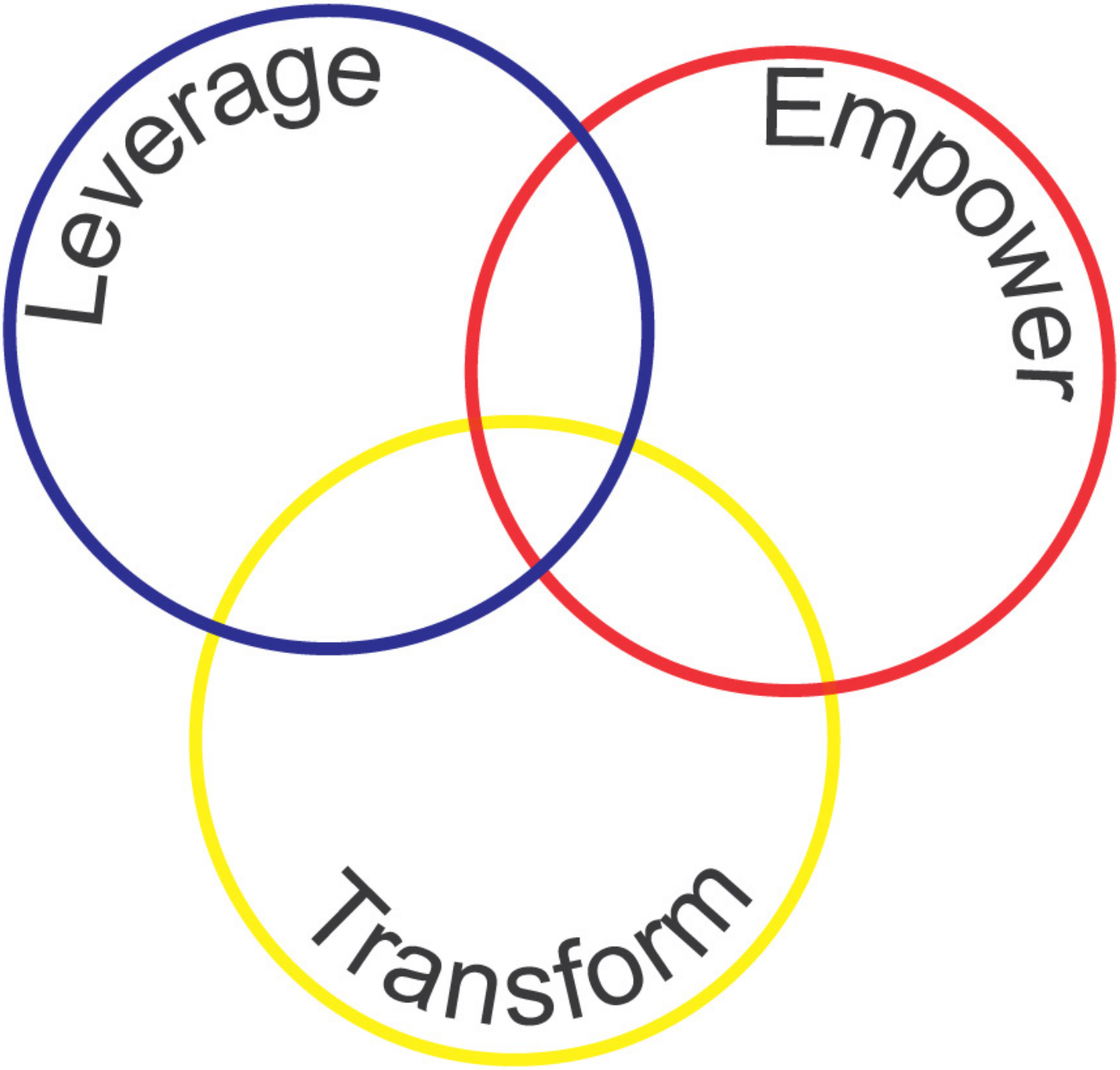
CATAWBA COUNTY

North Carolina



Guiding Principles and Future Plans

leverage - empower - transform

Guiding Principle: Leverage Partnerships and Resources

Intent: Leverage innovative partnerships to offer better services.

Partner with the school systems, municipalities and other agencies to offer services that are common to all: Local government agencies and the school systems have many common technology needs. Working together, will ensure that infrastructure, operating systems and applications will be interoperable and scalable. Purchases of hardware and software can take advantage of quantities of scale while affording smaller agencies the same opportunities as larger agencies.

Intent: Leverage resources to capitalize on the County's investments.

Take advantage of existing resources combined with new ideas and solutions to maximize the county's investments.

Guiding Principle: Empower Users - Internally and Externally

Intent: Engage and empower personnel with efficient, agile systems they can trust.

