How Kepner-Tregoe® can improve your ITIL® processes

- from an ITIL perspective

by thomas.fejfer@cfnpeople.com

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1. Purpose

ITIL Incident and Problem Management describes well how to manage incidents and problems, but not how to solve them. ITIL Change Management describes well how to manage changes, but not how to perform a risk assessment. Kepner-Tregoe fills this gap.

In the ITIL Service Operation publication there is a reference to Kepner-Tregoe, but only related to problem investigation and diagnosis. Kepner-Tregoe is much more than that, and can be used to improve other ITIL activities and processes significantly.

The purpose of this whitepaper is to show examples of where Kepner-Tregoe can be used to support the "how" in three basic ITIL processes; Incident, Problem, and Change Management.

And please note that in this whitepaper

- the use of Kepner-Tregoe in ITIL processes is not exhaustive, and
- it is seen from the perspective of ITIL.

2. What is Kepner-Tregoe rational thinking?

Back in the late 1950's, Dr. Charles H. Kepner and Dr. Benjamin B. Tregoe, two sociologists, were observing human behavior trying to figure out what makes the difference between somebody who is able to sort out a mess while others fail and make all the wrong decisions.

After a few years of analysis they found something fundamental about how humans react under pressure. What they found out was that when dealing with any kind of complex situation, there are four basic questions that we want to know the answer to: *What is going on? Why did it happen? What should we do? What lies ahead?*
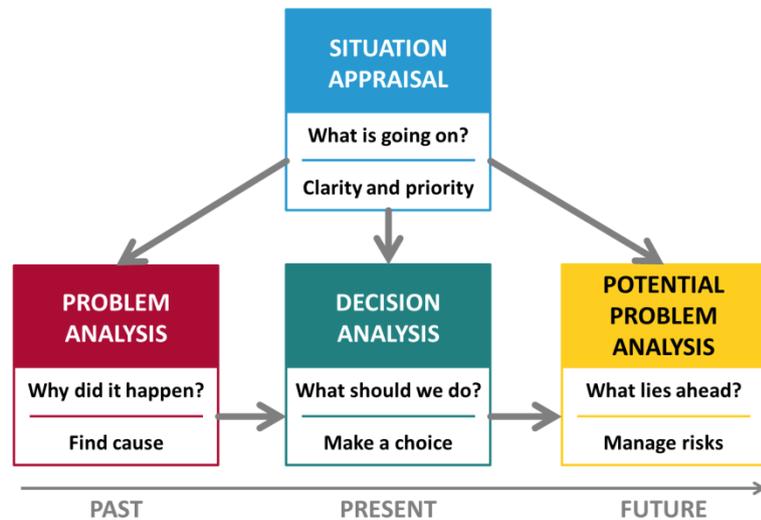
Figure 1 Kepner-Tregoe rational processes

Each of the four questions serves a different purpose: *Clarity & priority, find cause, make a choice,* and *manage risks*. They understood that this is how humans operate. So around these four fundamental questions and purposes they developed four rational processes as shown in Figure 1: *Situation Appraisal, Problem Analysis, Decision Analysis,* and *Potential Problem (Opportunity) Analysis*.

3. Fundamental difference

Before we continue it is important to understand a fundamental difference between ITIL and Kepner-Tregoe. ITIL processes are defined at a different level than Kepner-Tregoe processes.

In an ITIL perspective, the four Kepner-Tregoe rational processes are merely techniques, but techniques that can be used individually or in combination in most of the ITIL processes. So, Kepner-Tregoe rational processes will not replace your ITIL processes. But they can make your ITIL processes more operational, because they focus on behavioral skills.

> *"What is the value of a nicely documented problem management process if the people working in the process haven't got the knowledge and skills to solve problems?"*
>
> *"What is the value of a nicely documented change management process if the people working in the process haven't got the knowledge and skills to perform a decent risk assessment?"*

Let's walk through the three basic ITIL processes and see how Kepner-Tregoe can support some of the process activities.

