Tablet Computing Solutions for Service Businesses

Tablet computing has become the latest buzz and businesses of all sizes see great potential in mobile platforms. Restaurant, retail and hospitality providers, in particular, are discovering that tablets open up opportunities for new types of customer service experiences and business process efficiencies.

HOSPITALITY TECHNOLOGY conducted a survey in February 2015 and discovered the following:

73%

of restaurants expressed that they considered tableside and mobile payment devices "important technology"[1]

43%

revealed that they are already using a mobile device for manager use or tableside payment

59%

were considering deployment of mobile solutions in 2015[1]

BENEFITS OF MOBILE TABLET COMPUTING

Mobile tablets generate and enable a significant array of business use case scenarios for the restaurant, retail and hospitality industries. These include, but are not limited to:

- Mobile/Table POS
- Table management
- Store/Inventory management
- Line busting
- Personalized shopping experiences
- Customer tracking and loyalty

As tablet form factors have evolved in terms of portability, performance and all-day battery life, now is the perfect time to evaluate the potential benefits of bringing tablets with Intel® Atom™ processors inside into your service business. Intel® Atom™ processors have the processing power required for today's robust applications and multitasking workloads.

When deploying tablet computing solutions into your business, it is imperative to consider the current environment. Contemplate factors such as existing IT investments, as well as technical infrastructure, including peripherals, networking, and software.

When evaluating tablets, selecting the appropriate hardware and accessories for your business can be challenging due to the many options available. From consumer-grade to commercial/enterprise-grade, each tablet has advantages and disadvantages that should be taken into account when considering the right platform for deployment.

This guide explores some of the considerations that need to take place before ultimately deciding which type of tablet is the ideal solution for your business.

COMMERCIAL/ENTERPRISE-GRADE TABLETS: ADVANTAGES

Rugged Design

A rugged rating is a key factor in choosing a commercial-grade tablet. For a tablet to be classified as "rugged," it must meet a specific standard. Currently, no commercial criterion exists that formally signifies "ruggedness." Manufacturers must rely upon the U.S. military baseline as a guide. These tests prove that computing devices can withstand harsh and threatening conditions, including exposure to pressure, shock, extreme temperatures, solar radiation, humidity and harsh environmental conditions.

In addition to the MIL standard, most devices also are assigned an IP rating (International Protection Marking) that classifies and rates the degree of protection provided against intrusion of dust and contact with water. This standard aims to provide users detailed information that goes beyond vague marketing terms, such as "waterproof." An IP rating consists of 2 digits, 1 for solid particle protection and 1 for liquid ingress.

PAR Tablet

Dust International Protection Rating—1st Digit

Level	Object size protected against	Effective against
0	—	No protection against contact and ingress of objects
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	>12.5 mm	Fingers or similar objects
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact (dust proof)
6	Dust tight	No ingress of dust; complete protection against contact (dust tight)

One glance at the modern tablet options available in today's market reveals that a tablet can look and feel attractive and sleek, yet still be deemed "rugged." While commercial- and consumer-grade tablets appear similar in form factor, only truly ruggedized tablets are designed to withstand the realities of severe restaurant and hospitality environments for extended periods of time. Hot and greasy service kitchens or splashes of rain while taking orders on an outdoor patio are no match for commercial-grade tablets. Commercial-grade tablets with a high IP rating are built to endure environmental conditions that consumer-grade tablets are not designed to withstand.

For example, the tablets in the PAR mobile product family are IP65 rated, meaning they are "dust tight" and can withstand water. The IP rating is also important in the determination of which chemicals can be used to clean the tablet as well.

Security

Security is vital to any business, especially with the near-daily news headlines reporting breached networks and the theft of confidential information. Select commercial-grade tablets include hardware-supported features designed to permit access only to those with authorization. These tablets can prevent users from accessing secure components, such as prohibited device settings, through their simple and effective lock-down modes.

Payment security and PCI compliance are additional elements to consider when implementing tablets into a service business environment. Choosing a commercial-grade device that runs the same OS as an existing payment infrastructure, like Microsoft Windows*, and that has previously been certified, helps businesses bypass this step.

