From Interruption to Resolution
Exception Management in the Telecommunications Industry
Table of Contents

1 Executive Summary
2 Impact of Business Exceptions
3 Best Practices for Business Exception Management
4 Current Approaches and Their Limitations
5 Next Generation Exception Management
6 Key Capabilities of Vitria’s Exception Management Solution
7 Conclusion: Empower Your Business with Vitria’s Exception Management Solution

Executive Summary

Well managed business processes are crucial to the successful creation of value in today’s competitive global economy. However, it is not enough to only manage the expected “sunny day” process scenarios, it is also critical to manage the “rainy day,” or exception process scenarios, equally well. For telecommunications service providers, exceptions happen in order management, service assurance, revenue assurance or new services launch and are caused by both business and technical issues. These exceptions are more than mere irritants; they can significantly affect the bottom line for your company. Benchmarking studies have shown that exceptions cost the average Telco in terms of direct and indirect expenses between 2-3% of revenue for mature services and 10-15% or more of revenue for fast growing, new services. If not well managed and controlled, exceptions will reduce overall profitability, decrease customer satisfaction and impede growth.

So, how do you manage these exceptions in a controlled and low-cost manner? The key is to treat exception management as a discipline with an explicit approach to managing, monitoring and repairing exceptions that is supported by a set of purpose-built IT services. Vitria has deep experience in doing just this for service providers around the world. This paper discusses how and why exceptions occur, the high costs of those exceptions, best practices to manage exceptions, current system-based approaches and their limitations, and how the next-generation of exception management technology from Vitria overcomes those limitations.
Every company relies on well-designed, properly executed business processes for success. But what about the processes that do not execute as planned? What happens to those transactions and what are those errors costing your business?

Basically, an exception occurs any time a business process is interrupted and work is diverted to offline handling. Exceptions can be unplanned events. For example, a data validation failure, an escalation point occurrence and other similar situations qualify as exceptions. The diagram below describes possible unplanned business exceptions that can occur at each stage of the lead-to-cash process:

Exceptions can be “planned” as well, for reasons such as special handling requirements or lack of automation where a transaction requires special manual handling. This category, while “planned,” has the same negative impact on operational performance as do “unplanned” exceptions.

Additionally, most business processes cross departments, systems, and other entities. So in addition to intra-departmental exceptions, there is a class of particularly hard to manage exceptions that occur between departments and across enterprise boundaries. This complexity, together with the difficulty of determining where the exception is and how to resolve it across the multiple systems and processes, makes the situation even more challenging.

Finally, this exception burden is magnified by changes introduced into the business by mergers, new product launches, system upgrades and other reasons.

**Impact of Business Exceptions**

For the types of planned and unplanned exceptions outlined above, the direct cost impact can be easily measured and shown to be significant. Based on analysis from Bloor Research and other benchmarking work, the costs for the telecommunications industry can be quantified in a variety of ways:

- Up to 85% of service provisioning costs are associated with human intervention caused by exceptional events from non-standard transactions.
- The incremental cost of turning on a service is $40 for consumer services if there is an exception.
- The result of unhandled exceptions during development routinely results in a 3-4 week delay in product/service launch – time that directly translates to lost revenue.

In addition to cost, exceptions distract your company from making sales, meeting customer needs and effectively running your day to day operations.
Exceptions are Costing You More Than You Think

Every business relies on optimized and smartly executed processes. And every process step costs the company both time and money. Therefore, when processes do not execute as planned, the number of steps increase which raises the overall costs. Some exceptions are much more costly than others, and the true scope of the problem is rarely completely understood. The size of the exception problem can be likened to an iceberg – there is a visible, above water portion of direct impacts which are the obvious costs, and the underwater portion, which is much larger and where the actual danger exists in the indirect impacts.

The indirect (or “under the water”) costs are where the insidious impacts of poor exception management create far worse problems. The indirect, but highly damaging impacts of exceptions include: higher indirect operating costs, lost revenues, customer dissatisfaction, diminished agility, and the inability to scale. Basically, these indirect costs most threaten your ability to grow your business, maintain competitive positioning and respond to the market opportunities.

Finally, the decreased agility and inability to scale impacts a business's long-term ability to compete and be profitable. On-going or mismanaged exceptions can reduce your ability to take new offers to market or meet legal and regulatory requirements such as Sarbanes-Oxley. Additionally, scaling operations will be limited if the exception rate grows more quickly than the business - which it is likely to do if not attended to properly.