Promote various methods of communication to foster conversations throughout the user community. Provide training opportunities to engage and empower users to be successful. Ensure secure access to systems, yet allow flexibility to users to conduct business.

Intent: Empower and engage the Public with secure access to information and services on demand.

Engage the public with secure, accurate, and timely information. Accurate information is a reasonable expectation of our citizenry and our local businesses. Local governments collect and maintain information that represents our community. Our users have a right to that information delivered in a timely, accurate and secure manner.

Design with the intention of engaging our community. Allow transparency and personalization. Foster conversation - listening to requests and providing value added, instead of complex solutions.

Guiding Principle: Transform Services and Processes

Intent: Transform services by improving key business processes through innovation.

Use innovative technology to build systems of engagement. Practice applying comprehensive and consistent methods so that business processes align with the core goal of allowing access to information anywhere, anytime.


Leverage
Partnerships
Resources


Empower
Public
Workforce


Transform
Services
Processes

Where We Are Going...

Transparency

Open government is a growing expectation from the public. We currently have many options for downloading various data sets from the County web site and continue to provide more information in “self-serve” formats. In fact, there is a web page that lists all the options in one location: http://www.catawbacountync.gov/datasets/. There are tax, building permit, GIS, restaurant health scores, current job openings, elections and many more datasets available for download and use as needed. In addition, to promote innovative uses of information, we intend to avail Application Programming Interfaces(APIs), with real-time data for developers.

One example of a service that will be added soon is Incident Reports from the Sheriff’s Office. There are many daily requests for Incident Reports by various media outlets and the public. The current process requires staff time printing, manually redacting and copying each report as it is requested. The online process will allow requesters to choose which reports they would like to have copies of and then download or print as needed. Another area of expanding transparency includes reviewing fees for certain data that should possibly be available at no charge. Currently we charge fees for several of our data layers within GIS. This is due for a review and the expectation is that several more layers will be added to the current list of available layers free of charge. We plan to be proactive in adding more information, services and datasets to promote transparency wherever possible.

Engagement

It is important to use various means and methods to foster conversation with citizens. The Technology department strives to research and make available a variety of tools to enrich communication. Currently, the organization and most departments use multiple social media tools to assist in these efforts. As more applications rely on video and text based communications, we plan to provide infrastructure, devices and training needed to support the additional processing requirements on staff and other resources.

Justice Center Expansion

The Catawba County Justice Center is slated for expansion beginning in 2013 with completion in 2015. The expansion will mean the addition of four to five courtrooms, relocation and new facilities for the Clerk of Court, relocation and new facilities for the District Attorney's Office and several other court related functions. The expansion will also include a new Emergency Operations Center, administrative offices for Emergency Services and a new 911 Communications Center.

Catawba County is working with Winbourne and Associates to plan install and implement the technology needed in this new facility. The technology consists of complete infrastructure to support voice, video and data; security functions such as video surveillance, entry access, and metal detection; desktop functions for the EOC and the 911 Center including voice, video and data; and complete replacement of all the 911 Center equipment.

This project requires coordination of funding and services between the County, the State Office of the Courts, and the State 911 Board. The Technology Department will work closely with Winbourne to ensure that the best technology services are acquired and implemented in the project.

Partnering Projects

Continuing the County's tradition of partnering with other governmental agencies, we plan to seek new opportunities to share common interfaces and resources where possible. For example, there are tremendous possibilities for Public Safety agencies to share systems and services providing benefits such as faster response times, lower cost, flexibility, etc.. Capitalizing on the success of the address points layer, GIS will be working with municipalities to develop more multi-jurisdictional layers to improve accuracy and reduce redundancy in staff efforts. GIS will also be exploring ways to expand on the current Regional Real Estate site. Pursuing and expanding opportunities to provide hosted/cloud services for other agencies will be a priority.

Next Generation 911

The evolution of emergency calling beyond the traditional voice 911 call has caused the recognition that our current E911 system is no longer able to support the needs of the future. Next Generation 911 (NG911) networks replace the existing narrowband, circuit switched 911 networks which carry only voice and very limited data. Currently there are difficulties in supporting such things as text messages for emergencies, images and video (including support for American Sign Language users), and easy access to additional data such as telematics data, building plans and medical information over a common data network. In addition, the need for inter-communications across states, between states, and across international boundaries requires that we create a more flexible 911 system design with much greater data handling capabilities. A highly standardized system is essential and critical to seamlessly support communications and data transfer across county and state borders, and across the multitude of emergency response professions and agencies, from traditional PSAPs to Poison Control Centers, trauma centers, the State Highway Patrol, and disaster management centers. There will be numerous and varied steps toward the new system named NG911, and vendors are already referring to their products as aimed at, enabling, or being wholly NG911 compliant. Vendors who have direct experience with parts of today's E911 system and service, and who are directly involved in NENA and other standards development can and are starting to produce NG911 oriented products. The direction of the standards that will support NG911 is becoming clear, and demonstrations and trials are beginning to appear and will contribute to continued standards development. Despite this progress, a fully featured, truly "standards based" NG911 system is not yet identifiable, because the necessary standards are still in development.

