IT OPERATIONS ASSESSMENT AND RECOMMENDATIONS

Prepared for Seaford Union Free School District

Custom Computer Specialists
Right People. Right Results.®

Introduction

Seaford contracted with Custom Computer Specialists (Custom) to conduct an Information Technology (IT) Assessment to:

01 **Provide an objective assessment of their current environment as compared to industry standards**

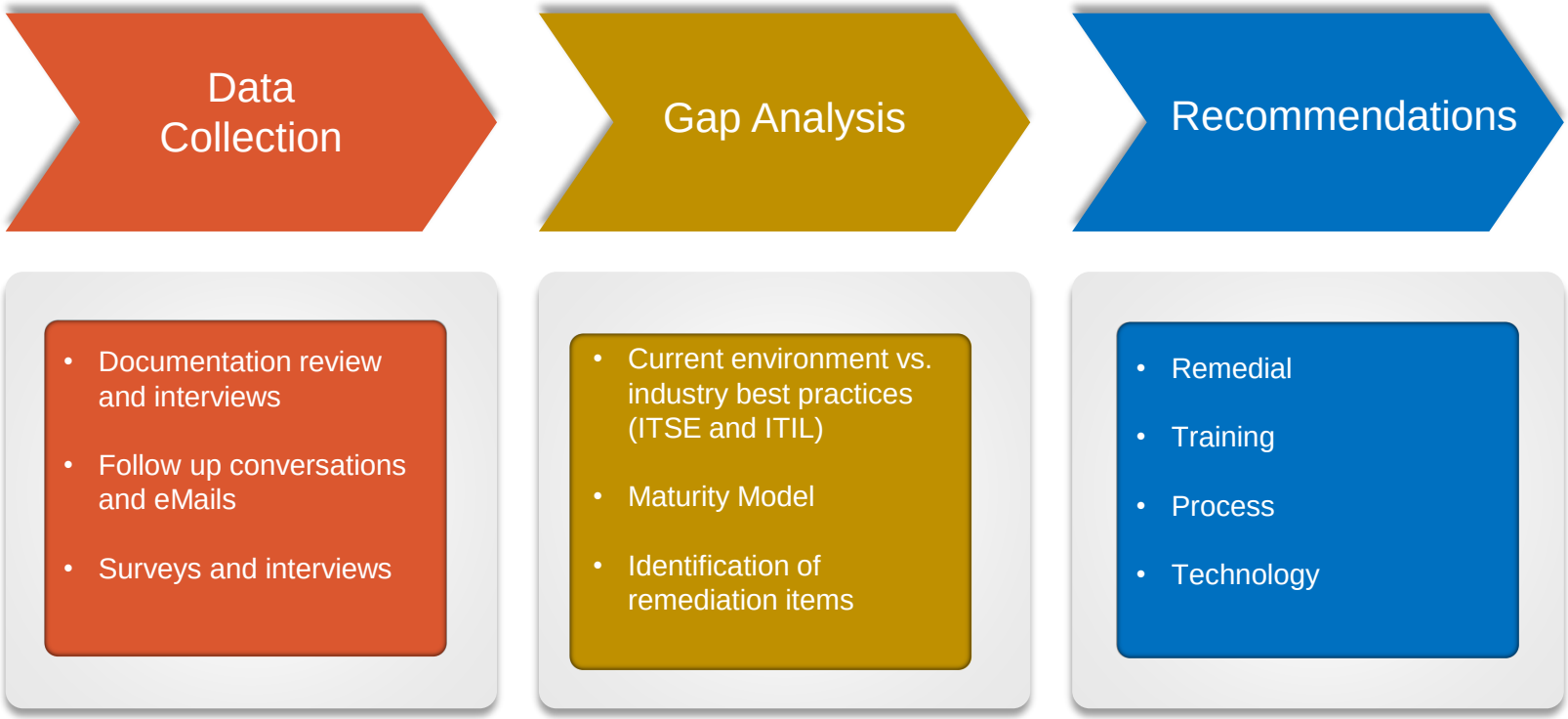
02 **Identify remediation needs and opportunities for improvement**

03 **Assess the network infrastructure and security**

04 **Provide IT architecture planning and guidance to leverage the investment in all four buildings**

Assessment Process

Assessment Execution: IT Operations Consultant, Infrastructure and Security Architect



Custom Computer Specialists
Right People. Right Results.®

Assessment: Efficiency Legend and Interpretation

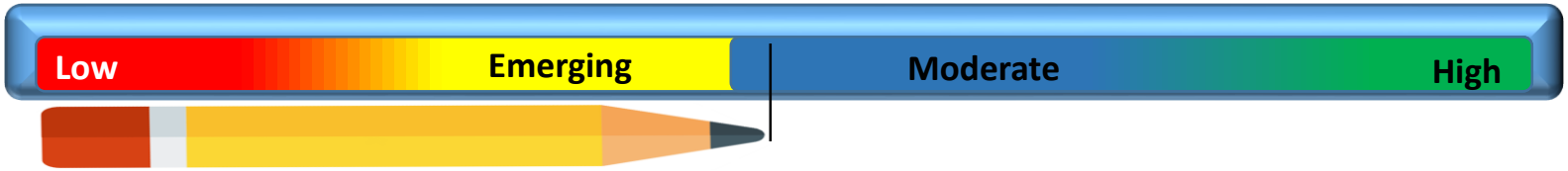
For each domain, Custom evaluated Seaford's current environment against examples of low, emerging, moderate and highly efficient performance.

