



Teaching case

# Finding the process edge: ITIL at Celanese

Ulrike Schultze

Information Technology and Operations Management, Cox School of Business, Southern Methodist University, Dallas, TX, USA

**Correspondence:**

U Schultze, Information Technology and Operations Management, Cox School of Business, Southern Methodist University, PO Box 750333, Dallas, TX 75275, USA.

Tel: +1 214 768 4265;

Fax: +1 214 768 4099;

E-mail: [uschultz@cox.smu.edu](mailto:uschultz@cox.smu.edu)

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## Abstract

Celanese, a global leader in the chemical industry, had spent a number of years implementing a single instance ERP solution and integrating the divisional IT functions into a shared services model. Around 2007, after years of application and IT service growth, many in Celanese IT believed that their internal operations were in desperate need of tighter coordination and process discipline. They looked to Information Technology Infrastructure Library (ITIL) to guide their process integration effort. This case describes the first three years of the IT organization's journey with the ITIL process framework.

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## Introduction

It was March 2009 and Celanese's Chief Information Officer (CIO) was perusing the PowerPoint slides that had just been presented to him as part of an update on the IT organization's Information Technology Infrastructure Library (ITIL) efforts in 2008. Looking over the list of accomplishments for 2008 and the plans for 2009, he was struck by the irony that there never seemed to be a good time to focus on internal IT projects. In 2008, they were too busy meeting their customers' application needs to focus on improving their own operations. Given the economic downturn in 2009, they were not as busy, but now they did not have the budget to turn inward either.

With the IT budget for 2009 slashed by 30% from its 2008 total of \$128 million, IT initiatives were being scrutinized for their cost-cutting potential. Only projects that clearly supported the company's strategic direction and convincingly demonstrated a 1-year payback would be approved. Even though many of the IT service improvement initiatives, which were collectively referred to as 'ITIL work', had the potential to cut IT costs, it was clear that they would require more than a 1-year window to break even.

For the most part, the IT service improvement effort was triggered by an ITIL assessment that Hewlett Packard (HP) completed in Fall 2007. This assessment highlighted that, compared to other organizations that HP had evaluated, Celanese's IT operations were below average and that their processes were at level 2 (i.e., 'repeatable') on HP's 5-point process maturity model. The assessment concluded with the recommendation that Celanese focus on improving

specific ITIL processes, starting with Service-Level Management, and continuing with Change, Problem, Release and Configuration Management.

For a number of reasons, Celanese did not strictly follow these recommendations. For one, the IT directors were unclear of the value that could be derived from an increase in ITIL process maturity. Furthermore, the CIO was skeptical of the benefits of re-engineering IT processes. He was thus reluctant to give the ITIL effort the kind of blanket endorsement and visible support that is typically required for successful process improvement initiatives. Furthermore, HP's recommendation to start improving one of the most customer-facing processes, namely Service-Level Management, did not sit well with the IT directors. They did not perceive their customer relationships to be an area in which they were prepared to begin their ITIL experimentation. Thus, instead of pursuing IT service improvement in a top-down, process-centric manner, people like the Global IT Operations Manager bootstrapped and implemented unique – albeit ITIL-informed – solutions that addressed Celanese-specific problems.

Looking over the list of accomplishments, the CIO wondered whether they should have tackled the ITIL work differently. If they had gone about the ITIL work in a more structured and aggressive manner, might the IT organization have been better prepared for the deep budget cuts they now faced? What were the strengths and weaknesses of the path they had chosen? Furthermore, looking over the five projects the ITIL Advisory Board was targeting for 2009, he wondered how they should be prioritized. If he



were able to carve some money out of the anemic 2009 budget for IT service improvement, which of these initiatives should he endorse?

### Company background

As a global leader in the chemicals industry, Celanese Corporation was one of the world's largest producers of acetyl products, which are intermediate chemicals used in nearly all major industries. Its products were found in consumer and industrial applications ranging from fire-resistant paints and textiles, to adhesives, cigarette filters and baked goods. Celanese was also a leading global producer of high-performance engineered polymers that were used in applications such as conveyor belts, fuel system components and seat-belt mechanisms. Appendix A provides an overview of Celanese's divisions, products and markets in 2008.

Headquartered in Dallas, Texas, the company had 31 production facilities in 2008 and it employed approximately 8350 full time equivalents (FTEs) worldwide. Its operations were primarily located in North America (49% of employees), Europe (42% of employees) and Asia (8% of employees). In 2008, net sales totaled \$6.8 billion, 65% of which were generated outside of North America. The largest division, Acetyl Intermediates, contributed almost half (47%) of Celanese's revenue, followed by the Industrial Specialties (21%), Consumer Specialties (17%) and Advanced Engineered Materials (15%).

### IT @ Celanese

In 2008, the IT organization at Celanese supported about 7000 PC users worldwide with a staff of 300 FTEs. The members of the IT organization were geographically distributed across sites in the US (Dallas), Germany (Kelsterbach, close to Frankfurt), Mexico (Mexico City) and China (Nanjing and Shanghai). Organizationally, the IT employees were distributed across six groups (see Appendix B for an organization chart), of which the IT Applications group was the largest (~40% of the employees), followed by the IT Infrastructure group (~20% of the employees).

The groundwork for this organizational structure was laid in 2001 when the current Celanese CIO was hired. When he joined the firm, there was no central IT organization to speak of. Central IT managed the shared IT infrastructure, which was limited to common contracts with SAP and Microsoft, and the network. The remaining IT resources were the purview of the six businesses that were part of the Celanese holding company. Each BU had its own IT organization, which had operated independently for approximately 10 years. One of the consequences of such a distributed IT organization was a lack of cost transparency. What was estimated to be an IT spend totaling \$65 million in 2001, turned out to be twice that.

Given the pervasive belief that 'everything central was evil', there was considerable resistance to reporting to a single CIO and developing a shared services IT organization. In 2001, the CIO role was thus limited to that of 'individual contributor CIO'. In this environment, the transition to a standardized IT infrastructure and an

integrated IT organization was not smooth. The business case for every integration initiative had to be made on a case-by-case basis.

One example of this was the PC standardization effort, which began in 2002 and took 5 years. Traditionally, every plant procured, configured and maintained its own PCs. The current Global Operations manager had been tapped to pilot Celanese's new PC standard at every location and then to convince them to convert to the standard solution based on its cost-effectiveness. This meant that he spent, for instance, 9 months in Mexico converting six sites to the new PC standard. He explained:

The CIO did not make a directive to them but he put me in there and let me pave the path, and when I had issues I had to escalate up to him a couple of times. He would make the decision to enable me but he would not make it top down, 'everyone had to do that.' He wanted to see whether it was going to be successful, I think. Kind of keep it isolated a little bit. He was behind it but it wasn't as visible as it could have been and would have smoothed the path. It was very successful, but it was brutal at times.

As part of the IT organization's infrastructure integration efforts, Celanese implemented a single instance ERP system globally. This enabled the company to achieve a 3-day close in the transaction system and another 2-day close in the consolidation system. Furthermore, by eliminating resource duplication and by reaping the benefits of standardization, the IT organization had cut its costs to about \$85 million in 2005.

Around 2006, the IT organization entered its 'heavy build' phase. The business demand for IT services was growing exponentially. For instance, in 2008, the budget for new IT projects was \$35 million and the estimated project budget for 2009 was \$65 million. The numbers signaled a significant increase from the 2005 project budget of around \$8 million. While the IT organization had focused on developing a globally integrated IT infrastructure during the period 2001–2007, the heavy build years highlighted some weaknesses in their internal coordination. Specifically, the project evaluation process was highly problematic because new application projects were approved without giving adequate consideration for the costs of operating and maintaining them. The Manager in the Application Supply group explained:

Application Supply is the part of IT that is readily understood by the business. They don't know LAN, WAN, telecom; they just want the infrastructure to work. It's SAP and the other applications that really enable their workflow. It therefore has the upside that "they get it" and they're willing to invest in the applications side. It has the downside that that's really where they want to add value and they want to push the cost of the rest of IT down.

These project approval practices and the bias against funding IT infrastructure and operations had considerable implications for the Infrastructure Supply group, which increasingly experienced budget overruns. In fact, they



found it virtually impossible to manage their budgets, as new applications, of which they were entirely unaware, were 'thrown-over the wall'. At times there was a complete lack of communication between the Demand, Application and Infrastructure groups. As the ITIL Process Lead, put it:

In the supply area, between infrastructure and applications, it's not just silos; we're sometimes on different planets.

It became increasingly clear to the IT Director of Infrastructure that the next generation of integration work at Celanese needed to focus on internal IT processes. The Global Operations Manager, who had for a number of years been seeking best practice ideas to address the 'chaotic' state of the IT organization, introduced her to ITIL. Thus, when there was an opportunity to assess their current operations according to the ITIL framework, she saw it as a great starting point for the next generation of IT integration initiatives.