4. Incident Management supported by Kepner-Tregoe

The purpose of Incident Management is to restore normal service operation as quickly as possible and minimize the adverse impact.

In other words, when an IT service is operating as it should, then there is some sort of performance standard as shown in Figure 2. If one or more conditions related to the IT service are changed, then it could cause the actual performance to deviate from how it should perform. Kepner-Tregoe defines this as a deviation.

And this is where Incident Management comes into the picture, because Incident Management is about getting back to should as safely, quickly, and cheaply as possible. In terms of past, present and future perspectives, the main perspective of Incident Management is the present.
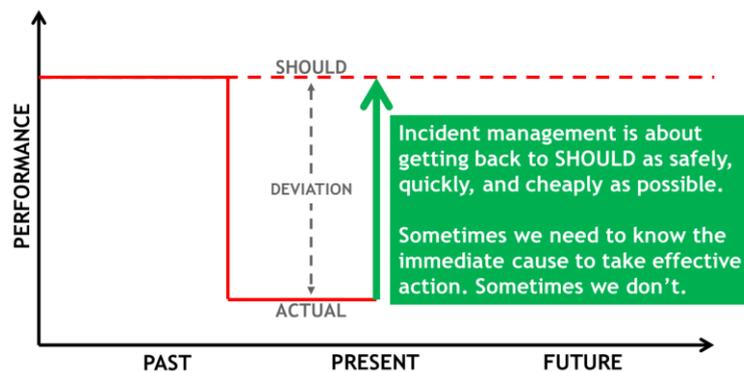
Figure 2 Purpose of Incident Management

4.1. Incident logging, categorization, and prioritization

Some of the first activities in Incident Management are logging, categorization, and prioritization. The Kepner-Tregoe process, Situation Appraisal, supports these activities well.

Situation Appraisal is a systematic process for planning concern resolution. Kepner-Tregoe defines "concern" as something where you need to take action. All user enquiries, incidents from Event Management etc. are therefore concerns.

Situation Appraisal is well suited when you want to improve the way you assess and clarify incidents and service requests because it tells you how to do it and what questions you should ask.

You can also get good inspiration from the way that Kepner-Tregoe recommends that priority is set. This could be useful if you currently base your prioritization on the recommendation in ITIL, because the ITIL definition of "urgency" unfortunately confuses impact, time frame, and to some extent priority which make it difficult to understand and use.

Situation Appraisal it is not limited to the first few steps of Incident Management. In fact you should use aspect of the Situation Appraisal process more often in the lifecycle of an incident, problem, service request or change.

For example every time an incident, problem, service request or change is handed over to a new person or group, a quick Situation Appraisal by the new people would ensure that they are about to take the correct action. But in this whitepaper Situation Appraisal is only mentioned twice to keep the whitepaper simple.

4.2. Incident investigation and diagnosis

It is often taken for granted that IT specialists are good at solving incidents (and problems) because they are technically competent. Their incident (and problem) solving skills are often limited to:

- the theory of how something works,
- the practical ways to make it work,
- the typical ways it breaks,
- and common ways to fix it.

And that is not sufficient when they deal with complex incidents. What they need is a methodology to:

- manage their way through the incident,
- deal with the chaos and fragments of information,
- and find the immediate cause to restore service.

Kepner-Tregoe's Problem Analysis offers a structured way to do this – not leaving questioning and data gathering to chance. Problem Analysis is a systematic process for finding the cause of a deviation and is well suited when you need to find the immediate cause, to restore service.

But hold on! Why are you talking about finding the cause when we are in the Incident Management process and not the Problem Management process? Let me explain:

Some incidents are resolved without knowing the immediate cause.

> Example: A user reports that an IT service is unavailable because the application freezes. You use a workaround to restore the service - reboot the server - and the application is again available. Incident resolved.

For some incidents the supporter knows the immediate cause and is therefore able to resolve.

> Example: A user cannot login to an IT system (cannot access the service). You know the possible cause based on your knowledge and experience – the user hasn't got access rights. You confirm the cause, grant the rights if you are allowed to do so, and the user can login and use the IT system. Incident resolved.