Low Efficiency
- In need of improvement.
- Apparent lack of planning and /or management.

Emerging Efficiency
- Initial stage of developing efficiency.
- Still generally inefficient

Moderate Efficiency
- Thought has been given and some processes put in place.
- Not closely managed.

High Efficiency
- Well planned
- Intelligent processes are closely managed and refined to produce continual improvements.



Custom Computer Specialists
Right People. Right Results.®

Key Findings

Custom Computer Specialists
Right People. Right Results.®

Key Finding – Current Environment

Characteristics of an efficient K-12 IT environment	Current Seaford Environment
Electronic Ticketing	
Leveraged IT tools	 Tools in place, additional configuration should be done
Instructional Technology Leadership	 This role/function would benefit from a dedicated (FT) resource
Staff with Customer Service Skills	
Staff with Technical Skills	
Project Management Methodology	 Task lists are maintained in central repository. Workplans and portfolio management would improve discipline
Key Performance Indicator Reporting	 Weekly reporting including Average Time to Resolve, Agent Workload, Unresolved tickets, etc.
Performance and Quality Management	 Productivity reporting is done bi-weekly. Director of IT does annual appraisals for each staff member. Weekly KPIs would help drive performance

EXECUTIVE SUMMARY

At a high level, the Seaford IT team does a very good job supporting the current infrastructure and Apple environment. The district is poised to move rapidly from an Apple end-point standard to Windows/PC and will leverage the Personalized Digital Learning Initiative to drive this migration. Key concerns which will be discussed in detail associated to this migration, include: *IT Support Model, Bandwidth allocation and Device selection.*

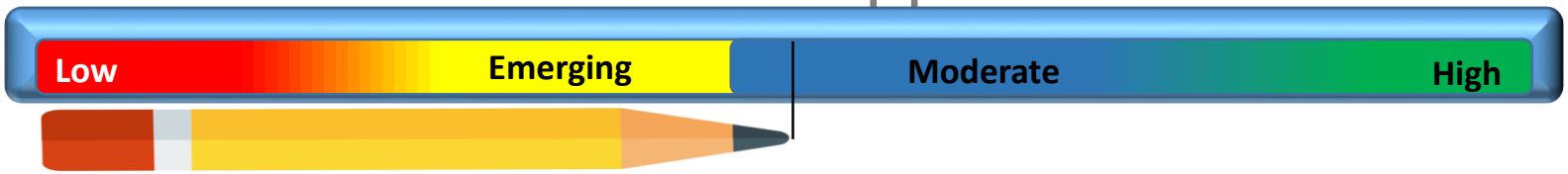
The district has standardized on the SAMR model for Instructional Technology and has a solid plan to train and prepare the instructional staff for the deployment of new Windows devices. We do believe the district would benefit from a dedicated resource to drive SAMR and device training/adoption – at least for the first year of the migration.

The district recently implemented TrackIT as the IT ticketing tool for support issues. This tool is "Best in Class" and should be leveraged to continually improve service levels. Currently, there is no explicit responsibility for assigning new tickets in the queue. While all staff members feel responsibility for the queue, on average it takes 1.7 days for a ticket to be assigned to a technician and 5.5 days to be resolved - the Help Desk Institute (HDI) advocates best practices as within 1 hour for technician assignment and within 48 hours for resolution.

We do believe the Technology Department should adopt a detailed strategic plan operating support plan to reflect a "sea-change" from Apple to Windows (and a dramatic increase in end-point devices). There have been discussions around establishing a "depot repair" shop and maintaining a 10% spares inventory, but we would recommend having a fully detailed strategy and tactical plan. Additionally, staff certification and skill inventories and experience reflect a team focused on support of an Apple environment, a thorough support strategy will include compensating changes to the support staff profile to ensure the Windows devices are expertly supported.

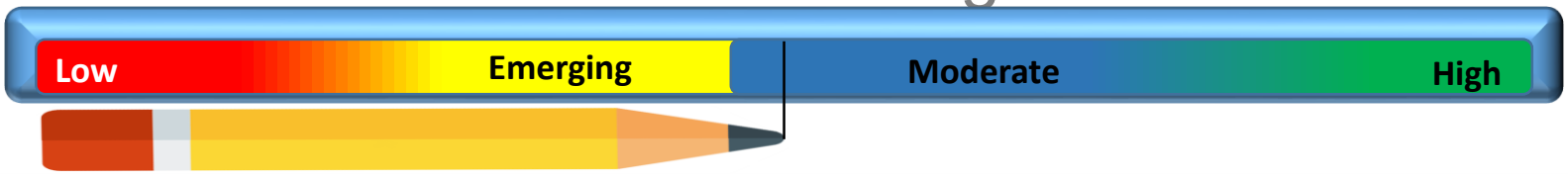
As part of this assessment, we did survey end-users from the pilot groups using both the Acer Switch Alpha 12 and Acer R-14 devices. While both devices meet operating requirements, we were surprised to find that end-users had much more positive impressions and feedback for the R-14 device over the Switch. We will discuss those findings in more details.

