



ENABLING SOCIAL ENTERPRISES TO DELIVER INTEGRATED, CLIENT-CENTRIC SERVICES USING COMMERCIAL OFF-THE-SHELF (COTS) SOFTWARE

Social enterprises are facing a crisis. Custom-developed systems are expensive and “transfer” systems don’t work. Existing systems are costly, thwart collaboration, and hinder casework. As experienced, knowledgeable workers are leaving the industry, a knowledge gap is emerging. COTS software is an effective means to counter the “Perfect E-Storm” facing social enterprises.

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EXECUTIVE SUMMARY

Historically, social enterprises including human services, workforce services, and social security agencies – whether at national, state, provincial, or local level - have implemented and maintained complex, expensive, siloed custom information management solutions. While some agencies have tried to modernize using transfer systems, generally results have been inadequate, with very high implementation and maintenance costs, long delays in delivery, and systems built on dated technology.

However, because the business rules vary so much from state to state, even these so-called “transfer systems” required massive investment and time for customization, with little reduction in risk.

THE FAILURE TO TRANSFER SYSTEMS

Until now, most of the technology needs of social enterprises could only be attained through extensive customization of existing solutions, commercial technology or build-from-scratch projects. These projects are expensive, time consuming and risky. For a number of years the U.S. government attempted to minimize these problems by providing funding for new state and local government systems, only if they transferred operational systems from other jurisdictions.

There is an approach that offers a new way forward. As agencies work to modernize their business processes to take advantage of 21st Century technological infrastructure, they increasingly turn to commercial off-the-shelf (COTS) software to implement flexible, cross-program technology platforms that provide successful outcomes for clients. This approach to service delivery has the potential to enable the transition of commercial off-the-shelf software from its current early adoption phase into the mainstream market, creating an environment for information management systems and business processes to provide solutions that make a difference.

INTRODUCTION: THE PERFECT E-STORM

The phrase “perfect storm” refers to the simultaneous occurrence of weather events which, taken individually, would be far less powerful than a storm resulting from their combination. Such

occurrences are rare by their very nature, but when they occur, their impact can be devastating. Over the last decade such a convergence of social, economic, and technological events has occurred: a “perfect electronic storm” is building in the SEM marketplace. Without effective government business systems in place, agencies will find themselves helpless to counter the effects of the perfect e-storm.

Based on research undertaken by Forrester (2006), the conditions for a perfect electronic storm exist:

1. Existing systems are costly, thwart collaboration, and hinder casework.
2. As experienced knowledgeable workers are leaving public service, a knowledge gap is emerging.
3. Transformation is not just nice to have — it must happen.
4. Custom-developed systems are expensive and “transfer” systems don’t work.

In isolation, any one of these conditions would compromise the ability of social enterprise to deliver services to clients: in combination these factors are a real challenge to social enterprises’ ability to meet their goals. In this environment, the adoption of a COTS approach provides agencies with an effective means to counter the perfect e-storm.

THE FIRST STORM: LEGACY SYSTEMS

Recent surveys and system inventories conducted in the US reveal that Department of Motor Vehicles, Unemployment Insurance, and some human services programs (including child welfare) are the oldest systems running in government today; many of these systems are up to forty years old. The imperative to modernize these systems has many drivers including expired technologies, lack of knowledgeable resources to expand, maintain, and enhance these systems, lack of integration, and poor insight and reporting capabilities. According to Gartner’s Massimiliano Claps & Dale Vecchio in *Government and IT Modernization* (2008) a range of socio-economic and demographic factors are driving government business modernization; knowledge gaps, budget issues, complexity, and age of IT systems “challenge directly the sustainability of existing IT environments.” This combination “drives IT modernization.”

In most cases, governments’ primary driver is to satisfy the need to provide more service-oriented, citizen-centric service. In Gartner’s view (2008) governments and social enterprises are aiming to “modernize their IT strategies and tactics to deliver better services.” Analysts and researchers including Forrester and Gartner agree that technology has finally caught up with government agencies’ aspirations to create a more customer-oriented service delivery model. As new technology and ways to use IT emerge Gartner’s John Kost (2003) states firmly that “it will change how agencies interact with their clients”: what he calls a “revolution in social enterprise administration.”