### Information Technology Infrastructure Library

ITIL was a collection of best practices for managing IT operations. Presented as a series of books, it provided a comprehensive set of processes – complete with goals, task checklists and procedures – that collectively addressed the work needed to manage the IT infrastructure. ITIL was not a standard like ISO 20000, for instance. Instead, it represented a framework and methodology to which existing processes and approaches to IT work could be adapted.

Originally called Government Information Technology Infrastructure Management, the first version of ITIL emerged in the 1980s, when the British government determined that the level of IT service quality it was receiving from IT vendors was unsatisfactory. The Central Computer and Telecommunications Agency, later called the Office of Government Commerce, was tasked with developing a framework for the efficient and financially responsible deployment of IT resources within the British government and the private sector. In the early 1990s, large companies and government agencies in Europe adopted the framework very quickly. However, it took another decade until the framework became popular in the US. For instance, in 2000, Microsoft used ITIL as the basis for its proprietary Microsoft Operations Framework.

In 2001, the second version of ITIL was released. It consisted of seven books (see Appendix C for an outline), two of which – Service Support and Service Delivery – formed the core of the practices (also referred to as processes and disciplines) that comprised 'IT Service Management'. *Service Support* entailed processes that helped provision IT services on a day-to-day basis. These included Incident Management, Service Desk, Change Management, Problem Management, Release Management and Configuration Management (see Appendix D for a workflow diagram of Change Management). *Service Delivery* contained the processes that were more forward-looking and that managed the IT services themselves. These were Service-Level Management, Capacity Management,

Availability Management, Contingency Planning and Financial Management.

In May 2007, the third version of ITIL was published. Billed as a 'refresh' of v2 and an extension of the ITIL framework, ITIL v3 added new processes, developed more of a lifecycle approach to IT Service Management and emphasized the need for IT business integration more.<sup>1</sup> Reflective of the lifecycle approach, ITIL v3 was organized into five books that follow a practical sequence:

1. Service Strategy: How to develop a business-driven strategy for IT service management;
2. Service Design: How to design a system to support the chosen strategy;
3. Service Transition: How to transition the newly designed system to the production environment (in terms of people and processes as well as technology);
4. Service Operation: How to support operations in an ongoing fashion; and
5. Continual Service Improvement: How to continue improving processes and operations.

ITIL v3's lifecycle logic had implications for where to start when tackling IT service improvement. While ITIL v2 had recommended that organizations start with the operations-focused Service Support processes, especially Incident and Change Management, ITIL v3 recommended starting with more strategy-focused processes such as Demand and Service-Level Management. By starting with these customer-facing processes it was anticipated that the business alignment goal would be achieved more effectively.

### The HP assessment

In Fall 2007, Celanese IT commissioned HP to assess its IT processes. At the time, HP was one of the leading vendors of software that embedded the ITIL best practices. They had also developed a Formula One racecar simulation to illustrate ITIL best practices. Prior to committing to the ITIL assessment, Celanese IT had played this simulation. For several members of the Celanese IT organization, this represented their first exposure to ITIL.

The IT Director of Infrastructure, who has sponsored the HP assessment, explained her motivation for doing so:

I wanted to find out where we were. We had an idea of the things we wanted to work on in my area but we weren't convinced – because we're so closely involved with everything we're doing – that these were the areas that would give us the best payback and would be the smartest places to start.

The assessment consisted of a series of questionnaires to which the managers in different areas of IT responded, as well as an HP-facilitated session in which the responses were discussed with the participating managers and directors. Many noted that the whole exercise was an eye-opening experience. The questions in the survey implicitly communicated the ITIL best practices, providing participants a sense of where their respective process stood with regard to ITIL. Furthermore, the joint session

highlighted how little the groups knew about each others' work, how insulated they were from each other, and how little awareness there was of what it took to deliver unified IT services to their business customers.

The assessment also brought to light that the Applications and the Infrastructure groups had similar processes that they nevertheless tackled very differently. For instance, the SAP team had its own Incident, Change, Release and Problem Management processes, which were not replicated to other parts of IT. These processes had been developed as part of the SAP implementation and had not been diffused to the Infrastructure group because SAP was maintained entirely by a team that resided within the Applications area. This lack of process integration and standardization was not only noted in the HP assessment, but it also explained Celanese's overall ITIL maturity rating of 2 on most processes. This score represented the average between the SAP team's rating of 3 and the Infrastructure group's 1 on one process, and the opposite ratings on another process.

The assessment results were summarized as follows:

- Celanese achieved an IT Service Management score of 45.6%, which was below the average of the other companies HP had assessed;
- Celanese received an average ITIL maturity rating of 'repeatable', that is, 2 on a 5-point scale;
- Risk to reliable service delivery was assessed as 'high';
- Financial, Security and Supplier Management were considered well developed; and
- Service Level, Problem, Change, Release, Configuration and Availability Management were found to be weak.

While some IT directors were surprised at their 'below average' IT Service Management score, most agreed that their level-2 maturity rating was justified. The entire assessment exercise had highlighted the many process gaps apparent in Celanese's IT organization. The IT Infrastructure Director noted:

But at the same time, it illustrated the progress we did make in the areas in which we chose to focus, namely Financial Management and Governance. Before 2001, these areas were very distributed by business, so the decisions did not integrate and we were not following the same process for approvals. In bringing shared services together there was a big effort on governance, financial planning, demand planning and so on, and that showed up in the HP Assessment, because those areas were rated fairly highly.

With regard to the causes underlying this relatively low maturity level, HP highlighted the following problems:

- lack of formal service-level management that ensures alignment to business requirements;
- inadequate transparency of the production environment, that is, inadequate collection, reporting and distribution of information; and
- lack of tools, documentation, integrated processes (e.g., Change and Release Management) and ITIL processes (e.g., Availability Management).

Not surprisingly, their top three recommendations were:

- formalize the Service-Level Management process to include a service-level agreement (SLA) for every service;
- move to a single or federated tool solution; and
- create a standard documentation process.

While the results, causes and solutions rang true the ITIL proponents found it difficult to convince the CIO and the IT directors to follow HP's recommendations to the letter. The Application Supply Manager noted some reasons for this:

[Despite Celanese's engineering culture] we're not a highly disciplined organization so it's going to be a hard road for us to improve internal IT processes. We would much rather be doing new, fancy, fun IT things every day than making the processes better, making the quality a little bit better. We'd rather be building the grand new glorious application – exploring the west... We've also struggled on the management team in terms of the areas to focus on, in part because we had 3's in one area that were 1's for others, so we couldn't get across-the-board agreement on which ones to work on.

In addition to determining which processes to prioritize, there was considerable debate among the IT directors regarding the maturity level that Celanese ought to target. The Infrastructure Director highlighted that they did not want to achieve 100% or even 80% maturity; instead, they hoped to move from their current 30% to about 65% maturity. This was because the business already perceived IT as 'bureaucratic'. Implementing more rigorous processes threatened to add weight to this negative reputation.

In addition, there was much skepticism of the merits of addressing the Service-Level Management process. Celanese IT's budget was based on an allocation rather than a consumption model. In other words, IT spend was allocated as overhead to the businesses based on three cost drivers: (i) local usage of networks and helpdesk services, (ii) the number of SAP licenses, and (iii) the number of PCs in the business. This budget model implied that the businesses had no direct control over their IT expenses; instead, they relied on the IT organization to spend Celanese's IT funds wisely and to provide the company with the most cost-effective IT services possible.

The notion of service levels, that is, giving users a menu of service options each with its own price tag, ran counter to this budget logic. The CIO explained:

If I go to my EVPs and ask them, 'how much email do you want?' They say, 'I have no clue.' So what I should be doing is tell them 'here's what you should be using for email and this is a good way to manage it.' Then they're going to say 'fine' – or not. But they normally say 'fine.' And that's a question of trust. Are you being trusted? Do you have the credibility to do those things?

There was thus a general sense in the IT organization that their business customers did not want service levels. The



ITIL Process Lead summarized some conversations that IT had with the business around service levels:

They don't get it. They say, 'Just keep the critical things running all the time.' 'But which are the critical things? What does "all the time" mean to you?' 'Well, you tell me. You're not going to tell me how to run my business; I'm not going to tell you how to run yours,' was one of the quotes.

While the business might have been satisfied with the lack of defined service levels, many in IT were not. The Global Operations manager tied the business lack of interest in service levels to a certain shirking of responsibility:

And the business wants to say that IT is failing to control costs and failing to deliver services, but they won't take responsibility. When we go over and we talk about defining service levels and services, they say 'that's too much effort. Just keep your project costs down.' They don't want to deal with the distributed costs and yet they don't want to fund anything to keep IT healthy. And they don't want to be held accountable.