And for some incidents it is necessary to identify the immediate cause in order to resolve them.

> Example: Users are reporting slow response times in different IT systems. The slow response times are caused by sporadic loss of packets caused by a hardware failure in a network switch (which you don't know at this point in time). To resolve the incident and restore service you need to identify the broken network switch – the immediate cause - and replace or repair it.

The last example has nothing to do with Problem Management because we are trying to get things up and running again. We are not preventing a hardware failure in the network in the future to cause slow response times again, just restoring service to the way it used to be.

In this type of incident you should consider to use a systematic approach like Kepner-Tregoe's Problem Analysis to identify the immediate cause. It will speed up the resolution process and reduce the number of new incidents caused by the commonly used and not very effective incident/problem solving technique "trial and error".

This highlights another important difference between ITIL and Kepner-Tregoe and that is the definition of a problem:

- Problem (ITIL): A cause of one or more incidents. The cause is not usually known at the time a problem record is created, and the Problem Management process is responsible for further investigation. This definition triggers the Problem Management process.
- Problem (Kepner-Tregoe): When what is actually happening deviates from what should be happening; you do not know why this is happening; and you need to know why. This definition triggers the Problem Analysis process.

Because of this difference Kepner-Tregoe's Problem Analysis can be used whenever you need to find a cause of an effect, and the cause is not obvious, wherever you are within an ITIL process.

4.3.   Major incident procedure

A major incident is an incident causing significant disruption to the business, and where a separate procedure must be used to handle the major incident.

To handle major incidents effectively and efficiently you need to:

- get a quick overview of the situation and prioritize the actions needed to minimize the adverse impact and restore service
- quickly find the immediate cause to solve the major incident
- e.g. decide if you are going to initiate back-out (if the major incident is caused by a change), to use a back-up, or maybe to choose the best solution
- protect your customers and users against the changes that you are going to implement to restore service

The four rational processes are perfectly suited for these complex repetitive challenges. The rational processes offer systematic procedures for applying critical thinking to information, data, and experience as shown in the Table 1.

Thinking Pattern	Rational Process
Assessing and Clarifying: What's going on?	Situation Appraisal (SA)
Relating Cause and Effect: Why did this happen?	Problem Analysis (PA)
Making Choices: Which course of action should we take?	Decision Analysis (DA)
Anticipating the Future: What lies ahead?	Potential Problem Analysis (PPA)

Table 1 – Kepner-Tregoe critical thinking

So, if you are looking for a major incident procedure, you should take a look at Kepner-Tregoe rational processes instead of trying to reinvent the wheel. They are simply made for this.

5. Problem Management supported by Kepner-Tregoe

The Problem Management process described in the ITIL Service Operation publication is mainly a reactive process. But there are also described elements of proactive Problem Management even though it is not in details.

The objectives of the reactive Problem Management are to:

- Eliminate recurring incidents
- Minimize the impact of incidents that cannot be prevented

And the objective of the proactive Problem Management is to:

- Prevent problems and resulting incidents from happening

The main perspective of reactive Problem Management is the past - to answer the question why did it happen? - while the perspective of proactive Problem Management is the future - what could happen? – and then act in advance.

In other words, Incident Management is about getting back to how the IT service should perform as quickly, safely and cheaply as possible while reactive Problem Management is about preventing the incident from happening again as shown in Figure 3.
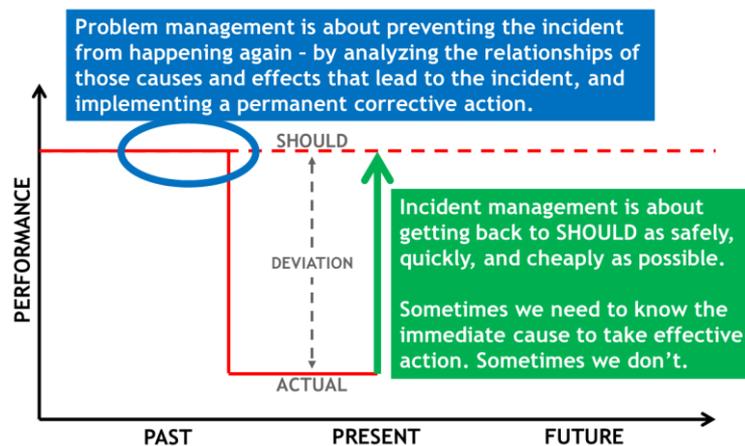
Figure 3 Purpose of Problem Management