The greatest advancement has been the emergence and acceptance of COTS applications designed specifically for social enterprises including human services, workforce services, and social security. According to Gartner (2008) today's technologies offer "potentially faster and a lower risk approach to new, more effective solutions." However, implementing these new technologies has been difficult. The widespread "silozation" of human services technology, diverse funding sources, varied accountability measures, and competing agency priorities can result in dozens of separate technology systems serving the same clients. Incompatible systems result in duplication, poor service delivery, and wasted investment of taxpayer's money.

Over the last decade, agencies' efforts to replace legacy systems often resulted in failed projects and extensive cost overruns, as the alternatives for replacement were based on a custom build approach, or attempting to implement a transfer system from another jurisdiction.

"Most [US] states and counties have a patchwork of agencies and IT systems that can't talk to each other," notes Vernon Brown, CEO of Moss Beach Homes, a child welfare service agency with 31 sites throughout California. "It doesn't make sense for the agencies, and the lack of coordination hurts children and families."

THE SECOND STORM: THE KNOWLEDGE GAP

One of the greatest challenges facing governments today is the emergence of a knowledge gap. As highly experienced and knowledgeable career caseworkers and IT personnel leave government service, either through retirement or to work in other sectors of the economy, they are not being replaced by equally competent or better-skilled employees. This drain of experienced caseworkers, business function experts, and system engineers (who understand legacy systems and are capable of maintaining or modifying them) has caused the growth of an experience-, skills -, and – most importantly - a knowledge gap.

Today, a career in human and social services never looked so unattractive. For caseworkers in particular, the job is associated with high caseloads, poor resourcing, low social prestige and even lower pay (there is evidence from a 2004 study that social workers earn less per hour than employees in so-called "McJobs"), not to mention the risk of personal violence to caseworkers attempting to carry out activities such as supervising visitations of children with violent parents. According to Hochman, Hochman & Miller, authors of *Foster Care: Voices from the Inside* (2004), case worker turnover is high; every year nearly a quarter of public caseworkers leave their positions.

At an organizational level, aging systems powered by poorly documented code and accessible only through a confusing array of text-based, "green screens" impede caseworkers, business function experts, and system engineers' ability to do their jobs. As ineffective as these systems

are, it can be said that years of use and familiarity with the underlying technology has enabled the previous generation of employees to acquire the skills and tacit knowledge needed to carry out their activities with some degree of effectiveness. At the eye of this second e-storm is the inevitable dissipation of knowledge that will occur as these aging workers leave government service. Substantial numbers of agency employees are retiring; in New Jersey for example, about half of all caseworkers are eligible for superannuation. When these people leave, their professional knowledge and skills using legacy systems will be practically impossible to replace.

AN OPPORTUNITY FOR CHANGE

As we enter the second decade of the 21st Century, the workforce is receiving its first intake of graduates who are true Digital Natives – those born since the birth of the World Wide Web in 1989. This generation has never known a world without a global IT and communications infrastructure, cellular phones, PDAs, Google, Web 2.0, and always-on access to information. As workers and as social services clients, digital natives expect and demand informational transparency, to access and consume services and information, as well as become engaged in decisions that affect their lives. Now, there is a once-in-a-generation opportunity for social enterprises to leverage this behavioral, social and political shift. COTS solutions enable agencies to enhance their performance and optimize their processes by taking advantage of innovations in IT. Digital natives' expect SEM solutions to perform like [ACCESS NYC](#), a free service that identifies and screens for over 30 New York City, State, and Federal human service benefit programs in 7 languages, developed using Cúram Software technology.

In the modern organizational context, the ability to innovate – to enhance performance and outcomes through improvements in processes, efficiency and productivity – is inextricably linked to IT infrastructure. Legacy systems do not easily enable support key drivers of innovation including:

- the adoption of new technologies and methodologies to improve work practices
- the repositioning of existing resources to undertake new functions
- the effective use of new or existing technology, resources, and caseworkers to adapt to changes in society, as needed

THE THIRD STORM: TRANSFORMATION OF GOVERNMENT SYSTEMS

IT transformation is an ongoing activity of developing organizational strategies and approaches to manage the development of government business processes, applications and supporting technologies to attain optimized value, cost and performance from business systems. It is not a one-off event; rather it is a substantive shift in paradigm. The transformation of government systems requires a holistic approach to meet organizations' and clients' expectations, rather than a strategy based upon the idea that legacy systems can simply be upgraded.

