Faculty of Design

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Multi-modeling: A systemic approach to business solution design

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Multi-Modeling: A Systemic Approach to Business Solution Design

a case study discussion of an (IT) Strategy Development

Presentation in a RSD4 Session
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by

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Business
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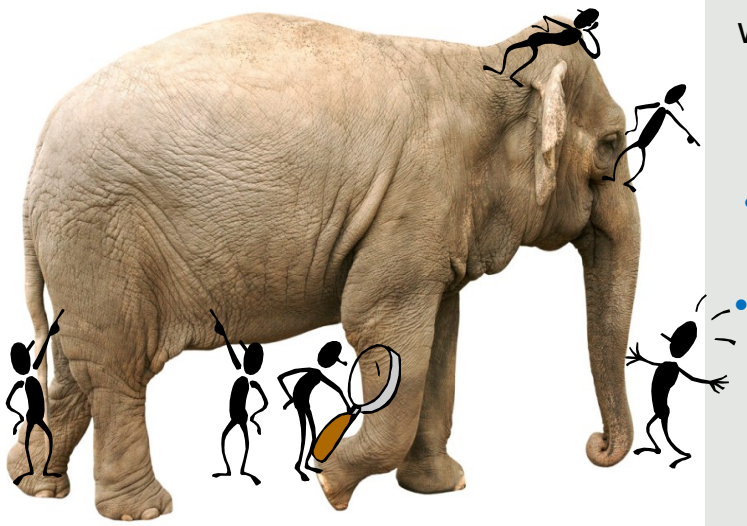
Philosophy of Problem Solving: Systems Thinking

the fable of a six blind men



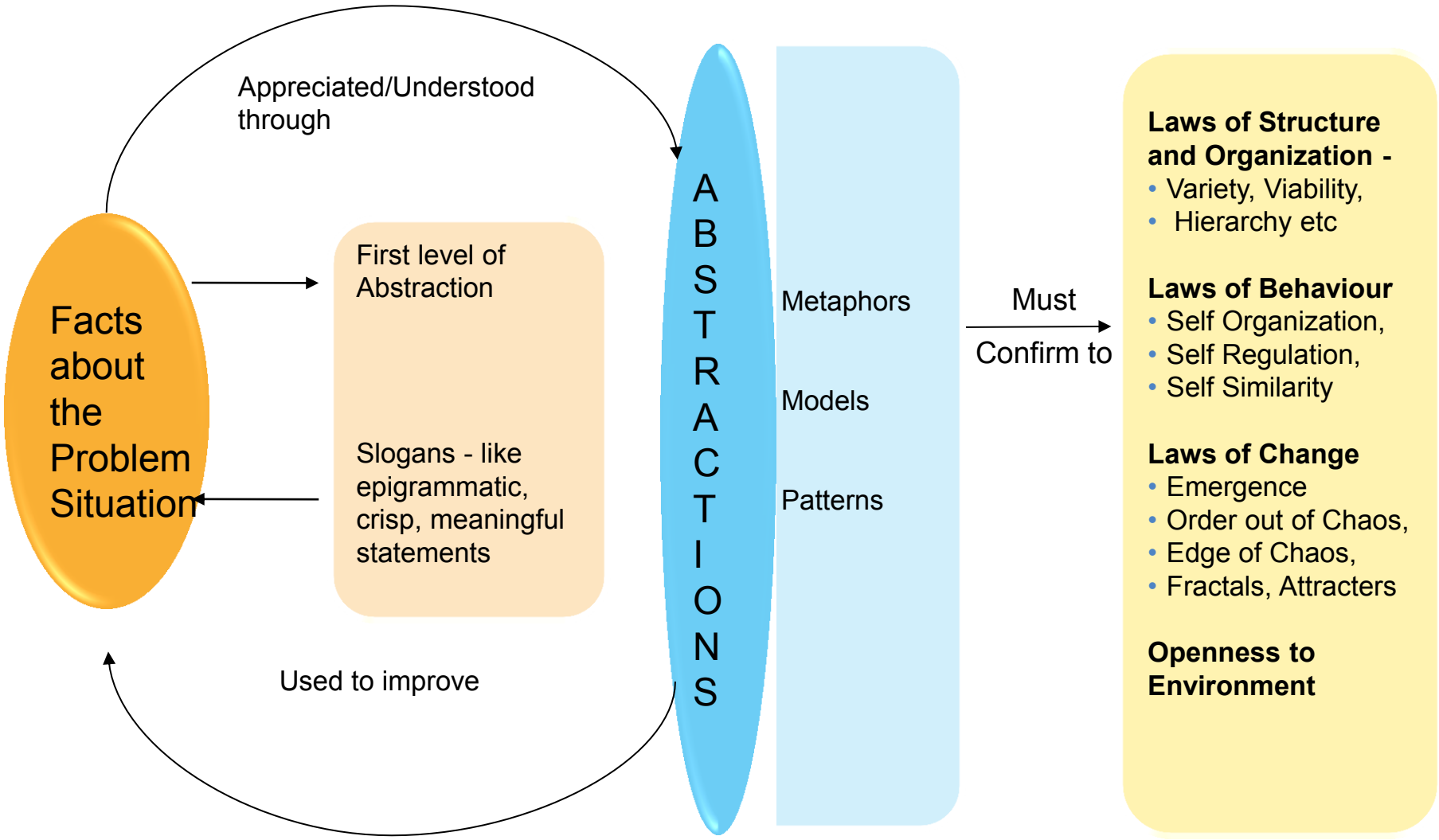
This fable is particularly relevant to the consultancy situation which essentially tries to *re-construct* an organizational situation from *different* sources of information.