The primary goal of the NG911 System is to save lives, health, and property by improving emergency services access and response in the United States. The state of the NG911 System also has a major effect on transportation security, mobility, and efficiency.

Replacement of Public Safety Software/ Formation of a Public Safety Task Force

Catawba County currently uses Visions software from TriTech for most of its public safety related functions. Over the past year, Visionair was purchased by TriTech. The resulting support and upgrades have caused numerous problems that have not been resolved by the company. The Technology Department feels that it is time to explore another software to support public safety functions.

There are also other public safety issues that could be addressed during this review. First, Hickory Police Department and Newton Police Department run secondary PSAPs and use OSSI software. The result is the inability of these communication centers to share data related to 911 calls. If all three centers shared a common platform this would make data sharing easier and at the same time provide needed information to make our county, including the municipalities safer. Second, the fire departments use a variety of software for reporting making it difficult and time consuming for the reporting and data analysis. This is an excellent opportunity to merge this into a consistent, coherent platform across the county. Third, Medical First Response needs a new reporting tool. An integrated solution would make reporting easier for Medical First Response and provide better data across the county.

Finding a solution that can be agreed to across political and municipal lines will be difficult. However, it is imperative that public safety work together to find a common solution. The current system made up of many pieced together systems does not function well and ultimately is dangerous for the citizens it claims to protect. It will require buy in from numerous agencies from commissioners to city councils to the public safety organizations. To do this, the Technology Department is recommending that the County Commissioners working in conjunction with the city councils appoint a task force to study the issues and make recommendations that support the overall safety and wellbeing of the entire county. Make-up of the task force needs to be varied and representative of all the agencies involved.

Replacement of Desktop Applications

Office Products
The Microsoft Office Suite is the de facto standard for many organizations and offer many powerful tools. As users and processes evolve, technology should be able to accommodate these needs. Collaboration efforts and access to documents should be flexible - available anytime, anywhere.

The standard of the same platform for all users regardless of skill set may have to be revisited. If we are to truly “empower” users, we should be able to provide products that fit their specific need. Many users do not use the MS Office Suite to the full potential, running a hybrid solution may be the best solution to save cost and to empower the user. A hybrid solution consisting of the MS Office Suite and other alternatives such as Open Office, Libre Office, Google Apps, and Office 365 will enable individuals to have more tools at their disposal.

Several options are being evaluated and solutions range from $70,000 to almost $475,000.

GIS Desktop Applications
There is a heavy reliance of GIS desktop applications in many offices (Tax, Planning, Building Services, EDC, etc). The technology behind these applications is aging out. To take advantage of newer technologies these applications will be replaced. This may be through internal application development or expanding the GIS integration in existing applications within these departments.

Email Solutions

Emailing is a popular a way of communicating. It is a critical business function. Email, like other technologies, has evolved. It is an easy and efficient way to communicate.

Current setup includes on-site email servers with an email archiver and spam filter. This requires the County to dedicate staff to maintain equipment and software. If any component fails email services will cease to function. Alternatives to the current setup would be a “Cloud-type” email system, where all that is required from the “end-user” is an Internet connection - access to email is not dependent on a single on-site device. The annual costs associated with this project will range from $90,000 to $210,000.

Paper Intensive Processes

One of the goals for the Sustainability Catawba County Plan is: “Develop a targeted list of paper-intensive processes & prioritize for automation / conversion to paperless.“ From this list, the Technology Department has a two part plan to assist with improving processes and reducing the amount of paper used.

The first step is to work with departments to analyze and evaluate existing procedures and options for redesigning and/or optimizing them. By using available modern tools, most paper intensive processes can be updated to work more efficiently electronically. For example, a lot of businesses now offer e-bills and e-receipts to patrons. Many customers prefer to receive bills and receipts via email because it is more convenient to manage. It also prevents printing, postage costs and materials. Electronic signatures are widely accepted for most documents and are a cost effective alternative to printing documents for hand written signatures. There are many areas where this may be a viable option.

The second step is to provide and manage a secure, reliable repository for managing and storing electronic documents. Most departments currently use electronic storage for historical documents. As new systems are implemented, daily work is also being managed electronically. Forms, applications, permits, letters and reports and more are not being printed at all in some cases. Rather, they are filled out and routed via software to completion. By fully utilizing the Enterprise Content Management system (ECMS), there will be a single repository for institutional documents that is secure and efficient for preserving information. The projected cost to upgrade the system is $100,000.

