

# QRM Business Case

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PDCA

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Introduction / summary:

QRM focuses on lead time: the business case should therefore focus on the benefits of shortening lead times. For example, shortening lead times leads to less storage, smaller inventories, fewer status inquiries by customers, more turnover.

Time: 16 hours for the motivator + time for FTMS & MCT  
 Roles: Sponsor, domain experts (staff from finance, logistics, sales, production, <selling staff>), QRM expert

**PLAN**

Describe background & the need for improvement

Identify business drivers such as

•Current trends – sales/turnover/external market developments

•Customer preferences

•Product mix – e.g. customers-products-volumes

•Market share - per product or product group

•Target values for financial indicators

Identify problem areas e.g.

•Poor score for price quotes

•Customer complaints – e.g. concerning delivery times/reliability of delivery

Compare competitors' performance

Identify the principal stakeholders for this initiative – focus on their interests

Allow time for Focused Target Market Segment (FTMS) and Manufacturing Critical-path Time (MCT) – see other modules for more information

Stakeholder matrix, Checklist for contraindications, Baseline questions 1.7-1.12

Do not look for a problem that matches QRM: look for a solution to your problem.

If the market share cannot be determined within 30 minutes, this step may be skipped

**DO**

1. Define target market segments
2. Measure the current situation in terms of the business drivers, target market segment and financial indicators
3. Define an FTMS and select the principal segments
4. Prepare MCT maps for the principal segments
5. Estimate the potential for improvement
6. Identify the steps required/QRM modules to be used
7. Map out the costs of the initiative for improvement – order volume
8. Preliminary meeting with key personnel, make necessary changes
9. Calculate the Net Discounted Value and the payback period
10. Present the business case to the stakeholders

FTMS – MCT PDCA sheets; QRM Business Case sheet; Consult historical data in QRM Center Knowledge Database; It's about time, Chapters 1 and 5

Examples include the value of inventories, the value of the m2, the number of orders lost, the number of FTEs for customer inquiries.

Ask participants in the BC, "What would you stop doing if lead times were no longer than X?" Use this input for the calculation for the business case.

**ACT/ADJUST**

What	Who	When	Status
Alter the business case	Motivator for the initiative		
Speak with individual stakeholders	Sponsor		
Go/No-Go decision	Sponsor, Directors		
Plan the next step in the project	Motivator for the initiative		
Information across the width of the workforce	Sponsor		

**CHECK**

Is the result of the Business Case calculation sufficient?

•Payback < 3 years, Net Discounted Value (see elsewhere in this module) is positive

How did the stakeholders receive the business case presentation?

The return on investment may also be calculated. It is not used as a standard here, as it is more complex and not necessarily more accurate.

Review the first 3 years in particular – costs and benefits are somewhat speculative after 3 years,



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# Business case: what & why

Before starting a project you should determine

- why the project is important,
- what the outcome will be,
- what problems and opportunities the project will address

The various solutions must then be identified

- what solutions are available for the various problems and opportunities
- why a particular solution should be chosen over another

Finally, it is important to determine what is required in order to implement the solutions

- what human and material resources are required
- what the costs of the implementation are

Business cases can be very detailed. A simple version is used for QRM projects. If the project is very critical and/or involves major capital expenditure, a more detailed version may be used

# The elements

See next sheets

Doorlooptijd huidig	20	Kosten huidig	20.000.000	<b>Besparing volgens power of 6</b>	
Doorlooptijd doel	12	40% Kosten na	18.336.469	<b>1.663.531</b>	<b>8%</b>

BATEN	
<b>1 VOORRAAD</b>	
1.1 Waarde voorraad	
1.2 Kosten van voorraad <i>inclusief rente, opslag,...</i>	
1.3 Vrij kapitaal	
1.4 Ondernemingswaarde van vrijkapitaal	
<b>2 OMZET</b>	
2.1 Gemiste orders vanwege tijd €	
2.2 Marktomvang??	
2.3 Marktaandeel??	
OMZET PER FTE	
<b>3 PRODUCTIVITEIT</b>	
3.1 Aantal betrokken directe FTEs	
3.2 Loonkosten productie	
<b>4 NETTO CAPACITEIT</b>	
4.1 Aantal navragen (per jaar)	
4.2 Tijd per navraag (uren)	
4.3 Aantal*tijd*tarief	
4.4 (Her)Planning & werktoewijzing	
4.5 Vergaderingen	
4.6 Overhead (fte)	
<i>Margin!!</i>	
<b>Totaal besparingen</b>	

