baseline measurement for metrics.** Do you plan to benchmark performance post device deployment? You should. What baseline metrics do you currently have or need for comparison purposes?

Do the economics make sense? Not everyone will need a rugged device with additional MPOS/PTT/scanning solutions. Are you aware of your current mobile device fleet costs, especially the total cost of ownership, replacement and maintenance costs? How will these change with rugged devices?





**Connectivity options** – What is your current network and broader connectivity need? How will this change in future? What allowance or consideration has been given to incorporate other connectivity services such as beacons, sensors, NFC and fixed wireless access such as 5G.



Degree of customisation needed, integration and proprietary platforms. These three issues were identified in the research as the most common problems that negatively impact rugged device deployments. Make sure you assess vendors' stance on open platforms, availability of SDKs and partner ecosystems/ experience with off-the-shelf solutions.



Security capabilities. What level of security is available to users? Hardware? Software? How important is biometric security capability for your workforce? Does the security capability extend across all aspects of device, application and data management?



#### Device provisioning and management.

Have you assessed if your current device provisioning, management and support resources are suitable for rugged devices? Will they need to change and if so, how?



## The Samsung Perspective



Samsung truly believes there are tremendous opportunities for business with rugged devices. These opportunities are present for traditional users of these devices as well as other roles such as information and frontline workers that improve productivity, customer satisfaction and service.

Our business customers typically tell us that traditional rugged devices are expensive, heavy, have smaller, less readable screens and are single purpose and difficult to use. Employees of those same businesses want smartphones and tablets that are water and dust resistant, can withstand both being dropped and variations in temperature yet do not sacrifice a thin and light design.

Samsung's range of rugged smartphones and tablets solve these pain points and bring a number of advantages:

Work Anywhere, Any Place, Any Time: Samsung rugged devices have the durability to survive tough environments with IP68 ratings<sup>1</sup>, drop tests of 1.5 metres and have attained MIL-STD-810G<sup>2</sup> certification. The replaceable high battery capacity, USB-C for fast charging and the availability of POGO pins ensure devices stay powered on for long working hours<sup>3</sup>.

Multi-functionality and features to do more with one device: Our Infinity Display design both maximises the screen to body ratios and incorporates technology that enables users to work with our devices when wearing gloves or the screens are wet<sup>4</sup>. Two programmable keys ensure that necessary applications are easily accessible. Samsung's collaboration with Microsoft and its decision to bring PTT functionality to the leading communication and collaboration platform, Teams, ensures businesses will have quick and easy mobile access to powerful collaboration tools. The ability to incorporate barcode and MPOS solutions<sup>5</sup> means employees can get business done anywhere with industrial features at the ready.

Samsung DeX enables Samsung Tab Active Pro users to transform their tablet into a true desktop environmentinto a true desktop environment, in turn bringing device consolidation advantages, improved security and management capabilities and greater employee productivity.

Protection is more than just the physical, it's also about securing the device. With Samsung Knox, Samsung provides a multilayered defense-grade security platform that is both robust and customizable ensuring that data and applications are secure. The addition of biometric authentication via advanced facial recognition and fingerprint sensors means that the device is always secure for the right user.

<sup>3</sup> Actual battery life may vary depending on network environment, usage patterns and other factors.

<sup>4</sup> Not designed for underwater use



<sup>&</sup>lt;sup>1</sup> IP68 rating means that the device is protected against harmful ingress of dust, and of static fresh water at up to 1.5metres for up to 30 minutes, under certain defined test conditions. According to accredited test results; individual results may vary. Note: IP68 rating does not mean that the device is waterproof. If the device gets wet, dry thoroughly. Water or dust damage is not covered by warranty.

<sup>&</sup>lt;sup>2</sup> These devices passed military specification (MIL-STD-810G) testing against a subset of 21 specific environmental conditions, including temperature, dust, shock/vibration, and low pressure/high altitude. Real world usage varies from the specific environmental conditions used in MIL-STD-810G testing. Samsung does not guarantee device performance in all extreme conditions.

<sup>&</sup>lt;sup>5</sup> mPos functions as intended with NFC enabled contactless credit cards only and compatible back end processing systems.

Lastly, Samsung takes away the pain of businesses having to configure, update, deploy and run mobile technology across organisations at scale.

With Samsung Knox suite of solutions, businesses can be assured their employees are productive and secure at all times through a variety of features including:

- Knox Configure: more control over settings, restrictions, apps and other mobile content, allowing businesses to configure devices remotely and get the workforce connected faster.
- Knox Enterprise Firmware-over-the-air (E-FOTA): easier-to-manage mobile firmware and security updates as well as the ability to remotely update the OS across the entire Samsung fleet.
- Knox Mobile Enrollment: add thousands of devices to your organization at once, without having to manually enroll each one. Users just power on their devices and connect to the network to enroll to company's enterprise mobility management (MDM/EMM) provider.

## Research Methodology and Demographics

To support the report, TRA undertook a quantitative survey of 1,377 IT and Line of Business decision makers in 8 countries:



The anonymous survey was conducted between December 2019 and January 2020 by an independent specialist survey organisation based in Asia.

### SAMSUNG



### ABOUT SAMSUNG ELECTRONICS CO., LTD.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

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