Furthermore, the implication of its allocation model was that all IT services tended to have one service level referred to as 'best effort', which represented the lowest cost support. In the case of the help desk, 'best effort' translated into a priority 3 classification, which meant that tickets would be responded to the next business day. In contrast, the 'high availability' service level translated into a priority 1 classification, which implied that tickets were responded to immediately because the application was so critical that it could not be down.

While the Operations Manager found it frustrating that the cost allocation model imposed restrictions on his ability to offer appropriate service levels, what was even more difficult was that people paid for the only available 'best effort' service level, but expected 'high availability'. The IT Infrastructure Manager stated the dilemma in the following terms:

People typically don't need 'high availability' because of the cost; until something breaks. ... Now, we've been a little bit of our own worst enemy because when they come to us and say 'I've got to have this back up,' we'll pull people from everywhere. And at the end of the day, they get it pretty close to high availability. But we can't keep doing that because by pulling people away, I sacrifice a whole bunch of other things that we need to work on.

As is apparent from these divergent points of view, the managers in the Infrastructure group saw more value in SLAs than either the business customers or the IT groups that were closest to them (i.e., Applications Supply, Demand, Manufacturing IT). The Infrastructure group argued that it needed SLAs in order to plan capacity and allocate resources effectively. In contrast, the Demand group was concerned about locking their customers into SLAs that they were unsure the Infrastructure group could deliver on.

## ITIL initiatives at Celanese

Even though the HP Assessment had not served to corral the entire organization in support of an ITIL-focused re-engineering effort, the Infrastructure group nevertheless pursued multiple initiatives. First, the Operations Manager added three ITIL specialists into his organization. Jokingly referred to as the 'ITILers', one focused on Change Management, the second on Incident Management and the third on Problem Management. Given their relatively junior status, their role was primarily to manage the information in the respective tools used for the processes, and to generate reports.

Second, the IT Infrastructure Director invested heavily in ITIL training. She sponsored four ITIL Foundations<sup>2</sup> classes, which members of other IT groups were able to attend for free. By March 2009, 108 IT professionals globally were ITIL Foundations certified. The IT Infrastructure Manager, who had been confused about what ITIL really meant and unclear on its benefits, said that the 3-day training had turned him into an 'ITIL believer'. He further noted how it standardized the vocabulary and terminology across the different IT groups: 'Even if I don't fully understand how to do an OLA (operating level agreement), I know what it means'. Similarly, the ITIL Process Lead highlighted:

It is amazing when people come out of the certification class how their attitude has changed. They start using the right words; they start asking the right questions. Most of them really get it now!

The IT Infrastructure Director maintained that the ITIL training had helped the Infrastructure group 'turn the corner' on getting their colleagues to believe in the merits of ITIL. She noted, 'we found that we needed to sponsor the training for people to have a conversation about IT service improvement and to really understand what we were talking about'.

Third, the Operations Manager organized an ITIL Taskforce, which met either bi-monthly or monthly for the entire year. Even though he had invited members of the other IT groups to participate, interest soon waned and real participation was limited to the Infrastructure group. The purpose of the taskforce was to propose, design and implement IT service improvements. During the taskforce meetings, members reported on progress of these initiatives and solicited input. The three main initiatives undertaken in 2008 included (i) the implementation of Opware, a Network Automation System, (ii) the development of a new classification for problems to minimize unnecessary escalations in Incident Management, and (iii) the design and implementation of a new Operations Support Model (OSM). Of these, the OSM initiative was the most notable.

## Operations Support Model

The development of the OSM began in Fall 2007 and it was motivated by the findings of the ITIL assessment as well as the highly problematic implementation of a financial application (hereafter called APware) that supported the accounts payable process. This application was being

implemented in phases across multiple regions and experienced outages a few days after going into production. Since it was a business-critical application all eyes turned to the Manager of IT Operations. After all, once an application went live, responsibility generally passed from the Applications group to IT Operations, which was then expected to support it at perpetuity. The Operations Manager recalled the moment when APware crashed as follows:

The CIO came to me, because I'm the operations manager, and says 'why is this broken?' And I said, 'I don't even know what it is.' There was no architecture map, no support structure. We didn't even know who was delivering all the different pieces of it. I guess it was about 12 servers distributed across three locations, and all dependent on one another. So if one of them failed, the whole service went down.

The revelation that business-critical services could even go into production without IT Operations' knowledge and a plan for how the application would be supported, highlighted just how fundamental the coordination problems within IT were. Operations worked with the business and the Applications group to gather the documentation needed to support the service, while fire fighting the daily breakdowns. Once the service was relatively stable, the Infrastructure group received complaints from APware users after every monthly maintenance event. Only after documentation had been developed and test cases defined were the maintenance teams able to reliably restore APware to its fully functioning state.

Defining an OSM for APware took 6 months and the effort was likened to applying a solution 'to a moving train'. In the meantime, the CIO issued a directive that no project could go live without a defined operations support model. Thus, support for the OSM initiative was secured.

A number of factors contributed to the difficulties in developing a successful support model for APware. The service was composed of components from a variety of vendors who did not work in a collaborative manner. The vendors were located in different regions of the world with very little time-zone overlap, resulting in significant support delays. Initially, the service was to be supported by non-IT resources in the business that had little knowledge of or appreciation for change management. In addition, these business resources were neither stable nor dedicated. The requirements also changed during the

project, from a centrally located to a distributed process model, resulting in updates to both processes and architecture. This first support model not only improved availability of the APware service (see Table 1), but it also provided feedback to the overall OSM development process, uncovering additional support responsibilities that were then added to the template.

What the Operations Manager and his ITILers developed initially was a checklist, in spreadsheet format, that documented who owned which process (e.g., Incident Management) of the overall IT service (e.g., APware, email, Blackberry communication). Given its role as gatekeeper that prevented unauthorized services from moving into production, this spreadsheet was initially labeled the 'Go Live Checklist'. However, as the processes surrounding its completion and a semi-annual review of the checklists became apparent, both the spreadsheet and its associated tasks become known as the 'Operations Support Model' or 'OSM'. This new name was also intended to signal the continuous and long-term implications of the ownership commitments captured in each checklist.

Even though the OSM was neither a document nor a process outlined by ITIL, it was nevertheless informed by ITIL v3 (see Appendix E for an outline of the OSM spreadsheet, organized by tabs). For instance, the OSM applied ITIL's distinction between a *service owners* (i.e., one person who owns APware) and a number of *process owners* who were responsible for their part of the service (e.g., Change Management for APware). Furthermore, the OSM adopted the ITIL lifecycle model to structure and assure completeness of the checklist. Thus the processes that made up the rows of the checklist were derived from ITIL v3. This made it possible for the Operations team to leverage the ITIL processes when teaching process owners what their specific responsibilities entailed. The ITILer in charge of the OSM pointed out that it was 'a way of selling ITIL without calling it ITIL'.

Process ownership was distinguished along support levels (e.g., Helpdesk for Level 1 and External Vendor for Level 4) and ownership types as expressed in terms of the RACI model. An ownership type of R (responsible) indicated that the owner worked on and contributed resources to the process. In contrast, an ownership type of A (accountable) indicated that this owner was solely answerable to the completion of the process. Each process could only have one A-type owner. (Please refer to Appendix E for explanations of the remaining ownership levels and types.)

**Table 1** APware availability

| Month | Weeks/<br>month | Hours/week<br>(5 days @ 16 h) | Total<br>h/month | Days<br>down | Hours<br>down | Total<br>down-time/<br>month | %<br>Uptime |
|-------|-----------------|-------------------------------|------------------|--------------|---------------|------------------------------|-------------|
| 1     | 4               | 80                            | 320              | 4            | 16            | 64                           | 80.00       |
| 2     | 4               | 80                            | 320              | 2            | 16            | 32                           | 90.00       |
| 3     | 4               | 80                            | 320              | 1            | 16            | 16                           | 95.00       |
| 4     | 4               | 80                            | 320              | 1            | 4             | 4                            | 98.75       |
| 5     | 4               | 80                            | 320              | 1            | 2             | 2                            | 99.38       |
| 6     | 4               | 80                            | 320              | 1            | 0.5           | 0.5                          | 99.84       |



One column that the Operations Manager was particularly keen on adding in the OSM was labeled 'assumptions'. Here, the agreed-upon service levels were documented in order to avoid 'high availability' expectations for 'best effort' costs. He summarized the benefits of the OSM as follows:

When a service failed in the past, they would come to me and pressure me to fix the problem and I wasn't given any flexibility. Basically, 'it's an IT service; we don't want to hear about what we have to do. You need to fix it!' 'Well, we've identified that to fix this, it's going to take these funds and these services and we're not the owners of those pieces.' So the OSM puts accountability back on the person that actually owns the service to do their pieces. So, if we have an escalation and let's say there was an external vendor, they were expecting us to deal with an external vendor that they negotiated with and they're paying the funds to. So the vendor only felt accountable to the business person and yet we were trying to fix it. And the vendor would give different stories, so there was a lot of finger pointing. With the OSM, that vendor relationship goes back to the business owner.