## Inventory

The inventories drop. The decrease itself is not a benefit. However, the costs of inventories (storage, capital, obsolescence, etcetera) may be included as benefits

## Turnover

Orders that you miss because your quote is late and that you would have won in the new situation

## Productivity

The time that the workforce works is more productive because the quality is higher

## Net capacity

Greater availability of the workforce for net production if lead times are reduced, as less time is spent on handling products <and?> material

INVESTERING	
<b>5 PERSONEEL</b>	
5.1 Uurtarief	
5.2 Activiteiten	
5.3 Introductie	
5.4 ...	
5.5 Kaizen	
5.6 SMED	
<b>6 OUT OF POCKET</b>	
6.1 Item a	
6.2	
6.3	
Totaal	

## Workforce

Carrying out projects requires time from the workforce

## Out-of-pocket expenses

Implementing certain changes in the process requires out-of-pocket expenditure (e.g. extra tools, costs of setting up a cell, modifications to tools and machinery)

Cashflow (per jaar)	0	1	2	3	4	5
Baten/Investering (-)	€ -716.460	€ 594.000	€ 594.000	€ 594.000	€ 594.000	€ 594.000
Discountfactor	0,05					
Payback periode (in jaren)	2,2					
NCW	€ 1.766.904					

See next sheets

# What level of accuracy is required?

The investment in the business case should be proportionate to

- the projected benefits
- the possibility to collect data (what is available)

The purpose of QRM is to shorten lead times substantially: 30-90%. Whether the reduction ultimately comes in at 67% or 72% has no bearing on the decision you make.

Therefore: +/- 20% margin in the estimate of costs and benefits is acceptable. Additionally, several benefits (employee satisfaction, customer satisfaction) might not be immediately quantifiable.

The business case serves as substantiation for the entrepreneurial estimate. Over time, you will be able to make more concrete and more precise estimates of the benefits.



# The rule of 6

Data from earlier projects have been collected that show the reductions achieved in lead times and the savings realized. Those data serve as the basis for the rule of 6.

The rule of 6 is as follows: the ratio between the costs before and after the improvement is the ratio between the lead times to the power of 0.17 (approximating the inverse of 6).

The business case approaches the benefits in 2 ways: from the rule of 6 and from an estimate of the separate elements.

$$\left( \frac{Kosten_{na}}{Kosten_{voor}} \right) = \left( \frac{LeadTime_{na}}{LeadTime_{voor}} \right)^{0,17}$$