SharePoint Upgrade

The County uses Microsoft SharePoint for project and document collaboration, document storage and Intranet services. The scheduled upgrade will provide productivity improvements and new developer toolsets to enables faster development and greater efficiency. A SharePoint expert consultant will be retained to perform the upgrade and educate staff regarding best use and management practices. In addition to the ongoing costs associated with SharePoint, the consultant fees will be approximately $20,000.

UPS / HVAC in Datacenter

Critical systems such as 911, EMS, and public safety require 100% up-time which requires proper cooling and power. Current setup does not allow for redundancy. We plan to provide alternative options to ensure the continuous availability of the systems. Modern systems are more efficient and leave a smaller carbon footprint. As aging equipment becomes less efficient and more costly to maintain, we have to look at the overall “Total Cost of Ownership” of the existing solution. To provide redundancy, contain costs and be environmentally conscious, updated systems are recommended.
Cost Breakdown:

UPS/Mechanical Work	$65,000
HVAC	$95,000
Electrical	$36,000
Total Cost	$196,000

Network Infrastructure

Data that is traveling across the network has changed. The number of devices that are connected to the network has increased dramatically. To accommodate and prepare for the future, these network devices must be constantly upgraded. Devices that inter-connect buildings or remote sites will need to be updated to provide greater efficiencies for data transfer.
Current wireless technology requires a controller to manage and maintain the wireless access points. If the controller happens to go down - the wireless network goes down with it. Hundreds of access points resting on the shoulders of one device will work, but is it the best way today? Leveraging a “controller-less, cloud-based” wireless system may be ideal. Wireless access points not having to rely on a controller for management purposes but rather acting as individual, independent units. If a wireless access point goes down, it’s the only one that goes down. This solution provides for greater efficiency allowing Technology to “Do more, Manage Less”.

The projected cost to upgrade the wireless network is:

Access Point Devices	150 @ 555	$83,250
Access Points License		$18,000
Total Cost		$101,250

Enhancing Mobility

A strategic decision was made that future projects will be device independent. The county has also made a commitment to maximize mobile abilities for the workforce. Recent upgrades to web based applications allow us to explore the use of GIS, GPS, video communication, and enhanced customer experiences in a mobile environment. Specifically, mobile processes in the Building Services and Tax Appraisal areas are slated to be reviewed and evaluated to add value to the experience for both the staff and their customers.

Redundant Link to Internet

In today's mobile world, our connection to the Internet is more critical than ever. Many of our operations depend on 100% uptime connection. Examples include Social Services software, Public Health software, DCI software and the many Citrix Connections from remote workers. This coupled with the fact that we provide Internet service for several of the municipalities increases the importance of this connection. Any downtime has detrimental effects on the services that we provide to our daily business operations, other municipalities, and most importantly our citizens. Catawba County currently has a 100Mb pipe to the Internet. With current load we bounce between 50 and 90% capacity. With ever increasing need, capacity will need to be expanded in the near future. This is the perfect opportunity to review our current services and build redundancy into the infrastructure.

New providers for Internet services are coming online every day. It is probably in the best interest of the county to seek redundant paths with two different providers and possibly from two different locations. This would eliminate the possibility of share failures and reduced the possibility of an infrastructure failure. Possible funding for this could come from increased competition or from updating phone services to SIP trunking.

The approximate annual cost for redundant Internet access is:

SIP Trunking 12 @ 3,686	$44,232

Provider services will vary depending upon bandwidth purchased. The current pricing breakdown is:

100Mb	12 @ 2,444	$29,328
250Mb	12 @ 3,619	$43,428
500Mb	12 @ 4,369	$52,428

Cloud Solutions

Many different types of “Cloud” technology such as Private, Public, and Hybrid are available today. The Cloud enables users to access data anywhere, anytime but it is not a one size fits all, solution. We will approach the Cloud with the concept that it has benefits in certain areas and not in others. Services ranging from hosted office and email applications to file storage may be practical. Currently the County provides “Cloud” services to other agencies for data backup, storage solutions, email, and web hosting. We will continue to explore ways to extend our partnerships with local agencies. Future projects will be evaluated with each solution to determine whether the Cloud is a viable option.