Water International Protection Rating—2nd Digit

Level	Protected against
0	Not protected
1	Dripping water
2	Dripping water when tilted up to 15°
3	Spraying water
4	Splashing of water
5	Water jets
6	Powerful water jets
6K	Powerful water jets with increased pressure
7	Immersion up to 1 m
8	Immersion beyond 1 m
9K	Powerful high-temperature water jets

RATED RELIABLE

According to Venture Development Corporation (VDC) Research, reliability is superior in commercial-grade tablets in contrast to consumer-grade tablets. The average failure rate of these devices is 4%, compared to a 18.3% failure rate for non-ruggedized devices. This dependability enables commercial-grade tablets to last longer on average, withstanding the demands of long hours of use.

When adopting mobile tablet computing, businesses have the expectation that a device will survive for more than three years. The average lifespan of commercial grade tablets is 4.2 years, a testament to their ruggedness. Longer warranties and extended replacement cycles help increase the life expectancy of commercial-grade devices.

Consumer-grade tablets	
Average failure rate	18.3%
Average lifespan	2.1 years

Commercial-grade tablets	
Average failure rate	4%
Average lifespan	4.2 years

High-Performance and Energy Efficiency

High-performance and energy efficient processors provide commercial-grade tablets additional benefits. Tablets with highly efficient processors—like the Intel® Atom™ processor—can run multiple compute-intensive applications simultaneously, while contributing long battery life and security. User replaceable batteries can be easily changed, allowing for uninterrupted productivity (especially crucial in transaction-intensive use cases like line busting or mobile POS scenarios). The combination of extra performance for multi-tasking, plus energy efficiency for longer battery life, makes commercial-grade tablets ideal for critical day-to-day activities and maintaining seamless operations.

IT Infrastructure Compatibility

When concepts begin to grow beyond just a few stores, and the IT footprint expands to support the business, it is important to develop an IT Infrastructure that is flexible and scalable.

The operating system you choose is one of the key decisions to maintaining an easy-to-use computing experience that is scalable, flexible and compatible with your business environment. From servers to terminals to tablets, remember to consider your business software and peripherals. Life is simpler with a unified OS environment.

The reality is that a Microsoft Windows* environment continues to offer the most robust, flexible and compatible offerings in terms of peripheral driver sets, the ability to tie in to enterprise resources like domains and the capability to deploy enter-prise-grade security features.

Optimized Docking Solutions

Commercial-grade tablets offer optimized docking stations to expand and increase the convenience of mobile-based POS solutions. In comparison to consumer-grade tablets, commercial-grade tablet docking stations typically offer a larger number of ports, which are designed to support the many peripherals needed in the retail, restaurant and hospitality industries. This can also free up valuable counter space, as optimized docking stations often do not require an external power supply.

Secure Wireless Connectivity

In addition to infrastructure, wireless connectivity is no longer an issue. Commercial-grade tablets offer secure wireless LAN and WWAN connectivity, as well as peripheral compatibility. This allows for ease of mobility, which increases efficiency. An abundance of form factors and accessories creates a higher probability that service businesses will find their own uniquely imperative and essential requirements in these devices.

COMMERCIAL/ENTERPRISE-GRADE TABLETS: DISADVANTAGES

At a glance, the initial cost of a commercial-grade tablet is higher than that of a comparable consumer-grade tablet and in some cases, two to three times the cost. But the trade-off is that the consumer-grade tablet will typically last only ½ as long as the commercial-grade device (2.1 v 4.2 years). Based on the research, you will need to buy at least 2 consumer-grade systems to match the useful life of a commercial-grade device, effectively negating the early cost "savings" of consumer systems.

Compounding the cost, factor in that while consumer-grade tablets are less expensive up front, not only do they last ½ as long as commercial-grade devices, they have a significantly higher annual failure rate during that lifetime, resulting in added soft costs of lost productivity and IT costs from downtime.

All too often, what appears to be a cost savings upfront in favor of the consumer device, ends up being a false economy when you look at the true total cost of ownership between the platforms.

CONSUMER-GRADE TABLETS: ADVANTAGES

Consumer-grade tablets are more widely available in comparison to commercial-grade tablets. The initial costs are significantly less than commercial-grade tablets, as these tablets lack the added features and durability required by enterprise and commercial applications.

CONSUMER-GRADE TABLETS: DISADVANTAGES

There is a lack of resilience and dependability in consumer-grade tablets in comparison to commercial-grade tablets. Built for consumer use, they are often unable to withstand the long-term use and demanding environmental conditions common in service businesses. As reported by VDC Research the normal wear and tear of repeated use results in a tablet life expectancy of approximately 2.1 years.