- **Organizational issues cannot be tackled piecemeal**
- **Organizational boundaries must be questioned and redefined**

Issues of organizational performance need to be viewed in relation to the environment and not merely to optimize the performance of individual tasks or functions.

…as the "System acts as a whole"

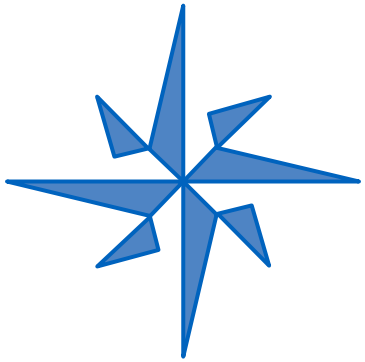
Systems Approach is all about this



From - Prof. P.N.Murthy's Lectures on Systems Thinking

Multi-Modeling : The Methodology

Recommended for multi-dimensional and multi-phase studies



Models based on System Principles

Accommodates multiple models, frameworks and techniques to address relevant aspects of a client system

Multi Modeling is a Systemic Approach to problem solving, which can be applied to complex problem situations in different domains.

3 Predominant Phases in Multi-Modeling

The three phases can be characterized by the answers to the following three questions

Logic Loop

Discover	Diagnose	Design
▪ What is the nature and identity of the client system and hence, what are the **objectives/ purposes** being pursued by it?	▪ What **barriers** have to be overcome to achieve these objectives/ purposes?	▪ What **Actions** have to be undertaken to overcome the hurdles/barriers?

Learning Loop

The phases are co-terminus i.e. the crystallization of the three phases occurs together.

Case Study: Problem Statement

About The Client

The client is a large UK based insurer with global operations. Their business is diversified across Annuities, Life, Pensions, Savings, Home, Motor, Commercial and Asset management, with a history of over 300 years.