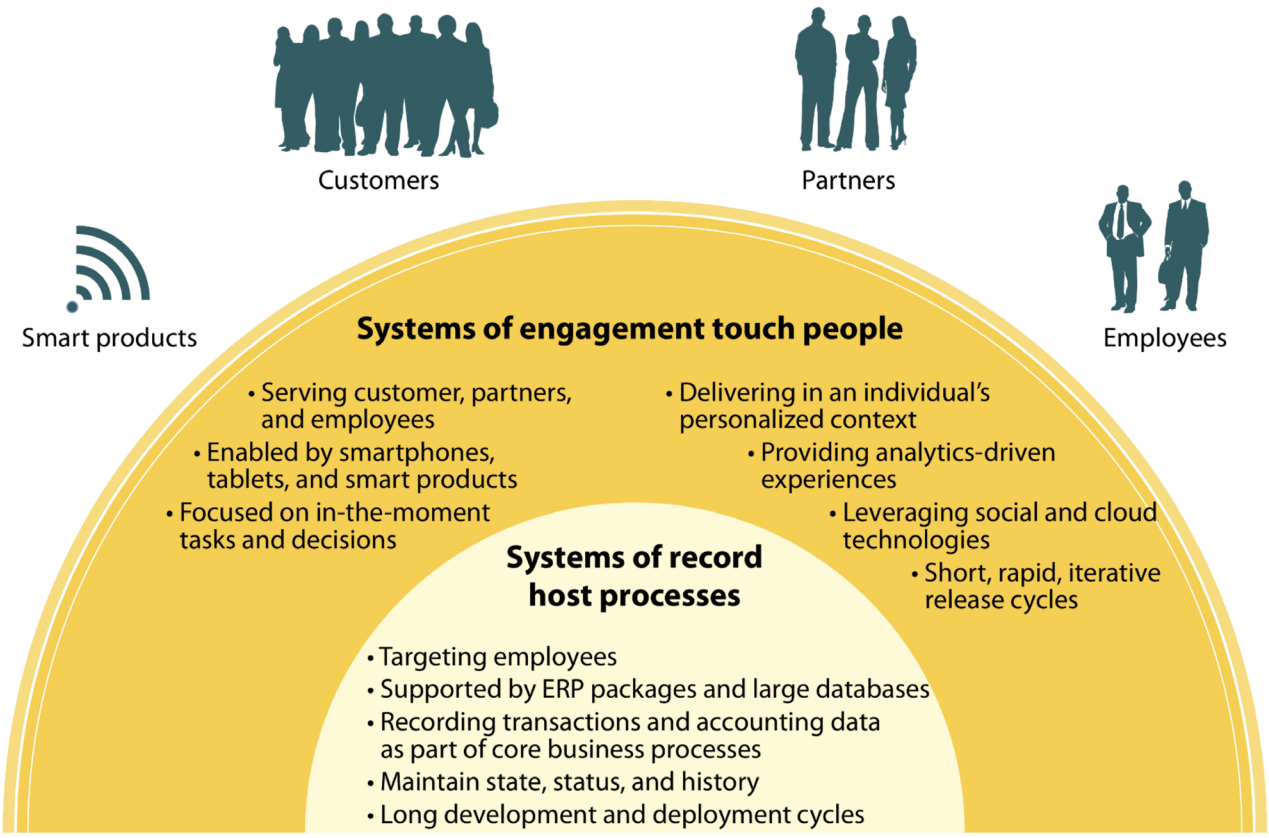
Technology Projects
Beginning Fiscal Year 2012/13

Project	Priority	Timeframe	IT Division	IT Project Manager	Department(s)/Agencies	Funding Source/CIP #	Projected Cost
Justice Center Expansion	Mandated	1 to 3 years	NetOps	Terry Bledsoe	All Public Safety		
Enhancing Mobility	Critical	Continuous	AppDev	Valerie Jones	All		$150,000
Network Infrastructure	Critical	Continuous	NetOps	Nha Nou Yang	Technology		$100,000
Next Generation 911	Critical	Contigent upon FCC & State 911 Board	911	Jerry Boggs	All Public Safety		TBD
Redundant Link to Internet	Critical	1 to 2 years	NetOps	Nha Nou Yang	Technology		$100,000
UPS / HVAC in Datacenter	Critical	1 to 2 years	NetOps	Nha Nou Yang	Technology		$200,000
Engagement	Needed			Various			
Paper Intensive Processes	Needed	1 to 3 years	AppDev	Valerie Jones	All	Project Fund/ #11023	100,000
Partnering Projects	Needed	1 to 5 years	All	Various	Many		
Replacement of Public Safety Software / Formation of a Public Safety Task Force	Needed	1 to 4 years	All	TBD	All Public Safety		TBD
SharePoint Upgrade	Needed	within 1 year	AppDev	Valerie Jones	All		20,000
Transparency	Needed	1 to 5 years	AppDev	Valerie Jones	All		
Cloud Solutions	Pending	1 to 5 years	NetOps	Nha Nou Yang	Technology		
Email Solutions	Pending	3 to 5 years	NetOps	Nha Nou Yang	Technology		$200,000
Replacement of Desktop Applications	Pending	3 to 4 years	NetOps & AppDev		All		TBD - 5 year cost of solutions, range from $350,000 to $500,000

Appendix

The following pages are supplement material to the guiding principles and future plans above.