Consumer-grade devices were not created for multi-person use. The fact that these are single-user devices denotes that additional measures are required to secure the device in order to prevent unauthorized users from accessing confidential information.

Integrating consumer-grade devices into enterprise infra-structure can present a challenge. iOS* and Android* operating systems and peripherals are generally not supported by legacy peripherals and systems common in the service industry; meaning that integration procedures often incur additional costs and time that service businesses do not possess. Connectivity limitations imposed by wireless networks, paired with consumer- grade tablets that are unable to accommodate the often limited nature of wireless coverage, can pose an issue as well.

Consumer-grade tablets also bring the risk of theft. They are instantly recognizable, and often lack the theft-prevention capa-bilities that commercial-grade devices contain. There is a substantial market for stolen devices such as these, which further increases the risk of theft.

Apple iPad Air*
& Samsung
Galaxy Tab Pro*

Factors to Consider Before Deployment

- Existing IT Investments
- Technical Infrastructure
- Multiple Location Utilization
- Future Expansion

Intel® Atom™ processors have the processing power required for today's robust applications and multitasking workloads.

EVALUATE YOUR DEPLOYMENT SITUATION

When deploying tablet computing solutions into your business, it is imperative to consider the current environment. Contemplate factors such as existing IT investments, as well as technical infrastructure, including peripherals, networking, and software. Will these devices be utilized across multiple locations? If the tablets will be used outdoors, factors such as screen visibility and resistance to environmental conditions, including sun, moisture, dust and grease are all vital considerations.

One would also want to look ahead to the future, and evaluate how easily additional systems could be paired with existing infrastructure. Commercial-grade tablets typically have longer refresh cycles, meaning that they are more capable of supporting growth and expansion.

Workflows should be tailored and targeted to enhance sales and customer loyalty. Tablet solutions should integrate seamlessly by supporting the business goals of an organization. Minimizing disruptions when deploying mobile workflows is critical. Training requirements for introducing personnel to the new tablets should be considered, as this would potentially result in additional costs and time resources.

OBSTACLES TO DEPLOYMENT

- Tablets used for POS transactions need to be certified under the Payment Application-Data Security Standards, as mandated by the Payment Card Industry (PCI)—an issue for consumer devices, since they are not allowed certification.

- Consumer-grade tablets require cases in order to prevent unauthorized individuals from accessing the buttons to control the devices. This combines with the fact that these devices are not built for everyday service business wear and tear.

- Commercial-grade tablets have user replaceable batteries, while consumer-grade tablets do not.

- Connectivity is challenging with consumer devices, as they are more susceptible to dead spots, while commercial devices have secure wireless LAN and WWAN connectivity and are often designed to connect reliably across a wider range of environments.

- Commercial devices are compatible with Microsoft Windows*-based infrastructures and the corresponding software ecosystem, whereas the majority of consumer devices only run on iOS* or Android* OS.

AFTER DEPLOYMENT: LONG-TERM COSTS AND IMPLICATIONS

At the time of deployment, consumer-grade tablets appear more affordable, yet once maintenance and IT support costs are accounted for, the picture rapidly transforms. The study produced by VDC Research, demonstrates that 1-in-5 of consumer grade tablets will fail annually, in contrast to 1-in-25 commercial grade tablets. Out of the 20% of consumer grade tablets that will fail or break in a year, 45% of these will result in a replacement needed, and 58% of these failures will not be covered by warranty. The study further shows that on average, 78 minutes of worker productivity is lost when a tablet fails, and an average of 53 minutes is required for additional IT support.

In contrast, with commercial, rugged tablets, which are built to withstand the constant use and harsh conditions of restaurant and retail environments, there is only a 4% chance the tablet will fail or break in a year. Out of this small fraction, the commercial grade tablet will only need to be replaced 20% of the time, and only 27% of these occurrences are not covered by warranty.

In evaluating the best platform for your environment, you must very carefully analyze what the total cost of ownership will be in your environment. What seems like a cost economy up front can very easily turn into a failed deployment and cost overruns, without careful consideration of all the factors going into the use case and the platform's ability to live up to the requirements.