The normal rate of exceptions will vary for your business, but if exceptions are not addressed systematically they tend to grow exponentially. Businesses with a framework in place to discover, manage, resolve, and adapt to existing and new exceptions can avoid this. With increased visibility and efficient management of exceptions their negative impacts (unlike the exceptions themselves) are not inevitable. Savvy enterprises see exceptions not as a “cost of doing business” but as a reality of business whose impacts can be controlled through proper business exception management.
Best Practices for Business Exception Management

Faced with the challenge of managing business exceptions, forward-thinking enterprises are implementing best practices. The six best practices listed below comprise the foundation of a good exception management process:

- Understand that exceptions are a natural product of business change and improvement, and must be managed proactively in an explicit and sustainable way.
- Adopt a holistic view of business exception management. Exceptions must be managed at a high-level of interactions among applications and processes as well as within applications and sub-processes.
- Manage the entire exception lifecycle. Good exception management captures exceptions when they arise, routes them to the most efficient resolution path, and maintains status on exceptions across applications and across enterprises.
- Create a dedicated exception management environment that has the flexibility to deal with new exception types rapidly.
- Use a modular approach, allowing the reuse of existing exception management resolvers as your scope of exception management grows across processes, systems, and partners.
- Based on reports generated by exception lifecycle management, drive efforts to remove the root cause based on both ROI and true understanding of operational impact.

Current Approaches and Their Limitations

Before Vitria developed its exception handling solution, organizations attempted various methods at business exception management. The capabilities of these first and second generation exception management tools violated one or more of the above best practices and yielded sub-standard results. These alternative approaches can be summarized into four buckets:

1. Manual Exception Handling
   The most common and easiest to understand approach is manual exception handling. In this approach, a person is alerted about an exception. Through “swivel-chair integration” – the use of multiple terminals at a workstation to access needed systems – the recipient will diagnose the issue, modify the transaction, and restart processing. There are some very obvious limitations to this approach. Manual intervention, although flexible and quick to implement, imposes a high operational cost that grows as the number of exceptions grow. It is also difficult to scale and manage as needs fluctuate, and reporting might not be straightforward. All of these lead to higher maintenance costs and the quality of the resolution might not be consistent from one situation to the next.
2. Tactical Exception Handling Tools
   A second approach is to create and deploy custom exception handling tools, scripts, or programs on a per-exception basis. This approach does automate exception handling but has a number of downsides, including long and costly development timeframes, high ongoing maintenance costs, and difficult integration. Custom developed solutions also tend to reduce the flexibility of business applications and supported processes. Finally, they are not built to support integration across multiple systems or comprehensive reporting.

3. Code-based Exception Management
   A third approach is to create extensions to specific ERP and CRM modules and have them handle any exceptions. This approach does automate exception handling to a certain extent but it has a number of downsides. They include long and costly development timeframes, high ongoing maintenance costs, and difficult integration, not to mention the need to upgrade the exception handling extensions to work with every new version of the underlying applications.

4. Build Exception Handling into Legacy BPM / EAI Environment
   A fourth common approach to exception management is to modify pure-play business process management (BPM) applications or integration suites, rules engines, and/or core process applications for exception handling. This approach does automate exception handling, but also has drawbacks. A significant downside is that the addition of custom exception handling routines increases complexity resulting in longer QA cycles, longer upgrade times, and reduced flexibility in the processes these applications support. These problems are particularly acute if custom development (beyond parametric changes to business rules) is required.

The good news is, Vitria in its experience dealing with the telecommunications industry, has helped address exactly the kinds of business challenges noted earlier with a solution that addresses all of the concerns with alternative exception handling approaches just described.

Next Generation Exception Management
Companies need a comprehensive exception resolution solution – including automation and notification – to better manage risk, respond to rapidly changing business conditions, and manage compliance requirements. Vitria, the innovation leader within the BPM market, introduced Vitria’s Exception Management Solution to help companies act quicker, faster and smarter to resolve issues and take advantage of opportunities.