Governments are increasingly under pressure to modernize their IT infrastructure. According to Gartner (Claps & Vecchio, 2008) since the 1990s IT has been both an enabler and a driver of government modernization, but a range of economic, socio-cultural and political obstacles restricted the full realization of potential benefits. As a result, the need for the transformation of government systems has now reached a critical mass.

The key drivers of government systems transformation include economic, demographic, social, technology, and environmental factors, (see Appendix 1), in combination with the people, processes and technologies needed to deliver the best social enterprise services.

In *Government and IT Modernization* (2008) the authors consider that

‘Forward looking IT executives and managers spotted [the need to transform] a while ago, but very little happened. Several obstacles prevented them from getting rid of the old paradigm of serial fragmented upgrades of software and hardware, a focus on micro technical problems, and project failures that led to burdensome siloed systems or the inability to overcome such silos.’

Legacy systems cannot support IT developments including Web 2.0, cloud computing and a host of other innovations. Similarly, transformation of government systems is the only realistic path to enable innovation in social enterprises, develop a younger, knowledgeable and skilful workforce, and facilitate the successful delivery of social enterprise outcomes and benefits.

COTS SUPPORTS SOCIAL ENTERPRISES' BEST PRACTICES

Not-for-profit organization the Children's Research Center has developed Structured Decision Making® (SDM) a best practice methodology designed to assess and improve child protection outcomes by giving managers, supervisors, and workers the most up-to-date performance indicators at agency, regional, unit, and caseload levels. Cúram Software Business Application Suite™ has the power and flexibility to integrate and automate SDM® for child protection agencies; an example of true transformation in SEM systems.

In an acknowledgement of advances in IT technology, and the need to bridge the knowledge gap, some suggestions have been made to extend the life of stovepiped legacy systems by using Service Orientated Architecture (SOA) to integrate these systems with modern IT technologies. This strategy is called 'legacy renovation.' Proponents of this approach assert that using SOA in this fashion overcomes the rigidity and high maintenance costs of legacy systems by unlocking the business functions in aging systems. But integrating legacy systems' code in a renovation project is not a simple matter. Renovation merely extends the legacy environment - with all its problems - by adding a 'facade' of Web services which may or may not be poorly conceived and badly implemented. Some of the issues associated with legacy renovation include:

- Certain processing functions may need to be “switched” off because data processing is now carried out by the new functions being invoked through the service-provider implementation.
- Existing access rights as well as security and audit requirements must be enforced for the new access mechanisms.
- Quality of Service criteria for existing systems may need to be extended or supplemented. For example, off-line batch-processing windows may need to be covered by stand-in processing solutions.
- SOA may introduce a new and unforeseen load on existing systems, which negatively impacts existing processes.

CÚRAM SOFTWARE'S COTS APPROACH SUPPORTS SOA PRINCIPLES

Service Oriented Architecture (SOA) allows different IT technologies and applications to exchange data with one another. It supports common business processes by structuring large applications as a collection of smaller, ‘loosely coupled’ modules called services. By leveraging these common business processes and reducing duplication and redundancy, organizations can strategically shift away from the problems inherent in their legacy IT assets. SOA is especially vital for social enterprises as it simplifies the integration of IT systems and enables interoperable programs which contribute to comprehensive service delivery. SOA typically uses web services and web technologies for enterprise information systems.

The Cúram Business Application Suite™ delivers a complete set of web services called Incremental Modernization & Transformation (IMT) Services which are embedded in Cúram Software’s many business modules. The Cúram IMT Services allow social enterprises to effectively identify services that solidly deliver business value across the organization. By implementing Cúram’s COTS-based architecture and IMT Services in a SOA context, social enterprises who wish to implement a SOA framework can leverage Cúram Software’s internationally successful approach to social enterprise management, which includes increased process flexibility, improved responsiveness and reduced IT maintenance costs for agencies, and better outcomes for clients.

According to Gartner (Natis & Schulte, 2009) one of SOAs “greatest benefits” is the ability to use many service components. However, a chain is only as strong as its weakest link, and “a chain of services in a SOA application will break if any of them doesn’t operate properly” (p.8). At best, legacy renovation puts legacy systems in a ‘holding pattern.’ In a more likely scenario, social enterprises will still have to support the ever-growing costs of maintaining forty-year-old systems, with the added capital investment and ongoing costs of developing, delivering, and managing a SOA-based solution.