Current Environment – IT Support



Domain	Strength	Weakness	Opportunity
Electronic Ticketing	TrackIT is best in class.	Lack of queue management / no explicit ownership of ticket assignment. No weekly KPI reporting	Create a weekly Key Performance Indicator (KPI) report. Measure Average Time to Resolve (ATTR). Use reporting to help drive higher levels of service. Assign a "queue manager"
Escalation Process	Team communicates well and is eager to assist each other with issues	Explicit escalation paths for specific technologies	Establish an escalation matrix that defines ownership over specific technologies
Incident, Problem and Change Management	TrackIT is currently in use for incident management and can be leveraged to provide Problem and Change Management	No formal process around infrastructure changes (change management) or problem management	Deploy Change and Problem management workflows in TrackIT to closely manage changes to the environment and provide resolution for recurring problems
Break-Fix	Budgeting for 10% spares	3 year warranty against a 5 year expected life-span could add cost	Consider extended warranties or deeper spare inventory after 3 years

Current Environment – IT Management Processes

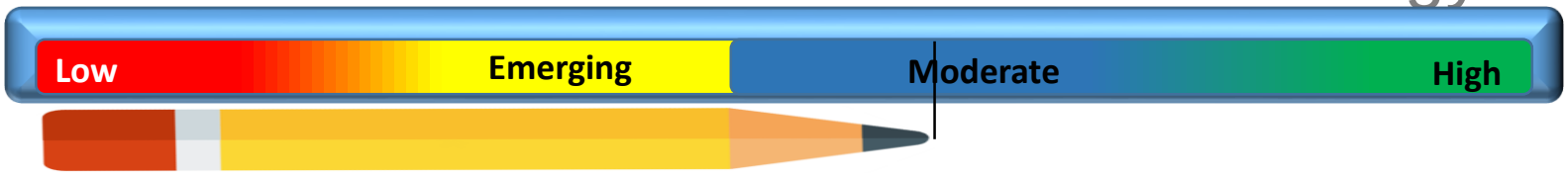


Domain	Strength	Weakness	Opportunity
Project Management	Leveraged use of vendors for critical infrastructure projects. Task tracking and collaboration tool	Limited formal project management methodology	Establish formal Workplan template along with project portfolio methodology to manage budget, timelines, resources
Reporting	TrackIt has strong reporting capabilities	Currently no weekly Key Performance Indicator (KPI) reporting	Develop a weekly KPI dashboard including Average Time to Resolve (ATTR), individual and team performance statistics
Performance Management	Reliable sources of data exist to implement a performance management program. Annual appraisals delivered with standard form	Currently IT staff are not provided with quantified performance feedback	As part of a weekly KPI program, meet regularly with each staff member to review their performance compared to team averages
IT Leadership & Vision	Sensible long-range infrastructure planning/budget along with Tech Steering Committee	District does not have a dedicated resource driving direction of Instructional Technology	Consider having a Full Time resource to help drive adoption of Personalized Digital Learning

Current Environment – Instructional Technology Infrastructure

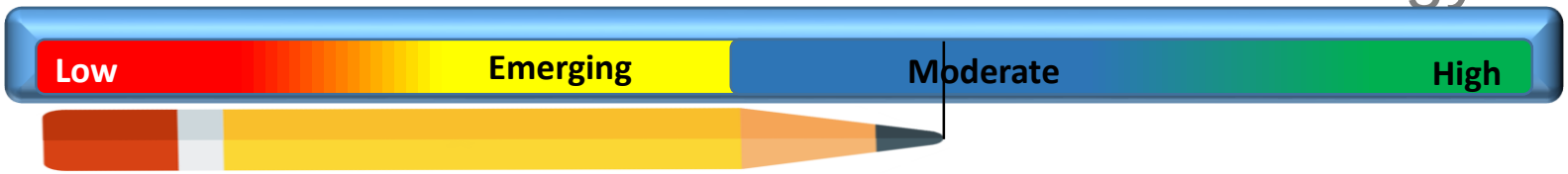
Domain	Strength	Weakness	Opportunity
Interactive "Whiteboards"	Projectors/Whiteboards in all classrooms	Some complaints about the Epson projectors/Smartboard compatibility issues	Continue to review projector / classroom hardware options
Computer Saturation / Usage	All teachers & administrators have computers.	Support staff is geared toward an Apple environment	Diversify support staff to include Microsoft/Windows specialists
Student Information System	Infinite Campus has been in place over 20 years	Ad-hoc reporting often requires the services of developers at additional cost	Consolidate "wishlist" or recurring needs and secure pricing options
Productivity Tools	Office 365 (O365) recently deployed	Some inconsistent user experiences – specifically with Outlook synch issues	Consider incorporating individual with strong Microsoft/O365 skillset to existing team