Now, with Vitria’s Exception Management Solution, customers can gain visibility into events to understand implications and act to reduce risk and cost while improving operational efficiency. Vitria’s Exception Management Solution is designed to support best practices in business exception management and close the gap between today's available tools and the needs of businesses.
Unlike BPM tools, integration suites, or rules engines, Vitria's Exception Management Solution contains generic and process-specific exception handling routines, allowing for quicker implementation and faster payback on new exception management processes.

Vitria is known for its strength in cross application integration. Vitria’s Exception Management Solution leverages this strength to enable integration across internal and external systems and processes. The integration strengths of Vitria’s Exception Management Solution allow its capabilities to be applied to today’s initiatives and for it to be expanded across processes as needed in the future. The diagram below illustrates the architecture of Vitria’s Exception Management Solution and its integration capabilities:

Key Capabilities of Vitria’s Exception Management Solution

As the only specialized purpose-built product designed to systematically approach resolving exceptions across your enterprise, Vitria’s Exception Management Solution delivers the core capabilities needed to manage the complete lifecycle of exceptions.

Automated and Assisted Exception Resolution

By applying easily-maintained automated process models and rules, Vitria’s Exception Management Solution can automatically fix exceptions that don’t require human involvement. If manual processing is still needed, Vitria’s Exception Management Solution efficiently guides users through exception-specific resolution tasks with context-appropriate data and resolution options. Automated resolutions eliminate delays and free up available staff for other work.
Role-based Collaboration and Modeling
Vitria’s Exception Management Solution user interface changes depending on each user’s role, and limits or extends options available depending on each user’s authority and task rights. Role-based collaboration enhances ease-of-use by presenting an in-context user interface. In addition, the web-based interface is designed for the business user to define the exception resolution directly into the same tool that is leveraged by IT to provide the technical hooks to execute the process resolution.

Many Means of Exception Capture
Unlike the existing products, Vitria’s Exception Management Solution enables you to capture exceptions from web services, enterprise applications (e.g. SAP), log files, databases (e.g. Oracle), and messaging middleware (e.g. JMS) using various adapters. This helps resolve exceptions across your entire enterprise, not just within a specific application, and speeds implementation and time to value.

Policy-based Exception Classification and Resolution
Vitria’s Exception Management Solution enables Business Analysts to define policies that classify the incoming exceptions and can invoke a full range of resolutions, from automated to assisted. These policies are stored in the Model and Knowledge Repository where they can be organized, searched, and discovered. This increases resolution consistency and accuracy.

Model and Knowledge Repository
M3O Exception Manager provides a centralized repository to capture knowledge formally in models that are both human- and machine-readable. It supports dynamic capability for changes of the business process models. The Model and Knowledge Repository reduces time required to implement process changes and promotes knowledge sharing across business and IT users.

Comprehensive Visibility into Exception Management
This next generation solution provides operational staff and managers with rich Web 2.0 views of the exception status and the history across the entire lifecycle of the exception process and resolution. This enables end-to-end visibility into process status, faster identification and correction of systemic problems, and greater control over resolution activity.

When compared to the other technologies that might be deployed to manage exceptions, Vitria’s Exception Management Solution is the only one to provide complete support for a holistic exception management process.
The ability of Vitria’s Exception Management Solution to address the needs of good exception management removes one of the most significant impediments to putting true business exception management in place: the lack of appropriate tool support as highlighted in the figure above.

**Conclusion: Empower Your Business with Vitria’s Exception Management Solution**

Business exception management poses a significant challenge for the Telecommunications industry today, one that has considerable direct and indirect costs and potentially serious impacts on profitability and competitiveness. In the past, managers seeking to address the problem of exceptions have been required to integrate several approaches that each solved a portion of the problem, but that did not provide a true end-to-end business exception management process. With Vitria’s Exception Management Solution, a purpose-built solution for business exception management, support for a robust business exception management process finally exists. Managers seeking to improve the performance of their initiatives and businesses should add the creation of a robust business exception management process to their current activities.

For further information on exception management and some real world case studies, please visit [www.vitria.com](http://www.vitria.com) to access the eBizQ webcast entitled “When Exceptions Are the Rule: How to Lower Mean Time to Repair for SOA Applications by Detecting and Resolving Exceptions.”

Vitria is ready to help you begin the journey towards best-in-class exception management. We can help with the development of an exception management vision, value assessment, and detailed implementation roadmap. For more information please contact Vitria at Telco@Vitria.com, or (877) 365-5935.