Unlike COTS, Service Oriented Architecture in and of itself does not support social enterprise business transformation, and does not address the ever-increasing strain placed on human and social services, factors which are becoming more urgent in the current global economic climate. Significantly, nearly half of government execs say that they plan to eliminate all or most of their

legacy applications in the period 2007-2012 (*Forrester Report: Government IT Follows Software Trends, But Legacy Issues Continue To Slow Progress*, 2006, p.7), a recognition by CTOs and CIOs that true social enterprise business transformation can only be achieved by transitioning away from the systems of the past.

The transformation of government IT infrastructure from custom-built legacy or transfer systems to holistic, flexible, Web-based, user-friendly systems must happen soon if agencies are to maintain appropriate and expected levels of services for their clients. The challenge they face is not so much *when* this must occur, rather *how* to recognize and develop strategies that support the drive to transformation.

THE FOURTH STORM: CUSTOM AND TRANSFER SYSTEMS

‘Architects in IT shops... know that a best practice IT principle is “Buy before you build, and if you must build, build for reuse.”’

Until recently, government IT decision-makers have not been able to apply the ‘create once, reuse many times’ principle because some software vendors wrote software for private industry and then attempted to adapt it for a government audience. But solutions designed specifically for the needs of social enterprises have arrived and forward-thinking agencies are reaping the benefits of these solutions.

COTS – COTS SUPPORTS CLIENT-ORIENTED GOVERNMENT WHILE SAVING TIME AND MONEY

“WorkSafeBC [in Canada] implemented Cúram Workers’ Compensation™ earlier this year and has realized a 35 percent return on investment, 8 percent clerical staff repurposing, a 10 percent reduction in claim costs, and an overall reduction in service delivery costs. The Ontario Workplace Safety and Insurance Board will implement the software in phases this year, but already estimates an annual savings of U.S. \$2.5 million.”

Chandler Harris

Public/Private Partnership Improves Case Management for Workers Compensation Agencies. Public CIO, March 17, 2008

Nevertheless, HHS systems have such a long tradition of in-house customization via system integrators (SIs) that agencies are balking at the notion of paying maintenance fees for what they (incorrectly) consider to be custom software. According to Forrester’s report *Human Services Agencies Turn to Enterprise Framework Software (2005)*, states must take a hard look at what they’re paying in fees to contractors for system maintenance and buy into the concept of licensing fees for enterprise framework software.

CUSTOM BUILDS

While custom-built systems were the mainstay of IT shops for decades (and produced many systems still in use today), the proliferation of these systems resulted in IT designs that only support program silos. Without the ability to work outside of the immediate program benefit delivery, these systems cannot easily support a broader, integrated service delivery model. Systems were developed as the need arose - when programs were mandated - rather than being created with strategic goals and holistic outcomes in mind.

In addition to poorly supporting the intended purpose of the program, lack of integration across custom legacy systems resulted in costly interfaces and on-going system modifications and workarounds.

'Custom-built solutions are technology-intensive efforts in which business users are largely limited to a policy role. Conversely, because they are more intuitive to use, available (COTS) products often enable a much higher degree of involvement by users in the development and maintenance of the tool. This enables program administrators to remain in greater control of projects and to minimize risk associated with large custom-built projects.'

Kost, J. New Solutions for Government Human Services, 2003.

In contrast, maintenance for legacy applications and support for multiple program environments restricts progress and increases costs.

TRANSFER SYSTEMS

Until recently the US Federal government supported an automation model based on the principle of transferring legacy systems from one state to the next in an attempt to minimize risk and promote reuse. The problems associated with this approach quickly emerged. As business processes varied from state-to-state and the underlying technology platforms did not support customization or configuration, each state had to retool the transfer systems to meet local needs. By the time that the state using the transfer system finally had their solution implemented, the technology and architecture was essentially obsolete, needing required continuous maintenance and modification. Few staff understood the transferred system and states were left with large maintenance contracts with the system integrators. Gene Leganza (2005) notes:

'In 1986, OCSE established a transfer [system] policy generally requiring states seeking enhanced funding to use existing automated data systems of other states as models rather than develop new systems. The OCSE expected such transfers to (1) save system development time and costs, and (2) increase the likelihood of success, especially in states lacking technical

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staff ...However, about 71% of the states said the attempt to transfer an automated data system delayed, rather than enhanced, development and implementation of automated systems. For example, several state officials said attempts to use a transfer system delayed implementation by several years.’ [see Table 1]

Table 1 Transfer Systems Missed High Expectations and Left Agencies Locked into Systems and SIs (after Forrester, 2005)

EXPECTATION	RESULT	REASON
Save time	Implementation delayed, in some cases for years	HHS business processes vary significantly and the transferred system had another jurisdiction’s processes hard-coded into them.
Save money	Costs significantly higher than development of original system	SIs did not design original systems for reuse. Modifications for the new jurisdiction’s business rules eventually meant a near-complete rewrite; starting from scratch would have cost less.
Reduce risk for agencies with limited technical staff	Systems based on old technology and complete dependency on SIs	After long implementation cycles, agencies found themselves saddled with complex systems based on obsolete technology that only the original SI understood, locking them in indefinitely.
Modernizer HHS systems	Systems in dire need of re-engineering	The real need is for an enterprise-wide approach, re-engineered business processes, and systems built for flexibility – solutions just emerging today.

THE COTS APPROACH

COTS solutions specifically designed for social enterprises provide a new technology roadmap that allows organizations to align policy objectives to technology initiatives. In *Government and IT Modernization* (Claps & Dale, 2008) the authors consider that now, software for government human services agencies “with more capability than ever before” is being developed.

These COTS solutions support all of the benefits of more ‘traditional’ COTS solutions in industries like financial management, human resources, and supply chain management, but also provide support for the unique business processes commonly required by social enterprises. As John Kost notes in his 2007 report *Government Human Services at the Precipice of Radical Change*:

‘Governments can now take advantage of a wide range of products from simple point solutions for administration of relatively small programs (like services to the aging or the homeless) to products that enable governments to replace most or all of their human services legacy systems with highly integrated, high-functionality products.’

The author concludes that these new products require “significantly less” customization than the solutions of the past.

BENEFITS OF COTS SOLUTIONS

It is well-known that organizations adopt innovations if certain criteria are satisfied (see [Appendix 1](#)): as many legacy systems approach or even exceed forty years in age, their associated technologies have long since been out of support or deprecated. Being custom-built systems, documentation for these legacy systems is either non-existent or extremely out of date; decades of modifications, patches, and bug fixes are typically not captured in the operating procedures. Concomitantly, an organization's ability to train new support staff is virtually impossible.

Today's COTS applications built specifically for social enterprises - including social services, workforce services, and human services agencies - are designed to address these and many other problems encountered by social enterprises and to meet the adoption criteria described in Table 1. By providing documentation and training in both functional and technical aspects of the application, COTS applications can bridge the knowledge gap of experienced and new caseworkers, as well as IT professionals. The use of sophisticated rules engines and scripting tools can automate the intake and determination process, reducing the burden on the case worker to memorize operating manuals and complex, constantly-changing eligibility requirements. Enterprise-level case management combined with new collaboration solutions provides unprecedented access to information presented in-context, which expedites communication amongst the stakeholders.

CONCLUSIONS

The dramatic changes in the technological landscape in the 21st Century, combined with economic, demographic, and socio-cultural factors have made government business modernization inevitable: the old ways just don't work anymore. At the same time, the US Government has acknowledged (2005) enterprise-level COTS software has become "richer and more flexible in functionality," as well as "providing for a more mature, stable, and secure software development and operational environment."

Combined with the challenges of skill deficiencies, budget cuts, and legacy IT systems, many agencies find themselves facing in to a perfect storm. Over the last decade, the COTS approach has succeeded where other approaches to government business software systems have failed. COTS has demonstrated that it is fundamental to the success of agencies that need to deliver services for citizens. As more and more enterprise-level COTS software vendors are providing platforms capable of accommodating and supporting a variety of unique business practices not only vertically within, but across organizations, social enterprises have solutions that "integrate disparate systems into heterogeneous technological environments."