Current Environment – Instructional Technology



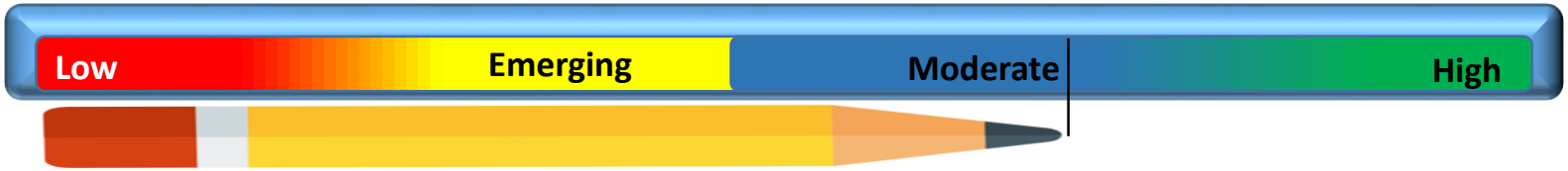
Domain	Strength	Weakness	Opportunity
Instructional Technology Advisory Committee	ACT – Technical Advisory Committee has been in place for over 6 years	There has been some turnover of members in past few months	Ensure the committee is aligned to provide support for Personalized Digital Learning
IT Leadership	Director of Educational Technology provides onsite leadership to the support team and also manages budget/planning	The district would benefit from additional focus on driving Instructional Technologies through the district	Establish an Instructional Technology Administrator role. Consider expansion of Tech Mentor role
Professional Development	Full plan and curriculum to deliver PD for the migration to Windows via BOCES	Internal resource constraints and plan to continue to drive the effort	Restructure approach toward Instructional Technology to provide a Big (sustained) Push behind rollout of Personalized Digital Learning

Current Environment – Instructional Technology



Domain	Strength	Weakness	Opportunity
Instructional Applications	Broad catalogue of applications which are Operating System independent	Some content is blocked. Surveys indicate video sites are not reachable	Expand abilities to stream video while maintaining filtering standards
SIS Integration	District has been working with the SIS tool over 20 years	Integration opportunities around assessment, HR, financials and rosters	Prioritize integration items and determine costs and logical progression

Current Environment – Tools



Domain	Strength	Weakness	Opportunity
Remote Support	Widespread use of Apple Remote Desktop and some use of Goverlan for Windows	Should identify a single solution for remote access	Select a Windows-centric tool with User authorization and security features
Desktop Management	WSUS server in place presently	Imaging tool for Windows 10 not yet identified	Because Windows 10 utilizes more complex settings than previous OS' identify a reliable imaging tool after testing
Network Monitoring	"DNS made easy" and SNMS	In one case it was observed that a physical network link was not operational and it did not appear the onsite engineer was aware(notified)	Ensure monitoring tool covers all physical and logical links and that alerts are configured
Self-Service and Knowledge Management	Internal web pages for support. Well detailed and easily accessible	Users are unable to reset their own passwords	Implement a password policy via Active Directory

Success Requirements for Personalized Digital Learning

Requirement	Maps to	Benefit
Ongoing Professional Development	Instructional Technology Administrator	User adoption, fewer support issues
Instructional Technology Innovation	Instructional Technology Administrator	Improved learning outcomes, competitive advantage for students
Advocate for Students and Instructional staff	Instructional Technology Administrator	Alignment of IT with user needs
Instructional software evaluation / identification	Instructional Technology Administrator	Continual innovation, competitive advantage, improved learning outcomes
Incident, Problem and Change Management	Director of Technology / Team Leader-Queue Manager	World-class service levels. Elimination of ongoing issues
Weekly Key Performance Indicator (KPI) Report /Dashboard	Director of Technology / Team Leader - Queue Manager	Continual improvement of service levels. Accountability
Timely resolution of support incidents	Director of Technology / Team Leader - Queue Manager	Minimal down-time
Wireless Expertise	Director of Technology / Senior Systems Engineer	Continual refinement of configuration and operating performance
Project and Vendor Management	Director of Technology / Senior Systems Engineer	Cost containment & Quality control
Procurement/Imaging/ Deployment Project Management	Director of Technology / Senior Systems Engineer	Issue-free transition to Windows
Office 365 Expertise	Director of Technology / Senior Systems Engineer	User adoption, reliability, less down-time

Recommendations

01 Support Model

02 Instructional Technology

03 Personal Device Deployment

04 Bandwidth Allocation

Recommendations – Support Model

Seaford is undertaking a dramatic change to the IT environment, both in terms of basic technology (from Apple to Windows) and in terms of scale (adding roughly 1,000 devices each year over the next 3 years). The Technology Department must be responsible for providing a well considered plan and approach to support the influx of new technology:

- Based upon new device counts, establish projections for increases in tickets entered (by type) and anticipate staffing needs by Level (expectation would be a temporary spike in Level 1 tickets shortly after device deployments, then an up-tick in connectivity related tickets that may require a higher level skill set in Wireless). Ensure support team has requisite Windows support abilities.
- Assign explicit management responsibility for the ticket queue. Set Service Level Targets (SLT's) for ticket assignment to technician within 2 hours and issue resolution within 48 hours.
- Establish weekly KPI reporting regimen. Produce dashboard detailing performance against SLT's and distribute to administration and stakeholders.
- Develop a deployment project plan that will provide a work-breakdown structure detailing tasks, personnel, budgets and timelines for the deployment of the "net-new" Personalized Digital Learning devices. This plan should address lifecycle tasks:
    - Procurement
    - Receipt/Inventory
    - Imaging
    - Testing
    - Distribution/Inventory
    - Day 1 / Day 2 support

Recommendations – Instructional Technology

Most K-12 School Districts struggle to balance the demands between IT Infrastructure (networks, servers, devices and "plumbing") and Instructional Technology. It is rare that an IT Director "ticks all the boxes" on both sides of the equation. We would recommend that the district considers taking measures to ensure that Personalized Digital Learning is fully embraced and positioned for long-term success.

