

## *The Cost of Design*

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*Abstract:* This document details the technology and approaches to IT management that CANDIS GROUP has been practicing and delivering to customers across China. Through the correct analysis and deployment of more efficient technology, operating costs are greatly reduced while simultaneously lowering IT risk. Leading to organizations that focus more on the output of their IT systems and learning how to utilize Information Technology more aggressively to streamline their operational tasks.

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### **The Problem**

With Information Technology capital outlays and the resultant Information Systems that they allow for, enterprises rightfully or wrongfully are constantly forced to judge, appraise and justify the return on investments and operational benefits of the systems. Unfortunately for Business Analysts and Vertical Integrators, this analysis is often based on hard costs, as opposed to soft costs and from a position of limited understanding of the role technology can play within an organization.

This syndrome affects mostly SMEs<sup>1</sup> where the decision makers responsible for IT are not well versed in the subject matter, the budgets are smaller and the competition for resources throughout the organization often mandates decision makers seek the shortest, if not the best return on investment with the lowest immediate expenditure.

These restrictions often make it near impossible for any IT system to be implemented correctly and the analysis that goes into them fully explored. Thus IT providers are often severely limited in being able to deliver a measurable benefit to their clients in the long run.

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<sup>1</sup> Small Medium Enterprises

Faced with these market place realities, how can providers of IT systems and the preceding analysis that is undertaken in designing them, help clients to implement IT systems? That will deliver to the recipient organization a competitive advantage in both the long and short term?

The most common way is to seek the lowest up front costs, often at the expense of ongoing operational cost increases and to keep the automation to the most basic of organizational information needs.

A better approach that is often perceived as impossible to do, would be to equip organizations with systems that offer low up front costs, low operational maintenance and highly effective basic information management. Thus providing a large return on investment and easing the way forward for an organization to feel more confident in adding sophistication to their Information Systems in the future.

This white paper will deal with CANDIS' approach to this problem and how a system with a low cost of acquisition and low cost of maintenance is not only possible, but can be deployed without quality sacrifices. Helping an organization to a solid foundation on which to grow from and build upon iteratively into a more sophisticated Information System, all the while still maintaining lower operating costs.

## The Solution

Traditionally vendors and vertical integrators have looked at where they can lower costs in order to sell a system to clients, which is not inherently a negative, this is in fact a very valid approach, lowering costs is good. Additionally like most things in IT lower cost doesn't have to mean lower quality or fewer features. Though price will affect those two metrics to a degree, what is a bigger factor is how the system is designed and the understanding that the designers had of the target organization's business structures, cost drivers and value chain. Without this understanding, then it is not possible for the integrator to keep an eye on costs, while also understanding where there should be measurable increases in value adding and productivity post deployment.

## The Current Approaches

Currently the traditional manner of design of systems by a majority of SME IT vendors in China is based around a technology centric design process and not the art of Business Analysis. The implemented systems are seen as an end in itself and not as a platform towards total ongoing organizational reform and competitiveness by the adding of automated business logic tools and carefully classified and managed organizational information assets.

This dichotomy between SME integrators and larger consultancy houses is quite normal. Generic IT technicians are far cheaper to find, employ and train than business and technology knowledgeable analysts. Additionally the target clients served by these SME integrators traditionally gain little from more formal business analysis, due to budgets and an often prejudiced perception both internally and externally from integrators that their needs and solutions are “standard” and little further analysis is sought.

What this situation has led to are IT systems for SMEs that are infrastructure heavy and business process light. This is a perfect recipe for an organization to see a lowered ROI<sup>2</sup> and possibly even risk future handicapping from their systems should the organization be faced with change. There are also the issues of remaining captive and dependant on the implementing IT provider or worse still, the often difficult to manage and justify internal IT dept or staff.