Today, the business comes to us and they have this assumption that IT is just going to run it. And typically we don't even have the knowledge to run the application. We run the underlying hardware pieces, but we don't know the application. We don't understand what the business needs are. So there's a lot of discovery in the OSM meetings.

The ITILer who was in charge of managing the OSMs facilitated the weekly meetings and shepherded the different services through the approval process, which typically required 3–4 meetings. It was estimated that Celanese had a total of 400 services for which OSMs needed to be defined. By April 2009, 80 OSMs had been completed. Of those 45 had been approved. While it was mandatory for new services to have an approved OSM prior to going live, the completion of an OSM for extant services was optional. The ITILer in charge of the OSMs remarked that it was easier to work with new services:

[With new services,] I can talk them into following the process. If the application is already in production, it's very hard to get them to change and even if you do, there is always something or the other that they bring up about the past related to support from IT: 'it wasn't working then, it's not going to work now,' kind of thing.

While the Infrastructure group experienced many benefits of the OSM, other groups deemed it overly complex and unnecessarily 'bureaucratic'. Taking the Application group's perspective, the Application Manager expressed the following concerns:

I have very mixed feelings about the OSM. I love the intent because we were out of control. We were building applications and pretending like they were in production when we had done no formal transition and planning for on-going support. Because a particular developer built it,

he or she was responsible if it broke later; it was all the developer's problem. However, in the desire to be all-encompassing, the OSM swung to the bureaucratic side.

And right now we're trying to get it back to something that has structure without being so intimidating while still accomplishing most of the goals the team would like to see. We're actually taking some new template ideas to Operations and saying 'could we use something like this and get most of what you're looking for?' because right now people pull up a blank template and quickly get lost and it's weeks and weeks before they can even get their mind wrapped around it: 'What do you mean by this row and column? Because I don't get it.'

The ITILer responsible for OSM management conceded that the completion of the OSM could cause significant delays. While most OSMs took 2–4 meetings before they were approved, he had seen some outliers:

In the worst case scenario, it takes you months to get approval because you don't know who is going to support the application. There's one application that was supposed to go into production last year but did not due to development delays and support issues. We started the OSM in May 2008 and it was finally approved in February 2009. The development team wanted to support the application, but to do that they needed administrative access to the database servers, which was against policy. The database team did not have the appropriate application skills to completely support the application either and hence it was a challenge to document the support model.

This example highlighted one of the key challenges of the OSM, namely the identification of a single service owner. A similar problem had been encountered when attempts were made to define an OSM for the Blackberry service. Given that each country had its own Blackberry service provider, it was virtually impossible to find one owner capable of centrally managing vendors and support in the 30 countries in which the Celanese user population resided. One alternative was to create 30 different Blackberry OSMs, one for each country. However, this seemed counter-productive and highly redundant.

### ITIL in 2009

In Fall 2008, the IT organization underwent a slight reorganization. As part of this, the IT Infrastructure Director created a new position titled 'ITIL Process Lead' and moved one of her team members, who had earned her ITIL v3 Manager certification in November 2008, into this role. This position, which was part of the Infrastructure group, was the first full-time role dedicated to ITIL process improvement.

The ITIL Process Lead facilitated small ITIL-related improvement projects by assembling the 'right people in a room to fix small problems'. She had helped develop a new set of PC policies, worked on finding a solution for the Blackberry OSM and ensured that master contact lists for emergencies were updated at various sites. In addition, she



coordinated the new ITIL Advisory Board. Similar in intent to the ITIL Taskforce of the year before, the Advisory Board was able to maintain the commitment of representatives from groups other than Infrastructure Supply (e.g., IT Applications, IT Governance, IT Manufacturing, IT Asia, Business Processes and Strategy). In large part, this was thanks to her full-time attention to the ITIL initiatives.

One of the ITIL Process Lead's first tasks was to identify the initiatives that the Advisory Board wanted to tackle that year. To identify process 'gaps', she interviewed the 17 members of the Advisory Board to get an understanding of their 'pain points'. This generated a list of about 70 gaps, which were then clustered and prioritized into five ITIL initiatives. She recounted the process:

So we started kicking off that group with interviews of each of those team members. And it was amazing. I really liked the fact that it came out of their mouths; it wasn't my wording; it wasn't my idea. I just sat down and asked the questions and was amazed that everybody on that board came up with gaps that can be addressed through ITIL best practices! That was really a confirmation that we need to be doing this.

The five ITIL initiatives to which the Advisory Board committed for 2009 were:

1. *Change Control*: in order to address the problem of inadequate planning among the Infrastructure, Application and Manufacturing IT groups, which ultimately led to a high volume of emergency changes, the Infrastructure group planned to develop OLAs for its services so as to clearly communicate its information and lead-time requirements.
2. *Service Transition*: to address the challenges with the OSM, this initiative would focus on streamlining the checklist, provide training and incorporating parts of the checklist into the project management office's (PMO's) stage-gate process.
3. *Service-Level Management*: given the economic situation, the Advisory Board wanted to make some progress on developing SLAs that would allow IT to set appropriate customer expectations with respect to costs and service levels
4. *Process Ownership*: in light of the struggles they had experienced with completing OSMs for complex services like Blackberry communications, the Advisory Board felt the need to develop clearer definitions of what they meant by process, product and service owners.
5. *Problem Management*: since the HP assessment rated Problem Management at level 1 maturity, both the Application and Infrastructure groups were eager to work toward improving it.

In identifying and prioritizing these five initiatives, it became clear how much the IT groups needed to work on their coordination. Increasingly, the members of the advisory board saw OLAs as a way to improve their cross-functional work. An Infrastructure Manager explained his interest in OLAs as follows:

What brought the OLA around is that it dawned on me, 'you know what? If these guys in the other IT areas fully understood what it takes me to provide this back-end service, then they would know to plug that into their plans.' Because they don't know it today. I tell them walking down the hall but I've never formalized it. I think it's just going through our process of learning ITIL that it kind of dawned on me, 'I do need this'.

The Application Supply Manager recounted her experience with the OLA that the SAP DBA had developed for her database services:

It was such an eye-opening experience. We'd ask for something we expected to take a couple of days, and she'd tell us 'that's three weeks or 30 days worth of effort.' We were just orders of magnitude off.

In April 2009, the Database Team Lead in the Infrastructure group was actively working with Microsoft to develop OLAs for 'SQL as a Service'. She articulated her vision as follows:

The OLA will have standard tiers/levels of database services based on business requirements. When they say they want something that's highly available, I can say 'yes, I've got that frame worked in.' I can offer our highest level and I will say, 'this is how I do it. This is my architecture and support model.' And we do not need to define new database services for every project.

The Advisory Board thus staked much hope on OLAs as a starting point for improving IT service management in general and augmenting its ITIL process maturity specifically. They anticipated that they would score at least one and maybe even two levels higher on the processes they were tackling by the time they re-assessed their ITIL maturity in Fall 2009.

### Finding the ITIL process edge

In his 1997 book entitled *The Process Edge*, Peter Keen sounded a cautionary note about process improvement. Following the re-engineering wave, Keen identified a number of companies that had gone out of business after being lauded for their process innovation. These included Mutual Benefit, a disguised insurance company that (Hammer, 1990) featured as a poster child for re-engineering because they reduced the time it took to issue a policy from 3 weeks to 3 days. Another example was Florida Power and Light, a Baldrige award winner. The utility had managed to cut the average annual per-customer power outage time from 7 days to half a day, but in doing so had created such a complex bureaucracy that its customers were upset and regulators infuriated.

Keen cited these examples as illustrations of the 'process paradox, the startling fact that businesses can decline and even fail at the same time that process reform is dramatically improving efficiency by saving the company time and money and improving product quality and customer service' (p. 3). He stressed that for





organizations to not only find but also maintain their competitive edge, they needed to 'get the right processes right'.

The ITIL advocates in the Infrastructure group had expected the HP assessment and ITIL itself to answer unequivocally the question of what processes Celanese IT had to get right. They were therefore disappointed when the CIO did not give the ITIL initiative the kind of visible 'banging your fist on the table and saying "you will do this!"' support that such process re-engineering initiatives require. The Operations Manager expressed his disappointment around top management support as follows:

Although I know the no-directive-to-support is by design, I wish there would be more of a top-down ITIL push, so that we wouldn't have to apply so much pressure and thrashing in order to do what's really right. ITIL is beyond Celanese. It's a set of best practices; it's working in many companies. I wish there was more of a chance to do a top-down implementation, so that it would be quicker and that it wouldn't be so painful.