Source: Tubino & Suri, 2000

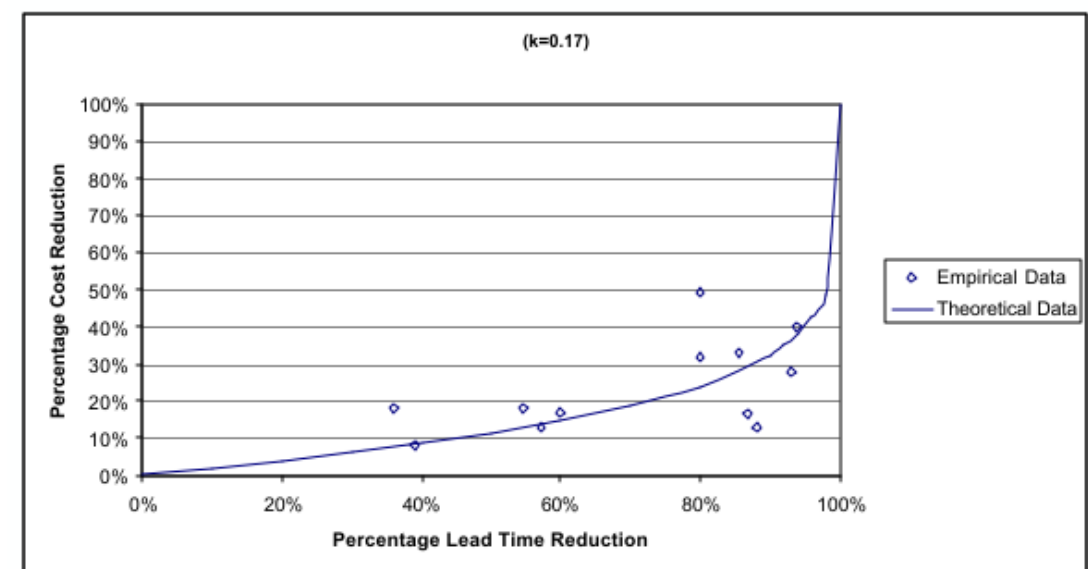


Figure 8: Impact of LT Reduction on Overall Product Costs (Theoretical and empirical data)

Doorlooptijd huidig	20	Kosten huidig	20.000.000	<b>Besparing volgens power of 6</b>	
Doorlooptijd doel	12	40% Kosten na	18.336.469	<b>1.663.531</b>	<b>8%</b>



# Net discounted value

- The net discounted value method determines the value of the cash flow of investments and income/savings.
- The future cash flows have a value that is calculated now (discounted) using an interest rate. The idea is that 100 euros now is worth more than 100 euros in a year's time: The money could be invested or put into savings.

$$\sum_{\text{jaar } k=0}^5 \frac{\text{Cash}_k}{(1 + \text{rente})^k}$$

Cashflow (per jaar)	0	1	2	3	4	5
Baten/Investering (-)	€ -716.460	€ 594.000	€ 594.000	€ 594.000	€ 594.000	€ 594.000
Discountfactor	0,05					
Payback periode (in jaren)	2,2					
NCW	€ 1.766.904					

- We have opted for a 5-year period, because benefits become increasingly uncertain as time passes.



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# Templates

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# QRM Project contraindications

Implementing QRM is not a goal in and of itself. QRM is a solution whose suitability needs to be established.

It is possible also that QRM offers the right solution but cannot be used at this moment in time. Or that other problems need to be resolved before QRM can be started.

The purpose of the checklist is to help identify important issues ahead of time. It is not an exhaustive list.

See next page

	Contra-indicatie	Symptomen	Actie	Wie
<input type="checkbox"/>	Er loopt (binnenkort) een ERP project	ERP en QRM project hebben conflicterende wensen, claimen dezelfde resources	Stel prioriteit en laat eerst het ene en dan het andere project lopen. Doe als het mogelijk is eerst het QRM project omdat dat inzicht geeft in de requirements voor de software.	Sponsor
<input type="checkbox"/>	Recentelijk mislukte verbeterprojecten	"Dit hebben we al geprobeerd" "Het vorige project is ook mislukt"	Bespreek en evalueer het vorige project. Start pas met het project als de root-causes van de mislukking duidelijk zijn.	Trekker, Sponsor
<input type="checkbox"/>	Kwaliteitsissues	Klachten van klanten, Hoge uitval en afval ratio's	Start eerst een kwaliteitsproject met bijv. sixsigma hulpmiddelen alvorens met het QRM project te starten.	Trekker
<input type="checkbox"/>	Beperkte variabiliteit	Werkinhoud (work content, touch time) varieert maar weinig tussen de verschillende producten, aantal orders constant in de tijd	Zet eerst een Lean project op om verbeteringen te realiseren en bepaal daarna op welke onderdelen QRM moet worden toegepast	Trekker, Sponsor
<input type="checkbox"/>	Onnodige variabiliteit	Voor iedere klant een eigen ontwerp hoewel de functionaliteit wezenlijk dezelfde is	Voer eerst een complexiteitsreductieproject uit waarin met de klanten wordt bepaald welke producteigenschappen cruciaal zijn en reduceer de opties	Trekker
<input type="checkbox"/>	Geen bereidheid tot veranderingen	"We doen het toch (al 25 jaar) goed", "We maken toch winst"	Eerst een bewustzijn creëren over de noodzaak tot verandering	Sponsor
<input type="checkbox"/>	<i>Hier uw eigen ervaringen en checklistitems...</i>			