Let's first take a look at some of the reactive Problem Management activities and then look at proactive Problem Management to see how they can be supported by Kepner-Tregoe rational processes.

5.1. Problem investigation and diagnosis

Investigation and diagnosis is the key difference between Incident and Problem Management.

In reactive Problem Management we always need to understand the cause and effect relationships. Sometimes an immediate cause has been found during the incident resolution, and sometimes not. But to prevent recurrence we must also identify what caused the immediate cause or the conditions related to the immediate cause. If we don't understand the relationships between those

actions and conditions that lead to the incident (Kepner-Tregoe: deviation) we won't be able to effectively prevent recurrence.

Kepner-Tregoe's Problem Analysis is a systematic process for finding the cause of a deviation. Problem Analysis is well suited to support problem investigation and diagnosis in the quest for finding the cause, and what caused the cause, to take permanent corrective action and prevent recurrence.

5.2.   Problem resolution

During problem resolution we could be faced with different solutions and we want to choose the best of them. The Kepner-Tregoe process called Decision Analysis supports such decision making.

Decision Analysis is a systematic process for making a choice. The process answers the question: "*Which course of action should we take?*"

Decision Analysis will typically be used for decisions:

- that hurts us if we make a wrong decision
- where we need an audit trail because of legal requirements,
- or if we need to make a decision in a group

Within the ITIL processes, a very fast version of Decision Analysis can speed up decision making by providing an underpinning thinking framework for the stakeholders.

5.3.   Proactive problem Management

To prevent problems and resulting incidents from happening you need to look into the future and try to predict what might happen and then act in advance.

But there is not much guidance of how you do proactive Problem Management in the ITIL Service Operation publication.

Kepner-Tregoe's Potential Problem Analysis (PPA) can provide this guidance. PPA is a simple, easy to use technique to perform proactive Problem Management.

So, Problem Analysis can be used in reactive Problem Management as a technique to identify unknown causes and PPA can be used in proactive Problem Management to identify preventive and contingent actions and thereby reduce the risk of something not going as planned.

6. Change Management supported by Kepner-Tregoe

The objective of ITIL Change Management is to enable beneficial changes with a minimum of disruption. These changes are actions we want to do in the future. That is why the main perspective of Change Management in terms of past, present and future, is the future.

6.1. Assess and evaluate change

One of the activities in Change Management is 'Assess and evaluate change'. This activity consists of several sub-activities. Let's take a look at two of them; risk assessment and prioritization.

6.1.1. Risk assessment

All changes constitute a risk. And we don't have unlimited resources. That is why risk assessment is the heart of Change Management. We need to pay more attention to the high risk changes and reduce their risks while we let other low risk changes pass easily through the process – many as standard changes.

Kepner-Tregoe's Potential Problem Analysis (PPA) is a systematic process for protecting actions or plans. Despite the process name the use of PPA is not limited to proactive Problem Management as described in section 5.3. PPA has much in common with all the risk based ITIL processes such as Change Management, IT Service Continuity Management, Information Security Management, Availability Management etc. because PPA is a risk assessment.

PPA is well suited when you want to protect your customers or business from change related incidents by anticipating what could happen and then act in advance to avoid reactive actions (incidents and problems) – a key element in Change Management. This is done by identifying preventive actions (test, the use of SOPs, experienced staff, etc.) for the likely causes and contingent actions (phased deployment, back-up, back-out, etc.) for the likely effects.