- Create a new role "Instructional Technology Administrator". This individual will help drive Personalized Digital Learning initiative and be responsible for providing vision and innovation over the long-term:
  - Professional Development (ongoing)
  - User adoption of devices - may include development of tutorials
  - Innovation and Evangelism – identification and communication of software and methods to drive the SAMR model forward
  - Advocate for users and Instructional staff around service levels, network performance, content filtering
  - Provide ongoing feedback to continually align Personalized Digital Learning with emerging needs and issues

Recommendations – Personal Device Deployment

The procurement, imaging, preparation and distribution of ~1,000 devices is an undertaking that should not be underestimated. We recommend that a formal project be established to minimize risk and ensure that the effort runs smoothly.

- Establish project plans, timelines, resource plans and labor/incidental budgets in advance:
  - Identify Project Manager
  - Timeline for hardware deliveries to ensure there is no backlog or slack time
  - Establish inventory control policies and procedures
  - Establish imaging process and procedures
  - Establish distribution site(s), methodology and timelines
  - Develop “care and feeding” training to equip new users to operate and care for their device

Recommendations – Bandwidth Allocation

Industry benchmarks peg ideal bandwidth allocations per student for “1:1” environments in the range of 100Kbps/student (edweek.org, educationsuperhighway) to 220Kbps/student (brooking.edu).

Currently, the district leverages two ISP connections for a combined peak bandwidth capacity of 250Mbps (which would cover approximately 2,500 users at 100/Kbps).

- Increase current ISP connections for a minimum total of 300-350Mbps
  - 3,000 simultaneous device connections multiplied by 100kbps = 300Mbps
- Secure pricing/availability for Gigabit range ISP connections

Survey Results

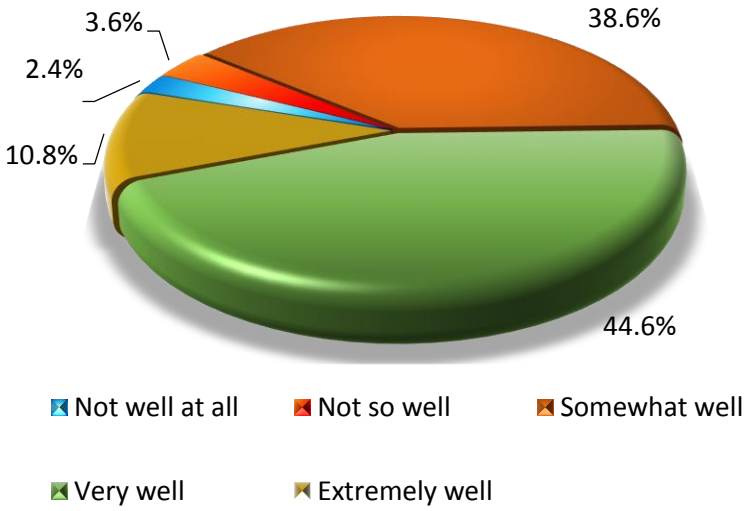
Custom Computer Specialists
Right People. Right Results.®

Survey Findings – Student Devices

- Users were asked to rate how well the device meets their needs:

Acer R-14

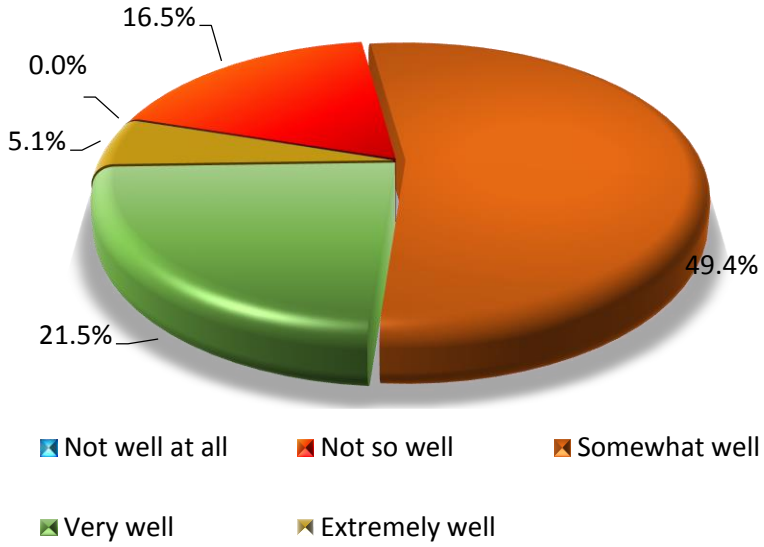
55.4% "Very Well or Extremely Well"