Nevertheless, people also recognized that the CIO was supporting ITIL, albeit in ways that appeared somewhat 'inconsistent'. The Application Supply Manager indicated:

Senior sponsorship is absolutely required for ITIL. I was somewhat surprised the CIO let us tackle ITIL, actually, because he's really struggled with the value proposition of being a level 3 versus a level 2, or being a level 4 versus a level 3. I think in some ways he's allowed us to pursue ITIL further because he hasn't seen the underlying resources it's taking so it is easier to support with an underlying belief that we will fix some things. Right now we are not as focused on being better for better's sake; it's more about fixing things that are broken. I think for many of us, including the CIO, our support has been inconsistent.

The Infrastructure Manager remarked on the ironic timing of the CIO's support. Noting he himself was among the people who resisted ITIL initially, he explained:

My biggest problem initially was just that I didn't see the commitment from top management. People were hearing the lip service from the higher levels, but as soon as they understood that it takes 50% of someone's time and in some cases 100%, and money because you need help, their support waned. But I'm beginning to see it now. And now, unfortunately, that our management has gotten gung-ho on it, we've hit some very bad economic times. So they're not going to write a lot of checks.

Even though it was generally recognized that it would take at least 2 years to generate 'hard cost reductions' from ITIL, there was nevertheless the expectation that these process improvements would help Celanese eliminate rework, process steps and even people. In addition, improving process maturity would increase the pool of viable, external service providers, and thus lead to more competitive outsourcing rates. For instance, the ITIL Process Lead

explained that they were unable to move their helpdesk contract to a more competitive vendor because Incident Management was not well defined:

The challenge with our service desk was, because we were not very mature in our processes and our documentation, we could never have outsourced that to a standard call center. Our current provider partners with us, and fills our gaps, and deals with our lack of maturity in that area. But to take it to the market, to an IBM, for instance, we would have had to be more mature.

Even though the CIO was aware of the potential cost-benefits of commodifying processes through proceduralization, documentation and IT tools, he also noted that Celanese IT had traditionally been able to outperform outsourcers on both cost and quality by relying on smart people who were willing to take risks. In his estimation, following process was at odds with taking risks. As his illustrations and examples below indicate, he was highly suspect of the merits of processes:

Process sometimes doesn't help; it even makes it worse. People then say, 'I followed process.' And people then don't take risks. They immediately go to 'I must not make mistakes; I have to follow procedure.' And then the only thing that comes out is that people follow a certain process and we have some signatures and check-marks and some Excel spreadsheets.

I think the process does not encourage you to come up with other ideas. It is typical human behavior for people to just follow the process, not challenge it. So that is my theme: if you put process in, good; but you still need very good people who know when not to follow the process or when to come up with new ideas of how to do things in a different way. So it's an issue of creativity. How do people know when they should be creative or not? And what I've seen is that there is a real difference in capability of people living in this uncertain environment. We ask people to take risks, which means not following the process or violating the process. So they need to decide when and how to do that. I will not get fired if I follow process. I might get fired if I don't follow process.

We had a project proposed for manufacturing. The vendor spec'ed it, the users looked at it, and the vendor said it would cost \$9 million. And then it was cancelled due to economic reasons. So I put some very good people on it and they came back with a cost of \$2 million and with a better design. So, if you just follow a certain process, step by step, yes you followed the process and you probably came back with the best solution. If you put some very good people in there, they look at completely different ways of doing things. So you get a factor of 5 for a better solution. Also, we had an Indian HR service center from a large service provider. Cost was \$1.1million; we did it in-house for \$300,000. So we were a factor of 3 or 4 cheaper than India.

In the last couple of years, we had people running around keeping multiple balls up in the air. They had to be

artists. The drive now is: we don't want artists; we want people who do things in a disciplined way. Then the service gets commoditized and then we can buy it from somewhere else for \$10 instead of \$100. In the first years, we delivered by very, very engaged people who somehow kept the system alive. It was dependent on individuals. If you go to a commodity service, you actually have to have a commodity and the trick is to get from this model of artists to a commodity service; something you can describe and hand over to somebody who has cheap labor.

My experience at Celanese has shown that even if you don't have processes, if you have good people, you can actually get a good result. Unless you have very good people, [having no processes] doesn't work.

As the CIO reviewed the five initiatives the ITIL Advisory Board had prioritized for 2009 and deliberated which processes to commoditize and which to leave in the hand of 'good people' or 'artists' who were willing and able to 'take risks', he was doodling on a notepad. In making sense of the path Celanese had pursued with their ITIL initiative thus far, he sketched a graph (Figure 1) that captured what he considered to be a trade-off between process improvement and performance.

The CIO believed that there were multiple paths toward the ultimate goal, which was to have both process discipline as advocated by the ITIL proponents, as well as performance, that is, providing high-quality service at a competitive cost. While following ITIL might have moved Celanese along the *x*-axis toward process discipline, his skepticism of processes led him to believe that it would not have yielded significant improvements in cost-performance for 2–3 years. Instead, Celanese had pursued a path in which performance, that is, how the business evaluated IT, was prioritized over process discipline. This had been successful, as was evidenced by their ability to cut the IT budget from \$130 million in 2001 to \$83 million in 2005, and during that time improving not only their services, but also growing their offerings in line with business growth and changing needs.

He nevertheless recognized that by now, in 2009, the Infrastructure and Operations groups were suffering the consequences of this relentless push for performance. Even though he felt their pain and understood their desire for

more process discipline, he did not see his way clear to prioritizing process especially in the current economic climate. How could he guide the IT organization from its current position on his graph toward their goal in the top right quadrant? Was the answer in the IT Advisory Board's five ITIL initiatives for 2009? Or was there something else that nobody was thinking of yet?

### Questions for discussion

- (1) Describe and assess Celanese's approach to IT service improvement.
  - a. Describe the approach to IT service improvement taken at Celanese.
  - b. How effective was it?
  - c. What factors contributed to its (in)effectiveness?
  - d. What specifically should they have done differently?
- (2) The Infrastructure group was more eager to pursue SLAs than the groups that had more interaction with the business, for example, applications area. What explains this difference in the perception of SLAs' value?
- (3) If you were the CIO and you were trying to decide which of the five ITIL projects you should endorse and support financially, what would your decision be? Why?
- (4) Do you agree with the CIO's conceptualization of the process-performance trade-off? Why? Why not?
  - a. Do you agree with his characterization of the Celanese and the ITIL path? Why? Why not?

### Acknowledgements

The cooperation of Celanese, as well as Sue Conger, in preparing this case is gratefully acknowledged. This case was developed as a basis for class discussion and is not designed to illustrate effective or ineffective handling of an administrative situation.

### Notes

- 1 Tainter and Likier (2007).
- 2 'Foundations' signifies the basic level of ITIL certification. This is followed by the 'Practitioner'- and 'Manager'-level certification.

### References

- Hammer, M. (1990). Reengineering Work: Don't automate, obliterate, *Harvard Business Review* 68(4): 104–112.
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### About the author

Ulrike Schultze is Associate Professor in Information Technology and Operations Management at Southern Methodist University. Her research explores the impact of information technology on work and communication practices. She has been teaching both undergraduate and graduate courses in business process analysis and improvement for a number of years. In order to incorporate contemporary practices and topical issues related to business processes improvement into these courses, she has developed teaching cases on a variety of issues leveraging the experience of Dallas-based firms.

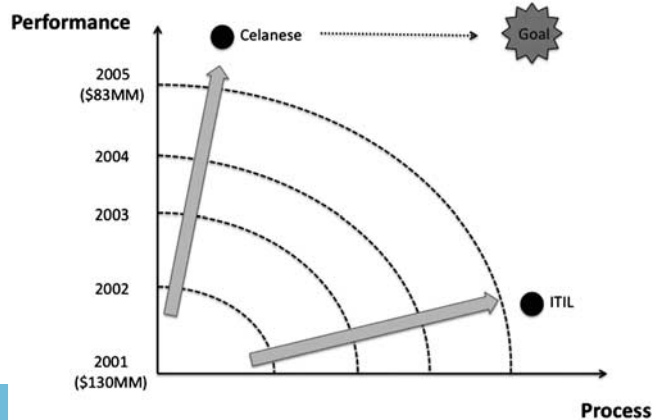


Figure 1 Process performance trade-off.