PPA is brilliant because it is simple and easy to use! There are many frameworks about risk management, but most of them are comprehensive and complex. Start simple by using PPA to assess and evaluate your high risk changes and then improve over time, but remember always to keep it simple. Complex processes and techniques are just new problems.

6.1.2. Change prioritization

Change prioritization is also part of the activity "Access and evaluate change". The purpose of this prioritization is to establish the order in which changes that have been put forward should be considered.

Most IT service management tools use the well-known impact/urgency coding system (from Incident Management) for changes. But in my point of view that is not suitable for change prioritization.

Kepner-Tregoe's way to prioritize using current impact, future impact and time frame is much more suitable for changes and also easy to understand. This is described in the Kepner-Tregoe process called Situation Appraisal.

And impact is not just impact. For some changes, e.g. corrective changes, there is a current impact, and the future impact may stay the same or increase if nothing is done. For continuation changes (maintain status quo) there is no current impact, but there is a risk of a future impact if nothing is done. For enhancement changes there could be a current impact due to loss of business opportunities or potential cost reductions, and the future impact could be the same or increase if nothing is done. Finally, time frame predicts when the impact is likely to change.

6.2. Authorize change for build and test

Another key activity in Change Management is 'Authorize change for build and test' – an activity where changes are formally approved or rejected. This activity can be supported by the Kepner-Tregoe process called Decision Analysis.

Decision Analysis Decision Analysis is a systematic process for making a choice and will typical be used for decisions:

- that hurts us if we make a wrong decision
- where we need an audit trail because of legal requirements
- or if we need to make a decision in a group

7. Conclusion

In my point of view it is a common mistake that we too often pay too much attention to processes and tools, and less attention to behavioral skills.

As stated earlier in this whitepaper; what is the value of processes if the people doing the actual work haven't got the necessary knowledge and skills to perform the process activities effective and efficient?
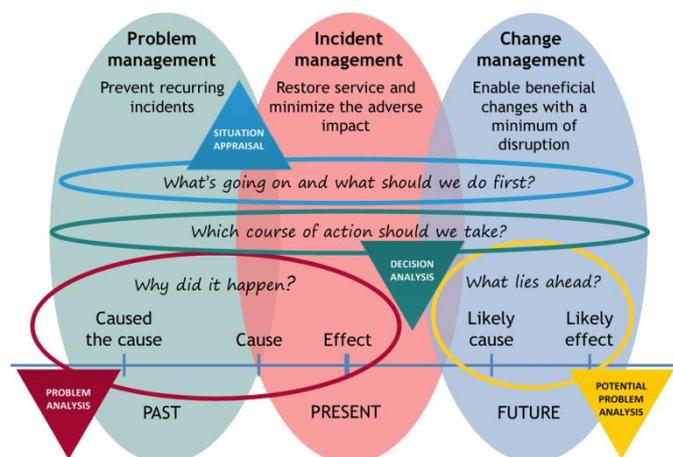
Figure 4 - Overview of ITIL and Kepner-Tregoe relationships

And that is where I believe that Kepner-Tregoe rational thinking can add a value to processes based on ITIL. The two frameworks complement each other well as shown in Figure 4 and in details in Appendix. ITIL describes "what" and "why"; Kepner-Tregoe describes the "how" for certain areas - focusing on people skills.

8.   Literature

- ITIL® Service Transition – 2011 edition
- ITIL® Service Operation – 2011 edition
- Charles H. Kepner and Benjamin B. Tregoe (1981). The New Rational Manager
- Kepner-Tregoe® Concept Rationale

9.   Trademark information

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10.   About the author

Thomas Fejfer is partner at CFN People A/S, expert in IT service management, and a burning believer in deliberate management of IT services and wise governance of IT.

Thomas is former:

- CIO at the Danish Veterinary and Food Administration (DVFA),
- CIO at the Ministry of Family and Consumer Affairs,
- Member of the Government IT Counsel, and
- Head of IT Service Department in Corporate IT and responsible for the IT Service Management (ITIL) program in the Danish Defense.