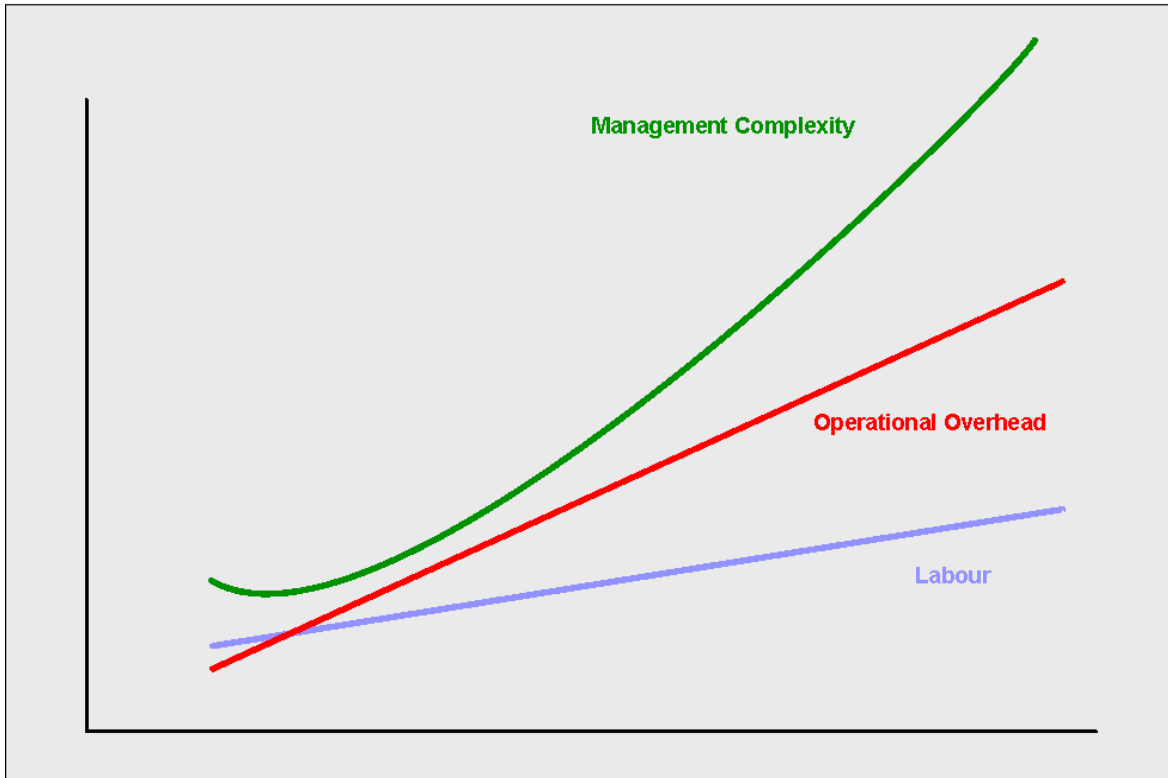
Based on CANDIS’ own experience and dealings in this environment and this culture, CANDIS came to a few realizations. The main issue being that this market place culture both adversely affects the providers of IT systems as well as the receivers. This is due to the fact that the strategy above of lowering up front costs makes it easy for other providers to enter the market with little obstacles. This further places downwards price pressure on the market that in turn then further decreases the likely hood that providers of higher end consultancy can operate as the focus again becomes on the infrastructure and the up front costs and not the business or information management processes.

This market scenario is especially prevalent in China, which also holds such a vast market place for higher end consultancy due to local SMEs not being captive to legacy systems, if any at all. What subsequently occurs is that providers themselves get saddled with low expectation clients with relatively high infrastructure maintenance costs, an increasingly competitive and tightening low margin market, and little prospects of the users of these information systems needing or indeed wanting to mature, for fear of cost increases or basic technology ignorance or complacency.

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<sup>2</sup> Return on Investment from IT system deployment

The result from this low up front cost strategy is in fact counter productive to the goal of delivering better systems to clients that deliver more information management capabilities. Ultimately as these SMEs grow, they are all too often left with systems that can rapidly incur more costs, both hard and soft without offsetting with organization information management improvements.



### The CANDIS Approach

By understanding that the goal of all IT systems is to increase the productivity of the organization through better information handling, leading to knowledge gain and better decision making. CANDIS has realized that while customers remained focused on the operational aspects (re: costs) of their systems they will never be able or willing to focus on the business process change, that is the real payload of Information Systems.

The focus of IT system consulting and implementation should primarily be on how that system can transform an organization. And seen as a valued capital investment into an organizations value chain, as opposed to a cost that can't be avoided and is therefore targeted for cost cutting and the results that go with such a strategy as outlined above.

CANDIS has worked hard to understand how to help clients help themselves out of this cycle of IT implementation decision making. The only way this can be done, is to deliver on the client desires of low up front cost, however also make that with clear operational costs that are also low and also deliver a system that is stable and operationally guaranteed under contract. Only when this is achieved will SMEs feel comfortable with looking at business process change and the business logic systems to support that change.