N=83

Acer Switch Alpha 12

26.58% "Very Well or Extremely Well"



N=79

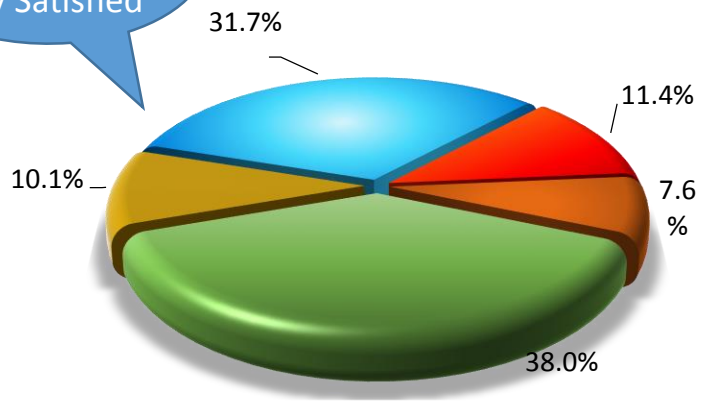
Custom Computer Specialists
Right People. Right Results.®

Survey Findings – Student Devices

- We compared survey responses of High School students (who took their devices home) against Middle School students (who left their devices at school) and found High School students had more positive feedback across the board than the Middle School students did (both groups were issued the Acer Switch):

Acer Switch Alpha 12 – Middle School

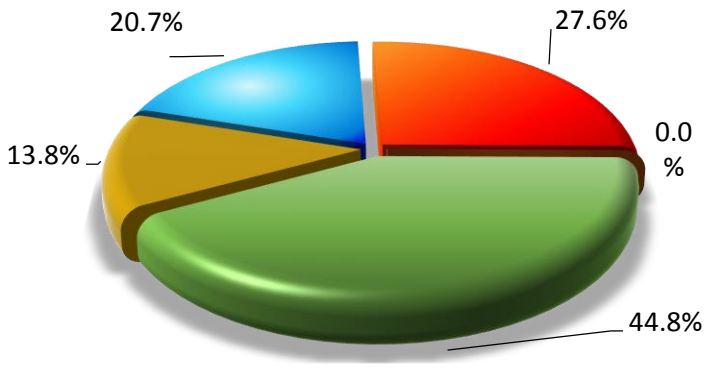
48.1% "Somewhat or Very Satisfied"



N=79

Acer Switch Alpha 12 – High School

58.6% "Somewhat or Very Satisfied"