Thomas' toolbox is well-stocked, and he knows his tools such as ITIL, COBIT®, GAMP, Kepner-Tregoe, ISO/IEC 20000 and ISO/IEC 27000 like few others. But he always look on the best practices and standards in the toolbox as a mean to solve specific challenges or utilize opportunities – never as an end in itself.

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Thomas Fejfer

Phone: + 45 4015 9782

E-mail: tf@cfnpeople.com

LinkedIn: http://dk.linkedin.com/pub/thomas-fejfer/2/314/529/

Web: http://www.cfnpeople.com

Appendix – ITIL and Kepner-Tregoe relationships

PROBLEM MANAGEMENT   **INCIDENT MANAGEMENT**   **CHANGE MANAGEMENT**
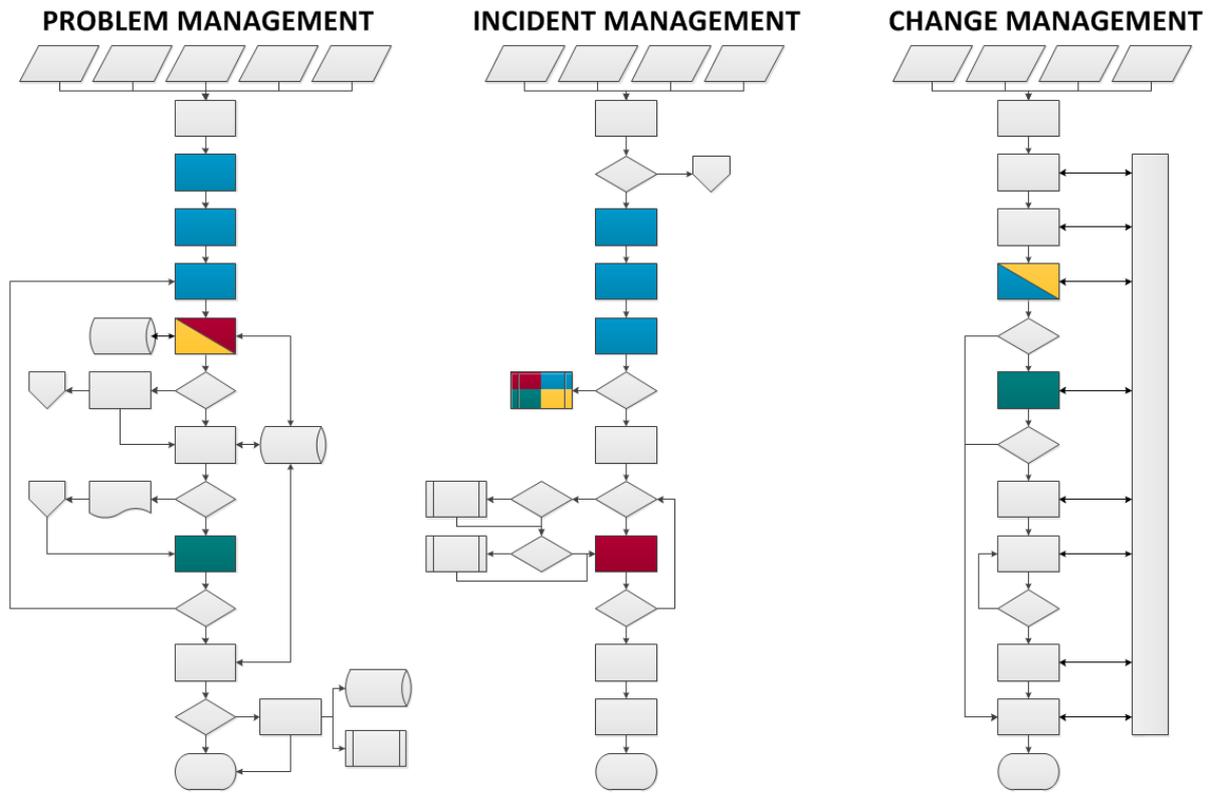
Box colors refers to the Kepner-Tregoe® processes

Situation Appraisal	Problem Analysis	Decision Analysis	Potential Problem Analysis