Figure 3 Systems Of Engagement Are The Future Of Technology-Led Business Innovation



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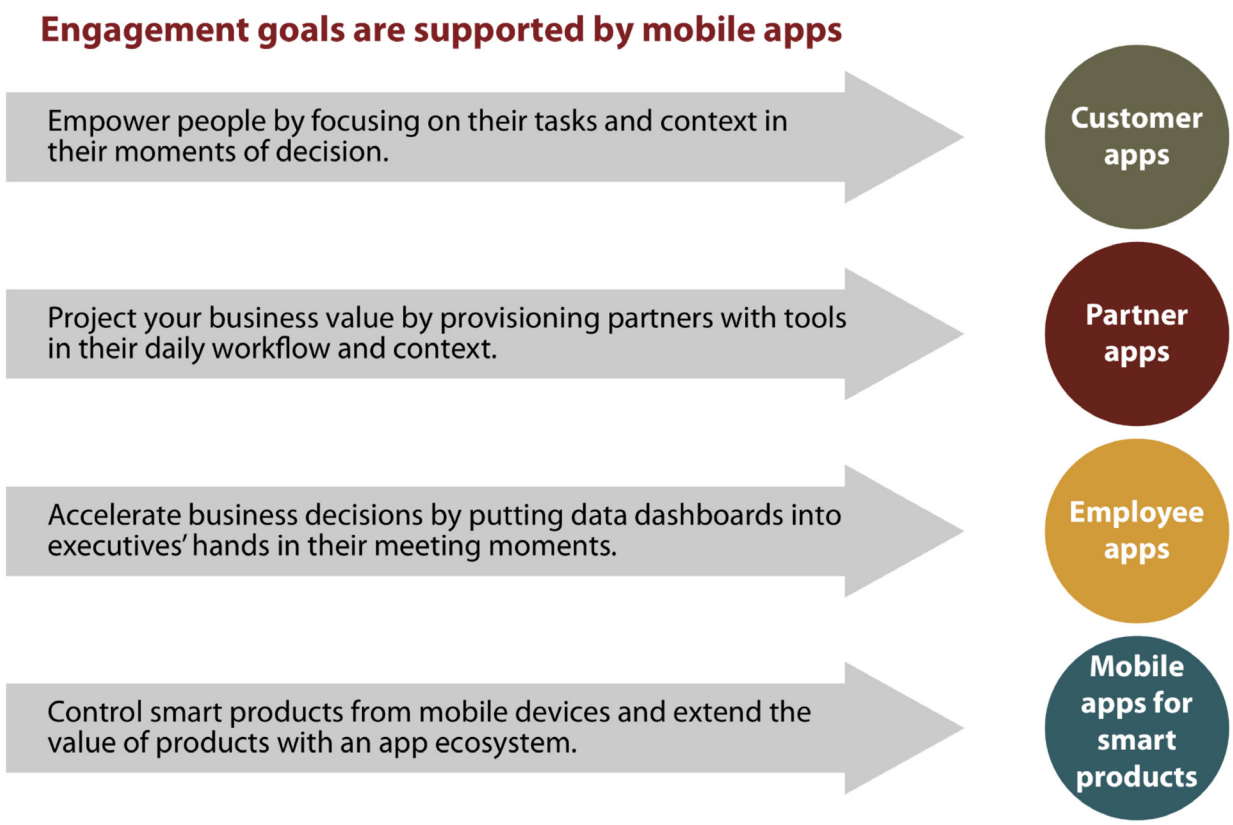
Source: Forrester Research, Inc.

Figure 2 Systems Of Engagement Empower People, Accelerate Decisions, And Energize Products



Engagement goal	What makes it possible	Enabling technologies	Examples
Empowering people	Harnessing social and mobile collaboration tools to connect people to each other and to you	• Social networks • Mobile collaboration • Wireless networks • SaaS solutions	• Activity feed apps that keep mobile pros in touch • Social apps that capture status, complaints, and ideas
Projecting value	Providing task-specific apps to reach customers in their context and moments of decision	• Task-oriented apps • Business app stores • Links to systems of record • Predictive analytics	• B2B catalog app with pricing and availability • Order management mobile app linked to the web app
Accelerating decisions	Putting information, data, and analytics into the hands of decision-makers at the moment of determination	• Data dashboards • Predictive analytics • Search • Information access	• Data dashboard with operations or financial data • Mobile access to the portal, search, and files
Developing smart products	Using mobile apps as the control interface and to extend products' value and differentiation	• CPUs and sensors • Wireless connections • Smart app APIs • App store	• Smart dishwasher that tracks energy use • Smart scale with weight management app ecosystem