# QRM Project Obstacles/Issues

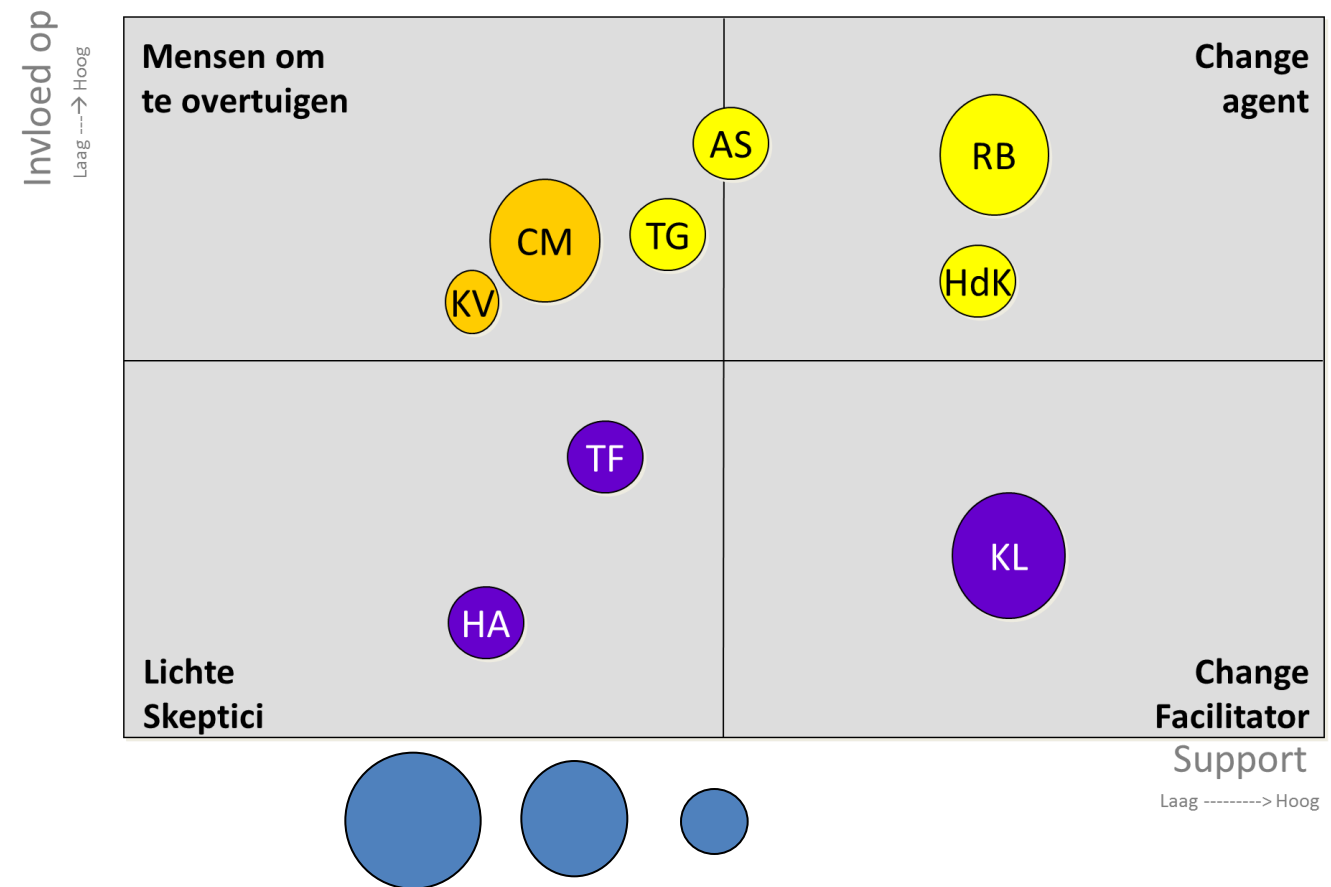
	Obstacle	Symptoms	Action	Who
<input type="checkbox"/>	An ERP is underway or will be launched shortly	The ERP and QRM projects have conflicting preferences and claim the same resources	Prioritize and conduct one project first and the other later. If possible, run the QRM project first: it will yield information about the requirements for the software.	Sponsor
<input type="checkbox"/>	Recently failed projects for improvement	“We've already tried this once” “The last project also failed”	Discuss and assess the previous project. Do not start the project until the root causes of the failure have been identified.	Motivator, Sponsor
<input type="checkbox"/>	Quality issues	Complaints from customers, high dropout ratios	First start a quality project, e.g. SixSigma tools, before launching the QRM project.	Motivator
<input type="checkbox"/>	Limited variability	Little variation in work content and touch time between the separate products, number of orders constant over time	First, set up a Lean project to realize improvements. Next, identify the elements where QRM should be used.	Motivator, Sponsor
<input type="checkbox"/>	Superfluous variability	A separate design for each customer despite essentially the same functionality; High level of variability that is not based on customer preferences	First carry out a complexity reduction project to determine, with input from the customers, what product features are crucial. Then reduce the number of options and variability using Lean and/or SixSigma. Next exploit the strategic variability using QRM.	Motivator
<input type="checkbox"/>	Lack of willingness to change	“But we've been doing it right (for 25 years)”, “So what, we're making a profit”	First create awareness of the need for change.	Sponsor
<input type="checkbox"/>	Lack of management commitment	Directors and senior management are often absent/invisible	Make it clear that their active participation is required, and cancel the project if they cannot be present	Motivator, Sponsor
<input type="checkbox"/>	Knowledge and experience of middle management	Limited knowledge of and experience with business processes and QRM	First organize a course to teach the approach and take middle management onto the workflow to create understanding	Motivator, Sponsor
<input type="checkbox"/>	<i>Enter your own experiences and checklist items here ...</i>			