An accurate understanding of the true total cost of ownership includes a firm understanding of upfront and ongoing hard and soft costs during the life of an initiative. The table below outlines frequently occurring hard and soft costs associated with tablet deployments. A good understanding of these costs and the frequency of their occurrence will help drive much more intelligent business decisions and an increased probability of project success.
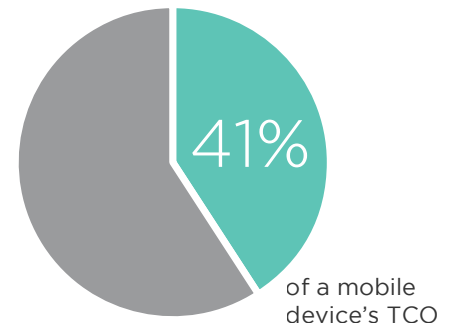
WHAT'S POWERING TODAY'S TABLETS?

ARM* processors are present in most consumer-ready Android*-based tablets, while the A5* family of processors powers the Apple iPad*. These processors can struggle to handle commercial-grade workloads, including the demanding nature of always-on computing. They are often built to handle smaller, consumer-level tasks that don't require extended battery life or multi-tasking capabilities.

Intel® Atom™ processors are used largely in business-grade and commercial-grade tablets. They offer 64-bit performance and multi-tasking capabilities, as well as increased efficiency and long-lasting battery life with Intel® Display Power Saving Technology (Intel® DPST) and Intel® Display Refresh Rate Switching Technology (Intel® DRRS Technology). Both help reduce panel backlight and refresh rate.[2]

Intel ® Atom™ processors power devices that are thin, lightweight, and run Windows 8* or Android* operating systems, making it easier than ever to deploy flexible and reliable platforms. High-quality visuals enabled by display technologies like Intel® Processor Graphics Gen8 allow for an excellent viewing experience. Added features such as high-contract displays, integrated barcode scanners, and cameras complete the package.

Enterprise-class security features make Intel® Atom™ processors ideal for service business integration. Compatibility with a wide range of software and enterprise-class applications allows accepting payments and serving customers to be considerably faster and simpler.

Consumer-grade Mobile Device Failure

53 minutes IT support

lost productivity

78 minutes worker productivity

results in

41%

of a mobile device's TCO

Hard Costs

HARDWARE
• Mobile Platforms
• Peripherals

SOFTWARE
• Upfront Fees
• License Fees
• Development Costs

SYSTEM DESIGN & INTEGRATION
• Upfront Fees
• License Fees
• Development Costs

Soft Costs

TRAINING
• Initial User Training
• On-going User Training

OPERATIONAL
• System Maintenance
• Third Party Technical Support
• Internal Technical Support
• Upgrades
• Application Management

DOWNTIME
• Lost Manpower/Wages
• Lost Revenues
• Hardware Replacement

ARM processors & A5 processors

- Struggle to handle demanding nature of always-on computing
- Built to handle smaller, consumer-level tasks
- Do not have extended battery life
- Do not have multi-tasking capabilities

Intel® Atom™ processor

- 64-bit performance
- Multi-tasking capabilities
- Increased efficiency
- Long-lasting battery life
- High quality visuals
- High-contrast displays
- Integrated barcode scanners & cameras

Consumer-grade Tablets

ADVANTAGES

- Low initial cost

DISADVANTAGES

- Lack of resilience and dependability
- Not created for multi-person use
- Connectivity limitations

Commercial-grade Tablets

ADVANTAGES

- Rugged design
- Enhanced security
- Rated reliable
- High-performance and energy efficient
- IT infrastructure compatible
- Optimized docking solutions
- Secure wireless connectivity

DISADVANTAGES

- High initial cost

CONCLUSION

Carefully consider and weigh both the advantages and disadvantages when evaluating whether a consumer-grade tablet is the right fit for your service business environment. PAR Technology is here to help. We have over 30 years of experience as an industry leader in systems and service solutions for the hospitality industry. We specialize in restaurants, hotels, spas, retail, entertainment venues, and cruise ships.

With POS systems in more than 50,000 restaurants and over 100 countries, we are the leading global provider of hospitality management solutions for enterprises.

For more information:
www.partech.com

1 Hospitality Technology, Restaurant Technology Study 2015 (17th Annual), Mar 6, 2015. http://hospitalitytechnology.edgl.com/reports/2015-Restaurant-Technology-Study98746
2 Intel® Atom™ Processor, Apr 6, 2015. http://www.intel.com/content/www/us/en/processors/atom/atom-processor-details.html