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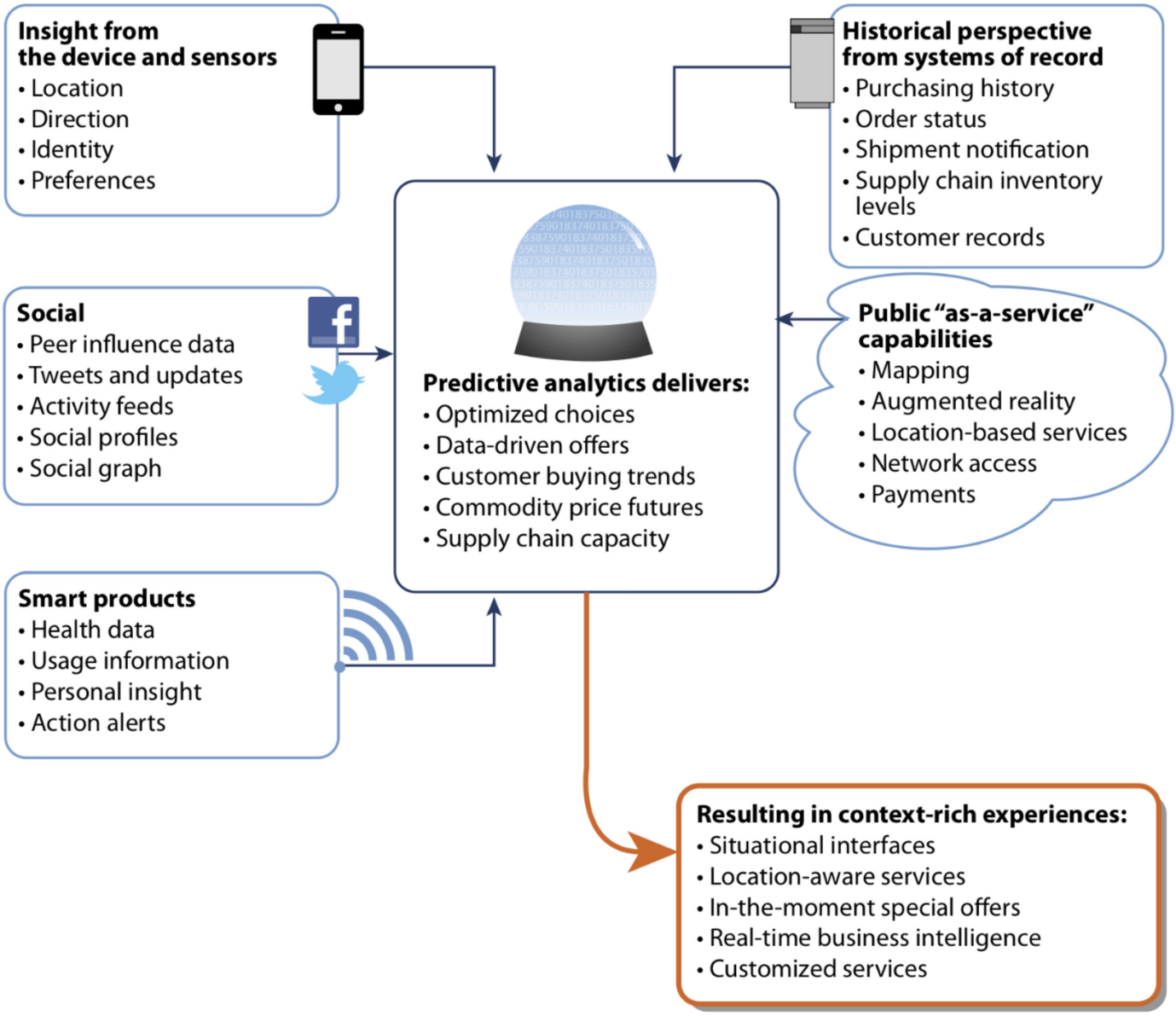
Source: Forrester Research, Inc.