# Stakeholder matrix

Change is more a matter of culture, vision, and willingness to change than of techniques. The same is true of QRM projects. This means that it is important, during the business case, to identify the stakeholders and determine where their interests lie.

Use the stakeholder matrix to position people. Determine the positions based on brief interviews with the persons involved. The first list of potential stakeholders is selected by the Sponsor and the Motivator.

See next page

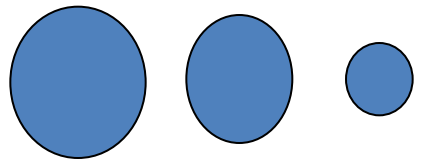
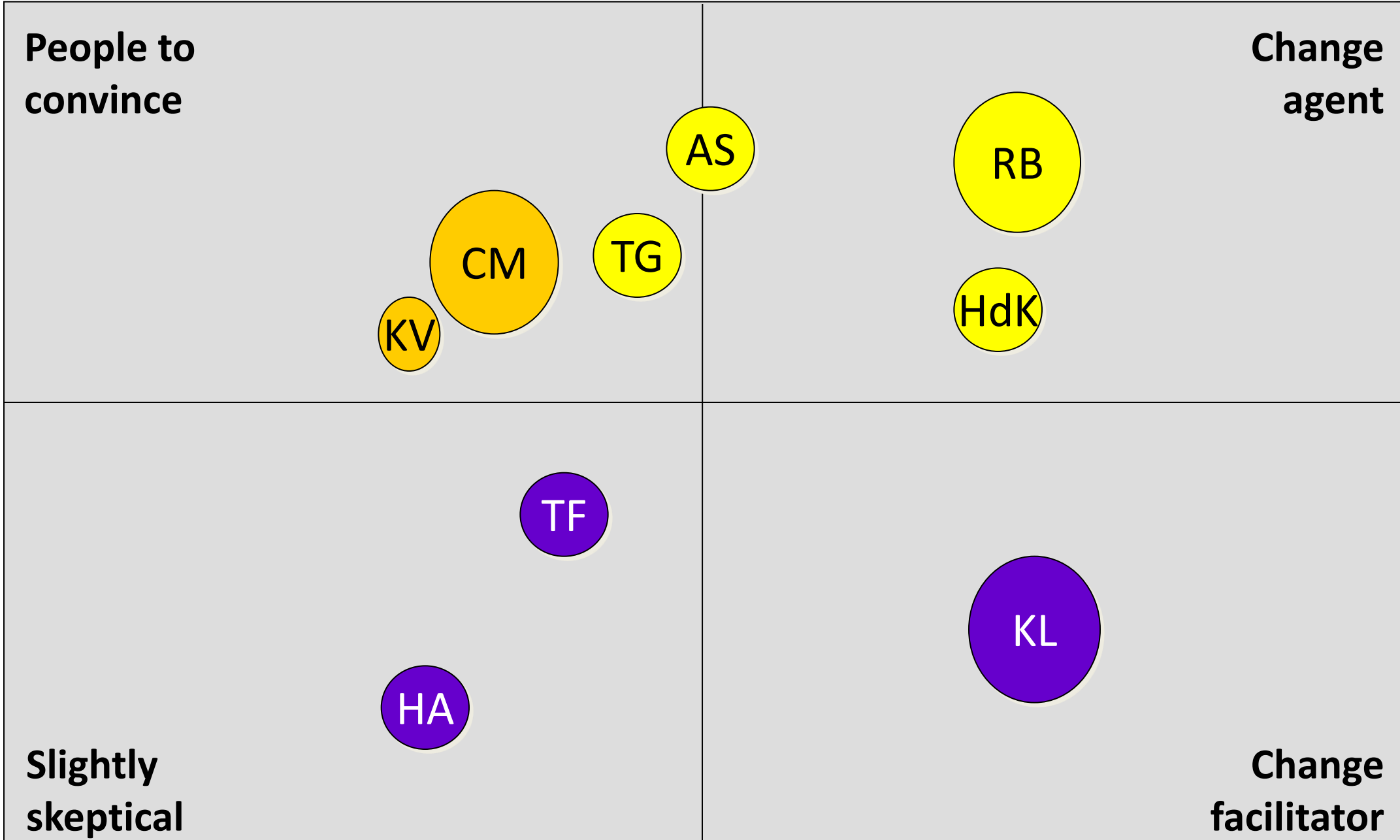