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APPENDIX I INFORMATION SYSTEMS ADOPTION

Table 2 Information Systems Adoption Criteria (after Rogers, 2003)

CRITERION	DEFINITION	EXAMPLE
Relative advantage	People must be persuaded that the new way has clear benefits over current way	COTS provides a flexible, up-to-date IT infrastructure. COTS solutions enable social enterprises to deliver benefits and supports more effectively than agencies locked in to outdated, siloed legacy systems.
Compatible	Compatible with an organization's values and beliefs	COTS leverages caseworkers' current skill set and enhances their productivity by using SEM Common Processes, Services, and Integrated Case Management.
Complex	The new approach must be perceived as easy to learn and implement	Enables caseworkers to perform more effectively by using familiar Human-Computer Interaction paradigms, previously-learned heuristics, and easy-to-use IT-based processes.
Trial-ability	Try out before adopt completely	In Ireland the Senior Help Line social enterprise has evaluated and implemented a Cúram Software-developed COTS-based call logging and reporting solution in their Dublin office as a proof-of-concept of the system.
Observability	Can see others adopting and using new method	US social enterprises including Utah eREP and New York DoITT have successfully implemented Cúram Software's COTS-based applications to meet their clients' needs.

APPENDIX 2: THE COTS ADVANTAGE

Table 3 Matrix describing the Benefits of Commercial Off-The-Shelf software

FEATURE / FUNCTION	DESCRIPTION	VALIDATION
Best Practices	Best practices for social enterprises means integrating the individual knowledge and judgment of the caseworker with the best available proven, statistical methods for providing service.	<p>Through more than a decade of experience and close collaboration with a wide range of social enterprises implementing a variety of needs-based and contributions-based programs, Cúram Software has designed a system that incorporates the most efficient and effective business processes that support the broadest range of services and ensures re-use and incremental modernization and transformation.</p> <p>Cúram Software provides tools that support evidence-based practice through partnerships with non-profit research organizations like the Children's Research Center (CRC). These tools support CRC's Structured Decision Making® (SDM) Model to assess and reduce risk for children and families in the care of social enterprises.</p>

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FEATURE / FUNCTION	DESCRIPTION	VALIDATION
<p>Common Business Processes</p>	<p>Around the world, every social enterprise provides programs and services that are unique to the citizens they serve. In working with these agencies, Cúram Software has identified those processes that are commonly used across all needs-based and contributions-based programs and designed a reference model and enterprise framework that supports the fundamental service delivery models common to all social enterprises.</p>	<p>“Designed for large multi-program enterprises with core functionality common to all implementations and tools for configuring variable elements to make the solution customizable to any environment. Typically has significant amount of out-of-the-box functionality for large programs such as TANF and the Food Stamp Program.”</p> <p><i>“The Forrester Wave™: Human and Social Services Enterprise Frameworks, Q3 2006.”</i> Forrester Research Gene Leganza September 15, 2006</p>
<p>Configurable / Flexible Framework</p>	<p>To ensure that systems can be easily and cost-effectively integrated with an agency’s existing platform and to reduce the need to develop custom code, systems must be designed to comply with open standards and must be configurable by business analysts and usable by caseworkers with little training.</p>	<p>“In Forrester’s view, a social services enterprise framework is software that supports intake, eligibility, case management, reporting, and other related human services business processes in an integrated fashion across a variety of human and social services programs.”</p> <p><i>“The Forrester Wave™: Human and Social Services Enterprise Frameworks, Q3 2006.”</i> Forrester Research Gene Leganza September 15, 2006</p>
<p>Openness</p>	<p>As standards for web-based systems and the open and secure exchange of citizen information across systems are adopted, systems must be designed on an open architecture that adheres to open standards as set forth by technology standards boards (W3C, OASIS, etc.) and industry standards boards (MITA, HIPAA, etc.).</p>	<p>“Enterprise-level COTS software has also benefited from broader acceptance and implementation of more uniform industry standards and best practices in programming languages, and development tools and methodologies. As such, using enterprise-level COTS software may benefit jurisdictions in several ways.”</p> <p><i>“The Forrester Wave™: Human and Social Services Enterprise Frameworks, Q3 2006.”</i> Forrester Research Gene Leganza September 15, 2006</p> <p>“In systems where the use of existing commercial components is both possible and feasible, it is no longer acceptable for the government to specify, build, and maintain a large array of comparable proprietary products.”</p> <p><i>“Assembling Large Systems from COTS Components: Opportunities, Cautions, and Complexities”, David Carney, SEI Monographs on the Use of Commercial Software in Government Systems, Software Engineering Institute, Carnegie Mellon University, June 1997</i></p>