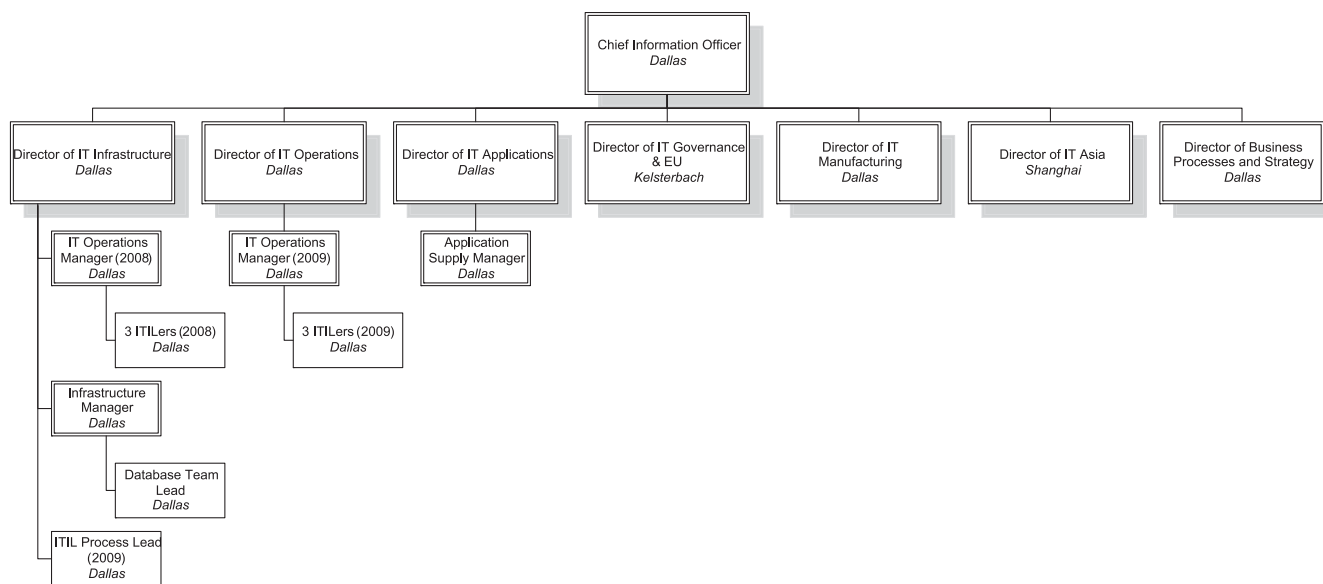


**Appendix A**  
See Table A1.

**Table A1** Overview of Celanese's divisions, products and markets

|                          | <i>Advanced engineered materials</i>  | <i>Consumer specialties</i>  | <i>Industrial specialties</i>   | <i>Acetyl intermediates</i>  |
|--------------------------|---|--|---|--|
| Major products           | POM<br>UHMW-PE (GUR)<br>Liquid crystal polymers (Vectra)<br>Polyphenylene sulfide (Fortron) | Acetate tow<br>Sunett sweetener<br>Sorbates                                  | Emulsions<br>Polyvinyl alcohol<br>Basic polymers  | Acetic acid<br>Vinyl acetate monomer (VAM)<br>Acetic anhydride<br>Acetate esters |
| Major end-use markets    | Fuel system components<br>Conveyor belts<br>Electronics<br>Seat-belt mechanisms             | Filter products<br>Beverages<br>Confections<br>Baked goods<br>Dairy products | Paints and coatings<br>Adhesives<br>Building and construction<br>Glass fiber<br>Textiles<br>Paper | Colorants<br>Paints<br>Adhesives<br>Coatings<br>Medicines                        |
| 2008 net sales (million) | \$1061  | \$1155   | \$1406  | \$3199   |

**Appendix B**  
See Figure B1.



**Figure B1** Partial IT organization chart (2008/2009).

## Appendix C

See Table C1.

Table C1 ITIL v2

| <i>Discipline</i>                    | <i>Description</i>  |
|--------------------------------------|---|
| <i>Service Support</i>               |   |
| Incident Management                  | The goal of Incident Management is to restore normal service operation as quickly as possible and minimize the adverse effect on business operations, thus ensuring that the best possible levels of service quality and availability are maintained. 'Normal service operation' is defined as service operation within Service-Level Agreement (SLA) limits.   |
| Service Desk                         | The Service Desk (aka Help Desk) is a function, that is, a group of people and the tools they use to carry out one or more processes or activities. The Service Desk is very often the first contact users have in their use of IT Services when something does not work as expected  |
| Change Management                    | Change Management is the practice of ensuring all changes to configuration items (e.g., hardware, software, databases) are carried out in a planned and authorized manner. The main aims of Change Management are minimal disruption of services, reduction in back-out activities and the economic utilization of resources involved in the change   |
| Problem Management                   | The goal of Problem Management is to resolve the root cause of incidents, and thus to minimize the adverse impact of incidents and problems on business that are caused by errors within the IT infrastructure, and to prevent recurrence of incidents related to these errors. A <i>problem</i> is an unknown underlying cause of one or more incidents, and a <i>known error</i> is a problem that is successfully diagnosed and for which either a work-around or a permanent resolution has been identified   |
| Release Management                   | The goals of release management include the planned rollout of software; controlled design and implement procedures for the distribution and installation of changes to IT systems; effective communication and management of customers' expectations during the planning and rollout of new releases; and the controlled distribution and installation of changes to IT systems  |
| Configuration Management             | Configuration Management is a process that tracks all of the individual configuration items (CI) in a system. It involves the implementation of a Configuration Management Database (CMDB) that contains details of the CIs (e.g., servers, software, networks) that are used in the provision and management of its IT services. The CMDB is more than just an asset register as it contains information about the relationship between CIs and information relating to their maintenance, movement and problems |
| <i>Service Delivery</i>              |   |
| Service-Level Management             | Service Level Management is the primary management of IT services, ensuring that agreed services are delivered when and where they are supposed to be   |
| Capacity Management                  | Capacity Management is the discipline that ensures IT infrastructure is provided at the right time in the right volume at the right price, and ensuring that IT is used in the most efficient manner  |
| Availability Management              | Availability Management is the practice of identifying levels of IT service availability for use in service-level reviews with customers  |
| Financial Management                 | Financial Management is the discipline of ensuring IT infrastructure is obtained at the most effective price, and of calculating the cost of providing IT services so that an organization can understand the costs of its IT services  |
| IT Service Continuity Management     | IT Service Continuity Management provides a framework for developing IT infrastructure recovery plans in support of business continuity management. It defines the processes that enable IT to ensure plans and alternative service options are in place in the event of a significant business outage or disruption caused by earthquakes, floods, hurricanes, tornados and/or terrorist activities  |
| <i>ICT Infrastructure Management</i> | ICT Infrastructure Management examines the processes, organization and tools needed to provide a stable information, communications and technology (ICT) infrastructure. It covers network service management, operations management, management of local processors, computer installation and acceptance and systems management   |