N=29

Custom Computer Specialists
Right People. Right Results.®

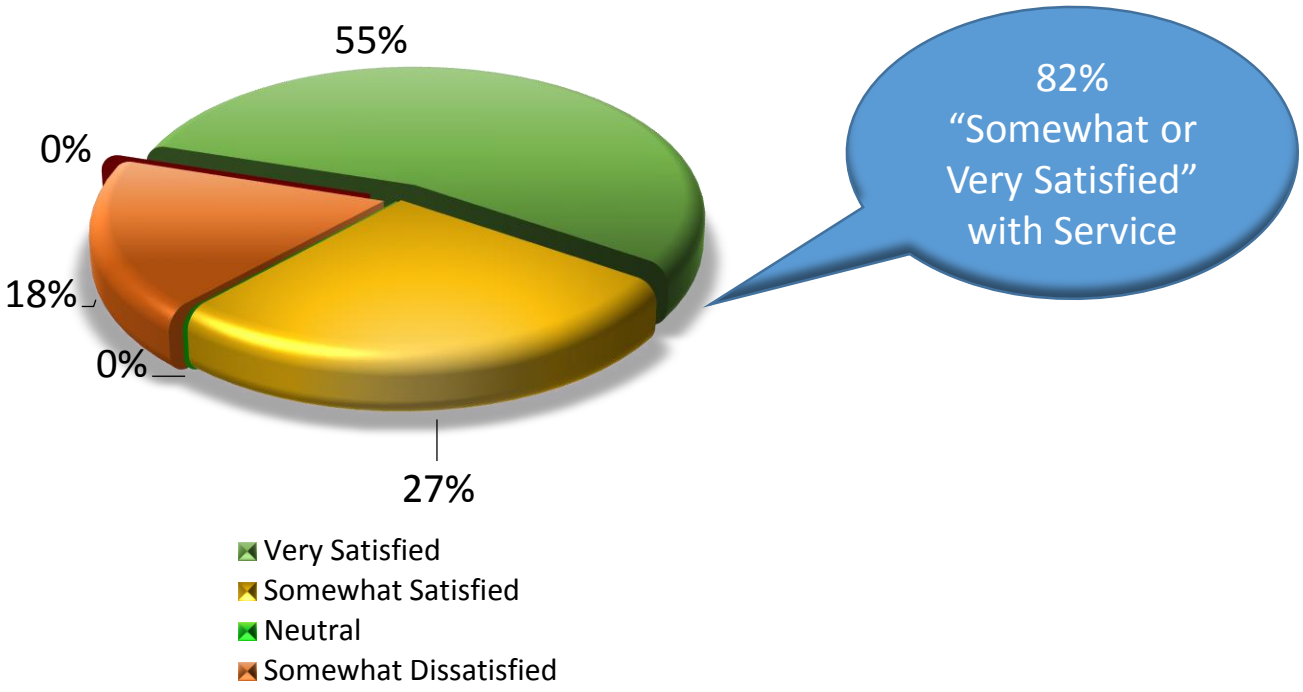
Survey Findings – Student Devices

- Although both devices in the Pilot population exceed technical requirements and would provide a solid foundation for Personalized Digital Learning, User surveys produced some very notable responses:
  - R-14 users are generally more satisfied with their device.
  - R-14 users rate the Quality and Usefullness of their device more highly than Switch users.
  - Both user groups appear to have issues with Wifi and slowness as well as blocked sites (YouTube).
  - Switch users often felt the device was heavy, had a shorter battery life and disliked the keyboard more than R-14 users.
  - Switch users stated that the Kickstand was fragile and they dislike the case.
  - Switch users were more likely to express a need to be trained on proper use of the device.

Survey Findings – Customer Service

- Respondents were asked to how satisfied or dissatisfied they were with the Service provided by the Technology Department:

Overall Satisfaction



N=22

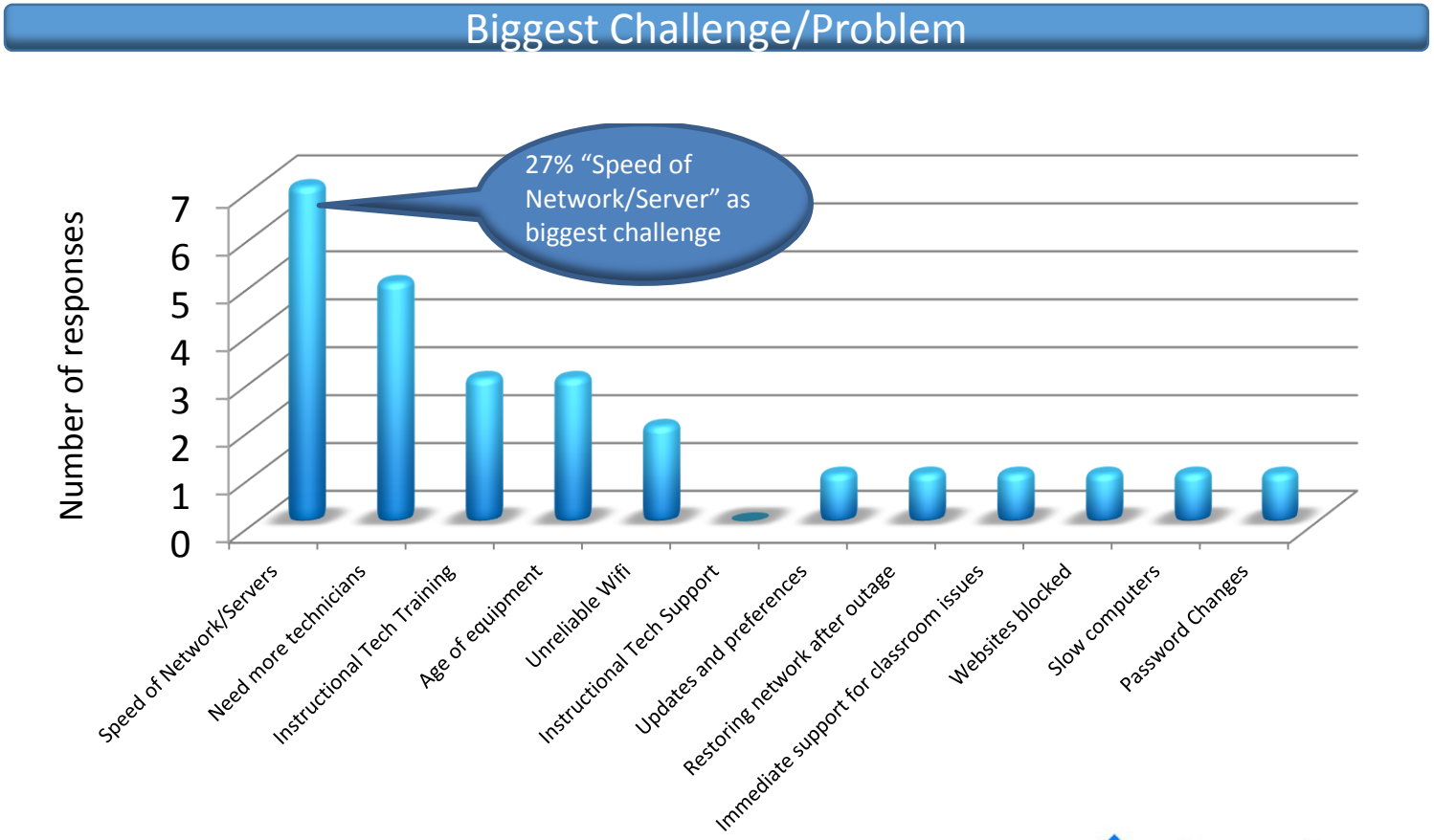
Custom Computer Specialists
Right People. Right Results.®