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FEATURE / FUNCTION	DESCRIPTION	VALIDATION
Flexibility	COTS Software provides the core software including the technology components.	<p>“SIs did not design original systems for reuse. Modifications for the new jurisdiction’s business rules eventually meant a near-complete rewrite; starting from scratch would have cost less.”</p> <p><i>“Transfer Systems Missed High Expectations and Left Agencies Locked into Systems and SIs.”</i> Forrester Research Gene Leganza September 26, 2005</p>
Documented Product Roadmap	Customers deploying COTS software must be assured of the applicability of the existing offering as well as the long term viability and commitment of the vendor to the long-term development and ongoing maintenance of the software.	<p>To ensure customer loyalty and ongoing customer retention, COTS vendors are incited to provide clear direction as to future product enhancements and delivery dates. The highly competitive nature of the software industry and fair and open competition among vendors has benefited social enterprises by expanding choice and improving the overall quality, availability and long-term viability of COTS applications.</p> <p>Cúram Software is designed specifically for Social Enterprises and commits nearly half of its employees to the research and development of its products. Cúram provides regular updates as to product direction to customers, partners and analysts.</p>
Usability	As individuals become increasingly normalized to using computer technology, customers interacting with SEM agencies’ systems demand that they should be able to relate the actions needed to perform on the system, and that the experience aligns with common human-computer interaction (HCI) paradigms.	The Cúram Enterprise Framework™ includes capabilities to support user interactions with business processes via a “thin client” design. Following industry standards, this design supports the “multiple channels” or “no wrong door” objective of a social enterprise. In addition to primarily supporting the web browser, other types of user channels are facilitated, such as telephony or IVR/CTI, and hand-held devices or PDAs.
Technology Compatibility and Refresh	On-going compatibility with underlying technology platforms.	Inherent to a COTS product that provides New Version Protection, organizations are able to keep current in technology and avoid scenarios where software, operating systems, databases, etc, are no longer supported.
Support & Maintenance		<p>“The essential reason for a COTS-based approach is only partially to save money. The more fundamental reasons to use COTS components relate to such issues as rapidity of system deployment, timely maintenance, and ease of modernization, all of which are vital for a modern computer-based system.”</p> <p><i>“Quotations from Chairman David: A Little Red Book of Truths to Enlighten and Guide on the Long March Toward the COTS Revolution”</i> David Carney, Software Engineering Institute, Carnegie Mellon University July, 1998</p>

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FEATURE / FUNCTION	DESCRIPTION	VALIDATION
Platform and System Integrator Independence	<p>Increased SI Accountability.</p> <p>Agency autonomy to define an enterprise strategy, identify standards, and adopt new technologies to solve on-going business processes or improve client service.</p>	<p>COTS vendors are incented to ensure that their applications can be implemented as cheaply as possible; realizing profit and revenue through license sales at the beginning of an implementation and through repeat business. Systems integrators, on the other hand, typically charge an hourly rate for their services and are incented (within reasonable limits) to charge as many hours as possible. This often creates a healthy tension between the SI and the COTS vendor and can result in a less costly implementation for the customer.</p> <p>“After long implementation cycles, agencies found themselves saddled with a complex system based on obsolete technology that only the original SI understood, locking them indefinitely.”</p> <p><i>“Transfer Systems Missed High Expectations and Left Agencies Locked into Systems and SIs.”</i> <i>Forrester Research Gene Leganza</i> <i>September 26, 2005</i></p>
Documentation & Training	<p>The provision of standardized, certification-level technical and business training, and comprehensive reference materials and business guides for users.</p>	<p>“Evaluating the quality of a COTS product is not found solely by examining its technical workings. Evaluating the quality of the product’s user manuals and documentation, and the quality of the product support are as important as, and sometimes more important than, evaluating the product’s functionality.”</p> <p><i>“Quotations from Chairman David: A Little Red Book of Truths to Enlighten and Guide on the Long March Toward the COTS Revolution”</i> <i>David Carney, Software Engineering Institute, Carnegie Mellon University</i> <i>July, 1998</i></p>

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