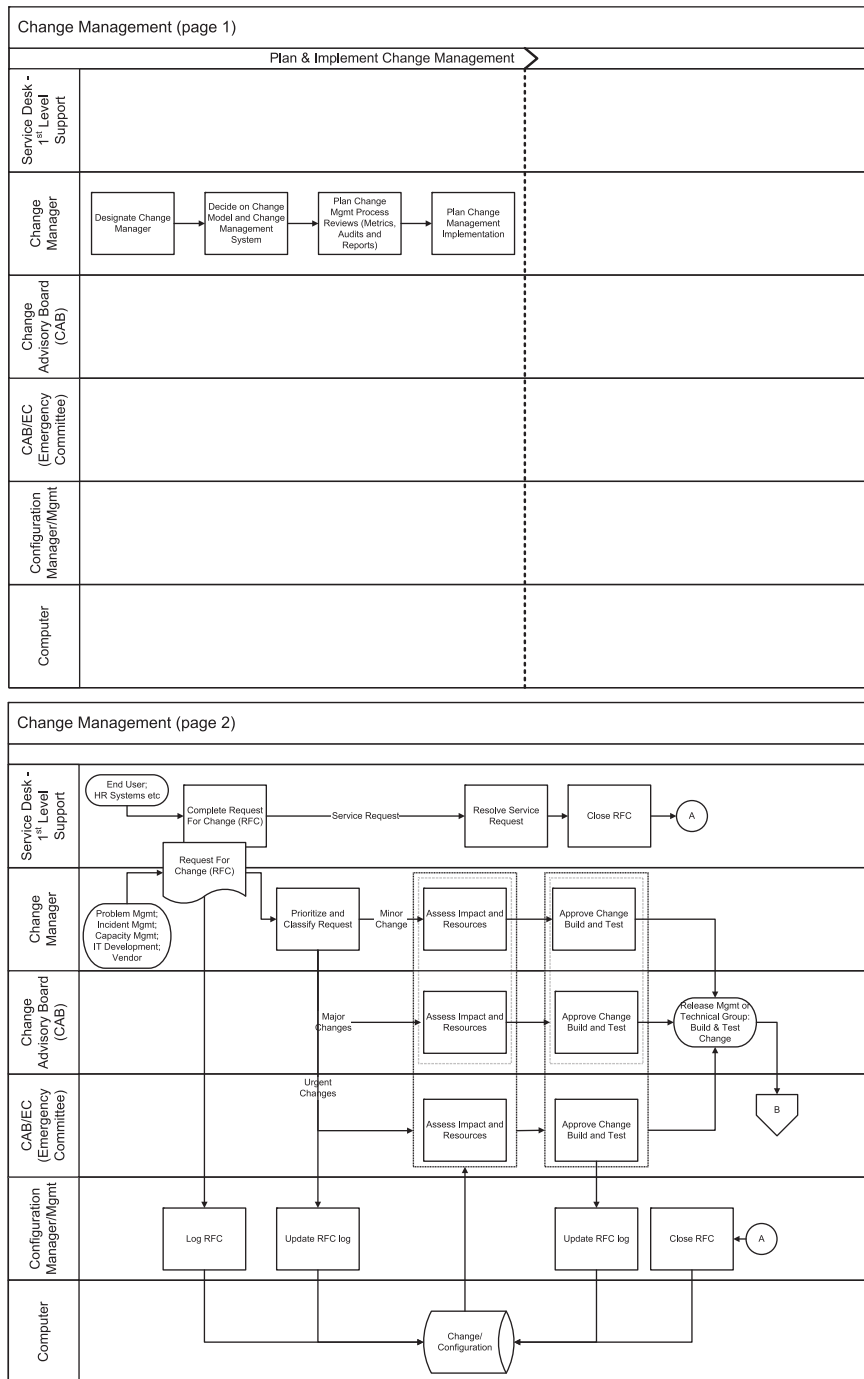




Table C1 Continued

| <i>Discipline</i>                        | <i>Description</i>  |
|--|---|
| <i>Planning to Implement IT Services</i> | Planning to Implement IT Services explains the steps necessary to identify the benefits of ITIL to your business and how to set about obtaining those benefits. It is intended to help organizations identify their strengths and weaknesses. It also provides guidance on alignment of the business needs to IT and enables the reader to assess if IT service provision is meeting the requirements of the business |
| <i>Applications Management</i>           | Applications Management outlines the application management lifecycle and is a guide for how applications can be managed from a service management perspective  |
| <i>The Business Perspective</i>          | The Business Perspective focuses on helping business managers understand IT service provision. It embraces Business Relationship Management; Partnerships and Outsourcing; and exploitation of Information, Communication and Technology  |
| <i>Security Management</i>               | Security Management refers to maintaining: <ul style="list-style-type: none"><li>• Confidentiality: making information accessible only to those authorized;</li><li>• Integrity: safeguarding the accuracy and completeness of information; and</li><li>• Availability: providing authorized users with access to information when required</li></ul>   |

**Appendix D**  
See Figure D1.



**Figure D1** Workflow of change management.  
Source: Case writer's representation of ITIL v2's process description.

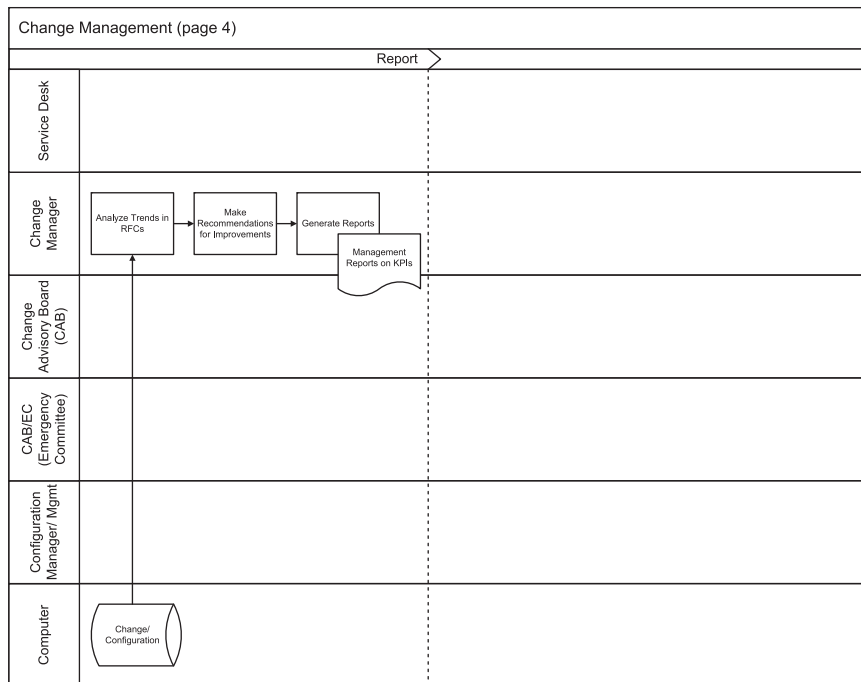
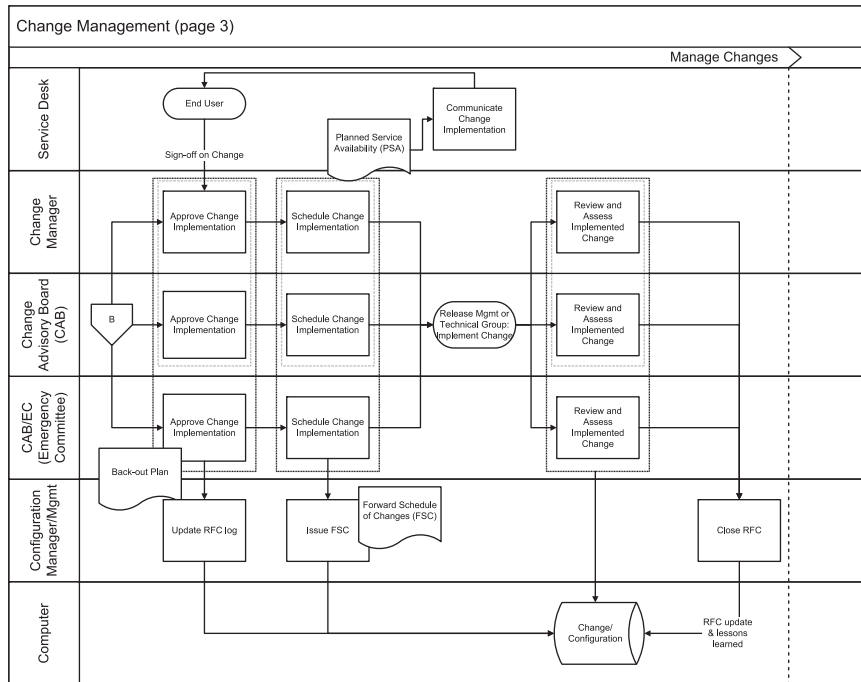


Figure D1 Continued.

## Appendix E

### Operations support model (OSM).

#### Operations Support Model

Version  
2.2

##### General Service Overview

|  |  |
|--|--|
| Name of Service / Application                      |  |
| Service Owner                                      |  |
| Primary IT / Escalation contact                    |  |
| Description of Service / Application functionality |  |
| Users/Sites  |  |
| Service classification                             |  |
| Business unit                                      |  |
| Go-Live date                                       |  |

#### Operations Support Model

Version 2.2

##### Service Owner Responsibilities

- As a Service Owner you agree to be responsible for this service within Celanese regardless of where the underpinning technology components, processes or professional capabilities reside. In addition you agree:
  - To act as the primary contact for all Service related enquiries and issues (escalated incidents)
  - To ensure that ongoing Service delivery and support meet agreed customer requirement
  - To ensure that the roles, responsibilities and documentation are regularly reviewed and audited
  - To provide and communicate support documentation whenever a change is made
  - To communicate Service outage information to IT and provide periodic updates
  - To communicate a change in service owner or secondary owner
  - To communicate application specific roadmaps, releases and upgrades in a timely manner





Operations Support Model

Version 2.2

**Roles and Responsibilities**

The following matrix describes the tasks that will be performed by each support level  
 Level 1: one.Help  
 Level 2: IT Operations  
 Level 3: WAN, LAN, DB, IT Applications Support, PC, E-Collaboration, Security, Mfg IT  
 Level 4: Any External Vendor