## The Failures

In China there are unique challenges that face IT implementers and operators. As with any labour market there are always going to be inequalities between what is demanded and what is available. Unfortunately the quality of IT graduates in China is not up to the standard that is required to run efficient systems with low down times. This is due to a number of factors, the main one being the comparatively lower rating of IT as a high paying profession in China. This has come about due to low wages for engineers, which is largely caused by a business culture that is yet to fully understand and adopt IT in all its forms outside of pure low level systems engineering. The pay situation is further put under pressure by the cutthroat and short term cost is king decision making mindset of many local organizations, this further increases provider competition and again lowers wages.

Adding to this is an imbalance in the skill sets that are available and those that are actually demanded by IT providers to do the higher level work that is actually available. This problem has largely cropped up due to the local mentality that more education, as opposed to more work experience will increase the chances of employment. As such students often study based on what purveyors of tech education advise without any regard or individual research as to what the actual market is looking for. This is most evident in the dearth of skilled UNIX and Linux engineers, whilst Microsoft and CISCO certificate holders multiply by the day.

CANDIS understands that the only way to deliver on the core element of our strategy is to reduce to as close to zero as possible the opportunities for failure within an IT system. And a key aspect to that is that operational support staff must be highly skilled – which will command high salaries. As such the designs that are then to be deployed must be ones that can be operated with fewer engineers per system and less time spent on each system than what is normally the case.

## The success

Faced with conflicting demands of a price competitive market, the need for highly skilled, scarce and expensive engineers. Traditional technology seemed hopelessly ill equipped to meet the CANDIS strategy of delivering business process change and organization value growth to the Chinese market as opposed to simply offering base level systems maintenance.

Already a strong backend tool used by CANDIS internally, *Server Based Computing*, also referred to as *Utility Computing* or *Cloud Computing*, *Application Service Provider (ASP)* or *Software as a Service (SaaS)* seemed to be the likely solution.<sup>3</sup>

What is attractive about this style of technology where computing tasks are handled by large central systems, as opposed to the more common Client/Server style that splits the data from the processing and spreads the systems over large geographical areas. Is that they provide for *very* tight control over the technology, tight control is essential to maintaining security, stability and uptime. A central system is more easily contained, understood (simplified) and hardened, where as a distributed system has many more pieces and components that each require attention, often from different vendors and needing different skill sets<sup>4</sup>.

A side effect of the centralization and simplification required of these *Server Based or Cloud Computing* platforms are that engineers have a much easier time maintaining them. The engineers also can leverage the one-to-many relationship and enact a single change once that affects hundreds of users, as opposed to having to perform that single operation multiple times.

What happens is that through the reduction in problems caused by a tighter and better managed system, engineers can spend more time on preventative maintenance and performance monitoring than on fighting fires within the system. So the result is that fewer engineers are required for a given number of end users than what was required of a traditional Client/Server IT system.

CANDIS has deployed *Thin Client*<sup>5</sup> systems based on the above reasoning and we have been able to deliver on our strategy. Clients are faced with lower up front costs, predictable and guaranteed operational costs that are significantly reduced over traditional systems, all the while providing a better end user experience and shifting the focus from the physical aspects of IT back to the business process core competency aspect of IT design.

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<sup>3</sup> Please visit [www.candisgroup.com](http://www.candisgroup.com) for more information on the technical aspects of Server Based or Cloud Computing

<sup>4</sup> A compounding problem in China as discussed previously

<sup>5</sup> Thin Clients are a type of system that leverages the technology of Server Based Computing and Cloud Computing.

As a client organization grows in size and complexity, new business logic applications can be delivered more easily and seamlessly without any changes to existing infrastructure or the downtime and the migration costs often associated with such changes with traditional systems.

For the providers of these systems, be they internal or outsourced, they can handle a vastly increased number of end users for a marginal increase in engineers required. These systems due to their nature also provide for a huge increase in size for also a very small trade off in actual management complexity and operational overheads. That is to say, that the process and deployment of a system for 100 end users varies little to that for one of 1000 end users. The only difference being is the amount of central processing capacity that is needed.



## The History

Server based computing, in essence is where business computing started with mainframes in the 1970's. This was due to the high cost of such machines and the dedicated and significant resources needed to operate them. They worked like a time share where people would issue jobs to be scheduled and run at a later time based on the user's priority.