Size: degree to which the person involved is affected

Color: subproject/FTMS

Stakeholder matrix			QRM Project
Project:		Date:	
(Sub)process:		Sheet:	
Responsible:		By:	

Affects  
Low ----> High



Degree to which the person involved is affected  
Color identifies subproject/FTMS

Support  
Low -----> High

# Plan for collecting data

Sometimes data need to be collected before the business case for a QRM project can be drawn up. Before collecting the data, carefully consider what data should be collected, when they should be collected and by whom.

See next page

Verduidelijk data Verzameling van doelen				Operationele definities en procedures	
Meet gelegenheid	Meet methode	Datatype	Doel van verzameling	Wat	Hoe
Afspraak op tijd	Output	Continu	Vaststellen of een tussenpersoon is benoemd binnen 5 werkdagen	Benoeming tussenpersoon bij xyz (toekenning nummer tussenpersoon)	De tijd vanaf ontvangst papieren aanvraag tot en met de toekenning van een nummer aan de tussenpersoon in het systeem

Operationele procedures voor verzamelen en vastleggen				
Wat	Waar	Wanneer	Wie	Hoeveel
Een rapport met de cyclus tijden per locatie wordt gegenereerd uit het volgsysteem.	Sales afdeling in Venlo	Data worden verzameld in de periode mei en juni 2008	IT zorgt voor het rapport, Sales levert twee medewerkers die de data reviewen.	100% van de verzoeken om een afspraak wordt gereviewd.

Validatiemethode voor het meetsysteem
Continue Gauge R & R voor het vergelijken van de verschillende teams

Segmentatie factoren
Data segmentatie: per locatie, klant, verkoopkanaal



# Plan for collecting data

Clarify data Collect targets				Operational definitions and procedures	
Measuring moment	Measuring method	Data type	Purpose of collecting data	What	How
Appointment on time	Output	Continual	Determine whether an intermediary has been appointed within 5 business days	Appointment of intermediary at XYZ (assigning a number to the intermediary)	The time from the receipt of a hardcopy request until the intermediary is assigned a number in the system

Operational procedures for collecting and recording data				
What	Where	When	Who	How many
A report is generated from the monitoring system, showing the cycle times per location.	Sales department in Venlo	Data are collected during May and June 2008	IT is responsible for the report, Sales supplies two employees to review the data.	100% of the requests for an appointment are reviewed.

Validation method for the measuring system
Continual Gauge R & R for comparing the separate teams

Segmentation factors
Data segmentation: per location, customer, sales channel

# Business case

When designing the business case, enter all the available data. Where data is unavailable, prepare estimates with input from various experts. Ask your financial department to help you prepare and estimate the figures. Bear in mind that those figures are order volumes and ranges, not precise point estimates.

Click on icon shown here to open the business case spreadsheet.





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# Support

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