Survey Findings – Customer Service

- Respondents were asked to provide any additional comments, responses below:
  - *The ticket system is effective, but sometimes I have questions and really can't get answers. It would be great to have a person to speak to.*
  - *Perhaps a "help desk" that would take questions, concerns.*
  - *Password change difficulties need to be addressed quicker. It's a nightmare.*
  - *The department does the best they can with the resources they have.*
  - *The network and computers are too slow. There seems to be many issues that develop, that should be planned for on the network when hardware and software are installed. Teachers should be consulted about the set-up before technology is installed in a room those teachers will use.*
  - *I would like more devices available for student classroom use.*
  - *Faster network, various restrictions lifted such as 1) cameras allowed on iPads, 2) apps vetted by teachers allowed, 3) support for social media, 4) Netflix permission for instructional use, etc.*
  - *Test making software and remote access software (to the students computers) should be installed on teacher's computers.*

Survey Findings – Technology Challenges

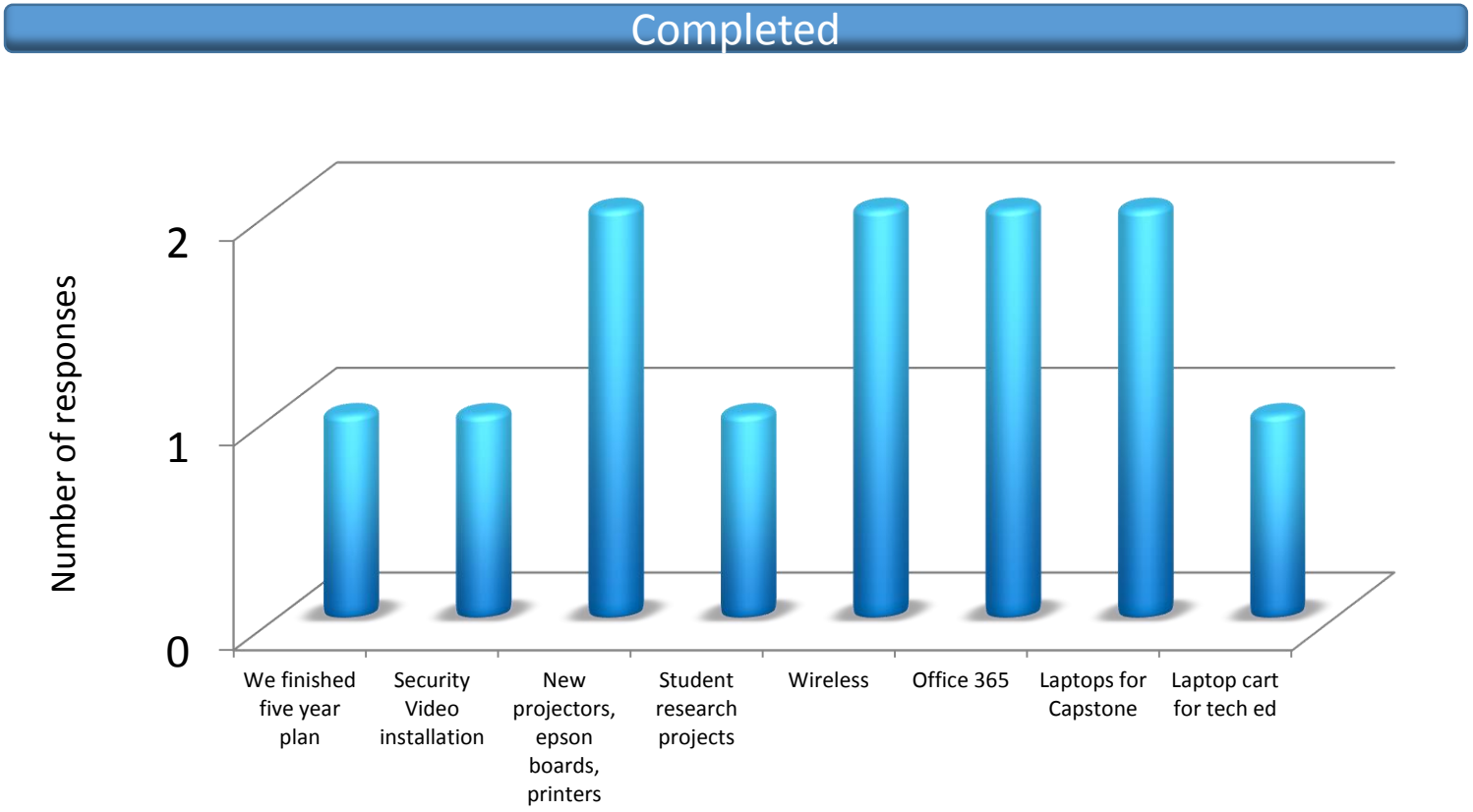
- Respondents were asked to indicate the single biggest problem or challenge in the Technology Environment:



N=26

Survey Findings – Technology Projects

- Respondents were asked provide a brief description of Technology projects completed in the past 18 months:



N=14

THANK YOU

Custom Computer Specialists
Right People. Right Results.®