Figure 4 Systems Of Engagement Use Context To Deliver A Great Mobile Experience



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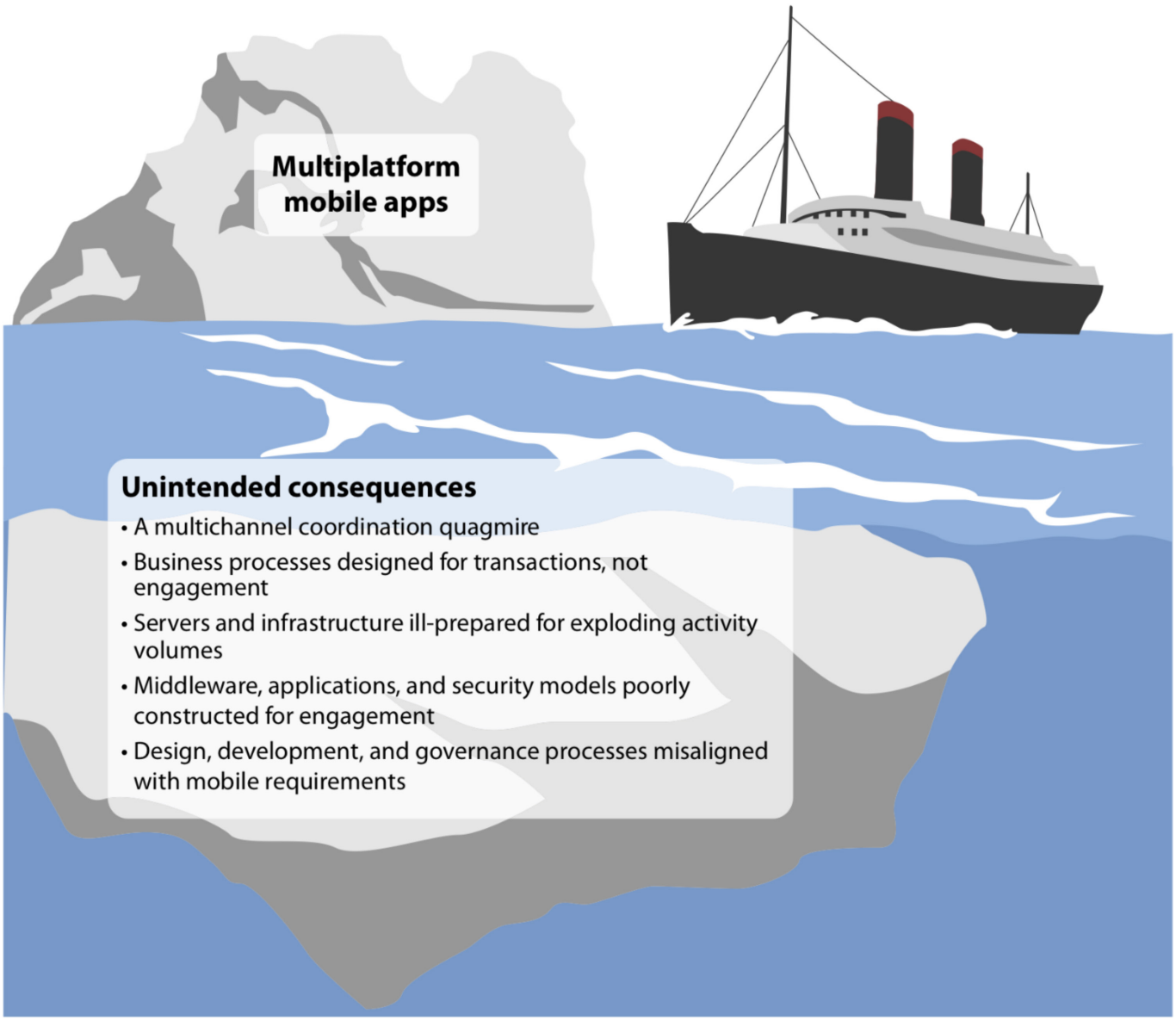
Source: Forrester Research, Inc.

Figure 5 Mobile Apps Carry Hidden Costs And Unintended Consequences



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Source: Forrester Research, Inc.

Figure 8 New Technology Competencies Are Needed For Systems Of Engagement

Factor or competency	Systems of record (PC era)	Systems of engagement (mobile age)
Devices	Hundreds of millions of computers	Billions of computers, smartphones, and tablets
IT's value-add to the business	Application developer and operator	Solution broker
Technology investment priorities	Automate back-office and front-office processes	Improve customer and employee interactions
Key vendors	Microsoft, Oracle, and SAP	Apple, AT&T, Cordys, Deutsche Telekom, Google, and salesforce.com
Delivery architecture	Internal, proprietary client/server or browser	External, open Web, mobile app Internet
Middleware and associated APIs	Function-specific, modular, SOA	Task-specific, atomized, REST
Security approach	Look down the perimeter	Secure the device, access, application, and data
Development process	Waterfall, yearly releases	Agile, weekly or quarterly updates
Partnering strategy	Not invented here	Managed supplier ecosystem
Application provisioning	IT-controlled software pushed to desktops	Self-service app store with social features

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Source: Forrester Research, Inc.


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