**RACI Model Legend**

- R Responsible
- A Accountable
- C Consulted
- I Informed
- S Sign-off

| Process  | Demand | Level 1 | Level 2 | Level 3 | Service Owner | Level 4 | Agreed to Assumptions |
|----------|--------|---------|---------|---------|---------------|---------|-----------------------|
| Contacts |        |         |         |         |               |         |                       |

| Service Lifecycle                 |            |               |                    |                            |                    |  |  |
|-----------------------------------|------------|---------------|--------------------|----------------------------|--------------------|--|--|
| Service Strategy                  | Demand (R) | one.Help (C)  | CE Operations (C)  | Per CE team (C)            | Service Owner (A)  |  |  |
| Financial Management (Budget)     | Demand (S) | one.Help (S)  | CE Operations (S)  | Per CE team (S)            | Service Owner (AR) |  |  |
| Service Level Agreement (SLA)     | Demand (R) | one.Help (S)  | CE Operations (C)  | Per CE team (C)            | Service Owner (A)  |  |  |
| Operational Level Agreement (OLA) | Demand (C) | one.Help (AR) | CE Operations (AR) | Per CE team (AR)           | Service Owner (I)  |  |  |
| Vendor Management Application     |            |               |                    |                            | Service Owner (AR) |  |  |
| Vendor Management Infrastructure  |            |               |                    | Infrastructure Supply (AR) |                    |  |  |
| Capacity Management               | Demand (C) | one.Help (C)  | CE Operations (C)  | Per CE team (AR)           | Service Owner (C)  |  |  |
| Availability Management           | Demand (C) | one.Help (C)  | CE Operations (C)  | Per CE team (AR)           | Service Owner (C)  |  |  |
| Continuous Improvement            |            | one.Help (C)  | CE Operations (C)  | Per CE team (C)            | Service Owner (AR) |  |  |
| Define Metrics / KPIs             | Demand (I) | one.Help (I)  | CE Operations (I)  | Per CE team (I)            | Service Owner (AR) |  |  |
| Service Continuity Plan           | Demand (C) | one.Help (C)  | CE Operations (C)  | Per CE team (C)            | Service Owner (AR) |  |  |
| Emergency Plan                    | Demand (R) | one.Help (R)  | CE Operations (AR) | Per CE team (R)            | Service Owner (R)  |  |  |
| Customer Satisfaction             | Demand (R) |               |                    |                            | Service Owner (AR) |  |  |

| Service Operation                     |            |               |                    |                  |                    |  |  |
|---------------------------------------|------------|---------------|--------------------|------------------|--------------------|--|--|
| Incident Recording and Classification |            | one.Help (AR) |                    |                  |                    |  |  |
| Incident Investigation Log & Refer    |            | one.Help (R)  | CE Operations (R)  | Per CE team (R)  | Service Owner (AR) |  |  |
| Incident Investigation Limited Triage |            | one.Help (AR) | CE Operations (R)  | Per CE team (R)  | Service Owner (AR) |  |  |
| Incident Investigation Full Support   |            | one.Help (AR) | CE Operations (R)  | Per CE team (R)  |                    |  |  |
| Requests Management                   | Demand (R) | one.Help (R)  |                    |                  | Service Owner (AR) |  |  |
| Access Management Service Accounts    |            | one.Help (AR) | CE Operations (R)  |                  | Service Owner (R)  |  |  |
| Access Management Application IDs     |            | one.Help (R)  |                    |                  | Service Owner (AR) |  |  |
| Problem Management                    |            | one.Help (C)  | CE Operations (AR) |                  | Service Owner (IR) |  |  |
| Hardware Support                      |            |               | CE Operations (R)  | Per CE team (AR) |                    |  |  |
| Hardware Monitoring                   |            | one.Help (I)  | CE Operations (AR) | Per CE team (I)  | Service Owner (I)  |  |  |
| Server Operation                      |            |               | CE Operations (AR) | CE LAN (R)       |                    |  |  |
| Scheduled Reboots                     |            |               | CE Operations (AR) |                  | Service Owner (C)  |  |  |
| Backup/Restore                        |            |               | CE Operations (AR) |                  | Service Owner (I)  |  |  |
| Hardware/OS/Security Patches          |            |               | CE Operations (AR) | CE PC Team (R)   | Service Owner (C)  |  |  |
| WAN Network Support                   |            |               | HP NOC (R)         | CE WAN (AR)      |                    |  |  |
| LAN Network Support                   |            |               | CE Operations (R)  | CE LAN (AR)      |                    |  |  |
| Firewall Support                      |            |               |                    | CE WAN (AR)      |                    |  |  |
| Database Monitoring                   |            |               |                    | CE DB (AR)       |                    |  |  |
| Database Support                      |            |               |                    | CE DB (AR)       |                    |  |  |
| Database Administration               |            |               |                    | CE DB (AR)       |                    |  |  |
| Scripting-Mass Updates                |            |               |                    | CE PC Team (AR)  |                    |  |  |
| Individual Break/Fix                  |            | one.Help (A)  | Deskside/RSD (R)   |                  |                    |  |  |
| Application Maintenance Planning      | Demand (R) | one.Help (I)  | CE Operations (R)  | Per CE team (R)  | Service Owner (AR) |  |  |
| Application Functionality/Usability   |            |               |                    |                  | Service Owner (AR) |  |  |
| Citrix Support (if applicable)        |            |               | CE Operations (R)  | CE LAN (AR)      |                    |  |  |
| Application Support                   |            |               |                    |                  | Service Owner (AR) |  |  |

|                                |  |  |                    |       |                    |  |  |
|--------------------------------|--|--|--------------------|-------|--------------------|--|--|
| Application Administration     |  |  |                    |       | Service Owner (AR) |  |  |
| Application Workflow           |  |  |                    |       |                    |  |  |
| E-collaboration Support        |  |  |                    |       |                    |  |  |
| Security Management Governance |  |  |                    |       |                    |  |  |
| Information Security Policy    |  |  |                    |       |                    |  |  |
| Audit Compliance (SOX)         |  |  |                    |       |                    |  |  |
| Telecommunications             |  |  |                    |       |                    |  |  |
| ==== Service specific ====     |  |  |                    |       |                    |  |  |
| Software Licensing             |  |  | CE Operations      | CE DB | Service Owner      |  |  |
| Certificate Services           |  |  |                    |       |                    |  |  |
| Hardware Warranty Contracts    |  |  | CE Operations (AR) |       |                    |  |  |

|                                      |            |              |                    |                 |                    |  |  |
|--------------------------------------|------------|--------------|--------------------|-----------------|--------------------|--|--|
| <b>Communication</b>                 |            |              |                    |                 |                    |  |  |
| Daily Operations Reporting (process) |            | one.Help (I) | CE Operations (AR) | Per CE team (R) | Service Owner (R)  |  |  |
| Planned Outages                      | Demand (R) |              | CE Operations (R)  |                 | Service Owner (AR) |  |  |
| Unplanned Outages                    | Demand (I) |              | CE Operations (R)  |                 | Service Owner (AR) |  |  |

|   |  |              |                   |                 |                    |  |  |
|---|--|--------------|-------------------|-----------------|--------------------|--|--|
| <b>Documentation</b>                    |  |              |                   |                 |                    |  |  |
| one.Help Application Support (template) |  | one.Help (S) |                   |                 | Service Owner (AR) |  |  |
| Level 2 Support (template)              |  |              | CE Operations (S) |                 | Service Owner (AR) |  |  |
| Architecture Map (link)                 |  |              |                   |                 | Service Owner (AR) |  |  |
| Test Plan                               |  |              | CE Operations (S) |                 | Service Owner (AR) |  |  |
| 18 month Lifecycle Roadmap              |  | one.Help (I) | CE Operations (I) | Per CE team (I) | Service Owner (AR) |  |  |

|                     |  |               |                    |                  |                    |  |  |
|---------------------|--|---------------|--------------------|------------------|--------------------|--|--|
| <b>Training</b>     |  |               |                    |                  |                    |  |  |
| Level 1 Triage      |  | one.Help (RS) |                    |                  | Service Owner (AR) |  |  |
| Level 2 App Support |  |               | CE Operations (RS) | Per CE team (RS) | Service Owner (AR) |  |  |

|                             |  |               |                    |  |                    |  |  |
|-----------------------------|--|---------------|--------------------|--|--------------------|--|--|
| Remedy (for Users)          |  | one.Help (RS) |                    |  | Service Owner (AR) |  |  |
| Change Management (process) |  |               | CE Operations (RS) |  | Service Owner (AR) |  |  |

I hereby state that I understand the above mentioned Roles and Responsibilities and agree to perform the tasks assigned

|               |                      |          |
|---------------|----------------------|----------|
| _____         |                      |          |
| Service Owner |                      |          |
| _____         | _____                | _____    |
| one.Help      | IT Operations        | Demand   |
| _____         | _____                | _____    |
| WAN           | LAN                  | Database |
| _____         | _____                | _____    |
| PC Team       | Applications Support | Security |

Approval date \_\_\_\_\_