In those days where processing power was very expensive this limited the use and scope of mainframe computing. During the PC revolution of the 1980's, people jumped at the chance to be able to get personal and affordable processing power. This was indeed a good thing, however as the price of computational power has dropped, our usage modes of IT increased (more mobility) and the costs of maintaining these systems are ever increasing. Mainframe or server based computing is back in vogue again for the mass market. Even though there are many companies and providers that have held this line throughout the PC revolution with a steady belief in this style of server based computing, in reality it has only seen adoption within large organizations like banks, insurance companies and airlines where relatively simple, but vast information processing needs are the norm.

## The Risk Factors

With all IT systems there are risks for failures. Indeed you are always trading one set of failures with one system for the failures of another. With consolidated and central server based computing, the largest factor of concern is connectivity. That is, if the end users can't connect to the central systems. The degree to which an enterprise is exposed to this risk is dependant on where the end users are relative to the central systems, the quality and redundancy of their communications links and the steps that an organization has taken to mitigate these potential failures. In general, this is the only serious technological risk factor because central systems are able to use fewer and more robust infrastructure for the same price or less than the cost of multiple generic systems spread throughout an organization.

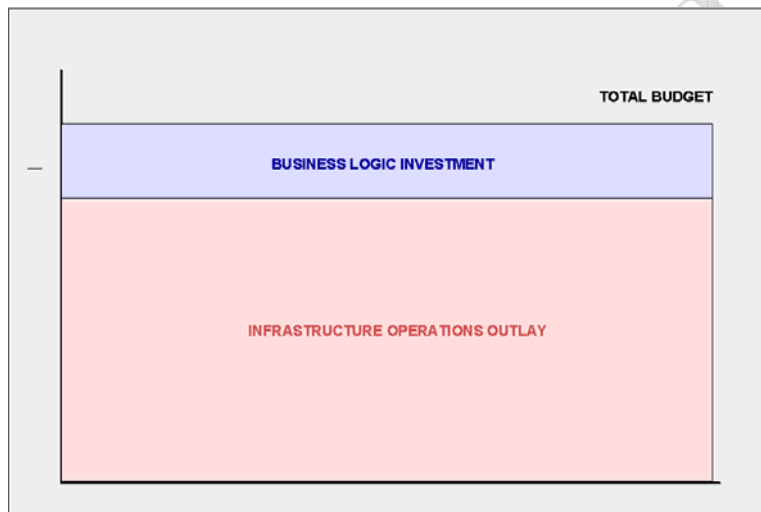
The major non technical risk is with the providers of these central systems. And this risk is based on whether an organization deploys their own systems and runs them internally, or has outsourced the operation of their internal systems, or has outsourced the entire production to another provider. As such provider trust, reliability and history are more important than with the more common client/server based systems.

## The Costs

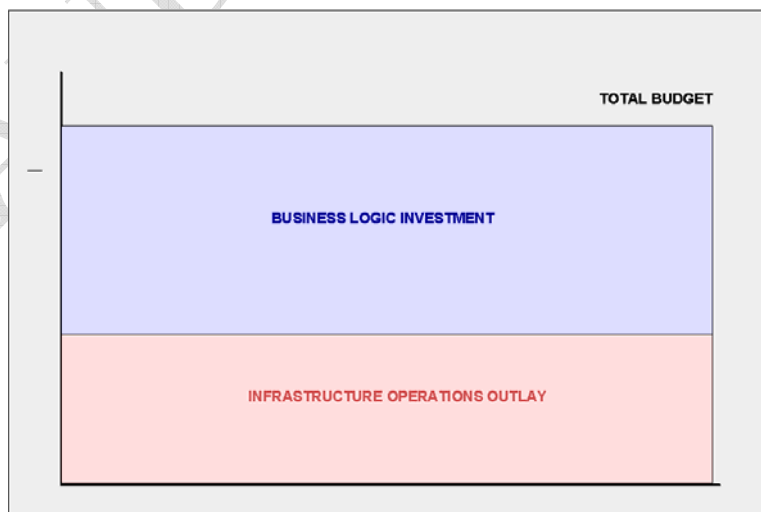
While it is not possible to detail all the costs of a system as it is deployed for different clients, what should be highlighted here is the structure of those costs and how resources are used within the IT budget. Future white papers from CANDIS<sup>6</sup> will develop and discuss some models based on actual systems delivered in China by CANDIS.

Below is an outline of how CANDIS sees the differing structure of costs between a standard China based approach to IT and the CANDIS approach.

### Traditional Systems Cost Structure



### CANDIS Systems Cost Structure



<sup>6</sup> Please see [www.candisgroup.com](http://www.candisgroup.com) for more whitepapers