Problem Statement

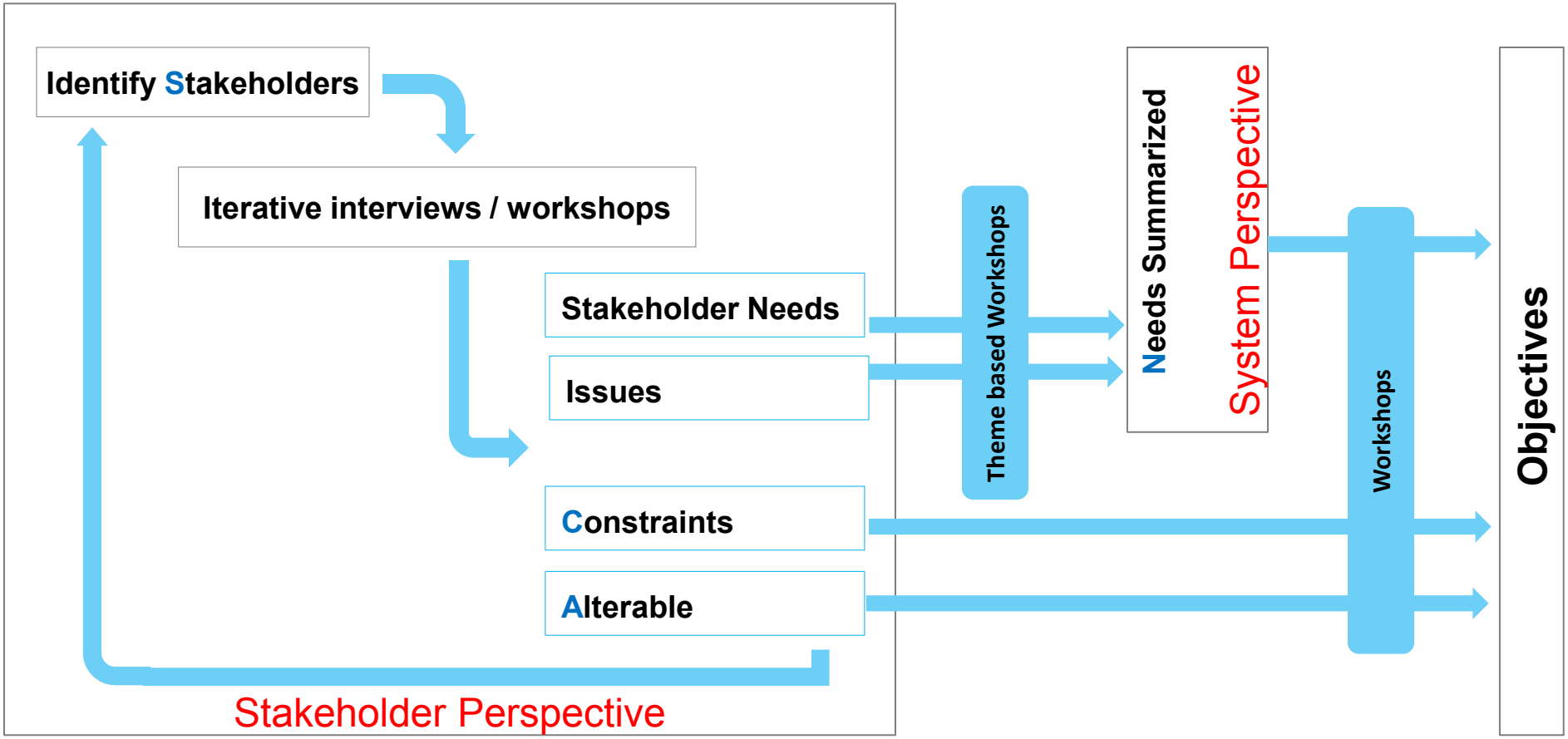
The client had used telematics technology to create a vehicle insurance offering called “Pay-As-You-drive”, PAYD. This provided the insured with the flexibility of paying only for the time that the vehicle was being driven and based on the driving pattern. The telematics device, due to its tracking capabilities, significantly reduced the risk of vehicle theft. This was a novel idea and had the potential to cater to the young population which was under served due to the high risk profile of this age group. The telematics offerings, although an innovation by the client, was not returning the profits as expected and was on the verge of closure. The low uptake and high per policy costs were preventing the offering from being sold at a price point that was acceptable to the market.

Stakeholders identified

Stake Holder *– Those who have an interest (a stake) in the operation and the performance of the organisation. They may or may not be in a position to influence the organisation directly.*

Stakeholder Identifier	Name	Interests	Influence	Relevance
Policy Makers				
COUGILD		Telematics Director	Y	High
FRISBYH		Head of IT and Data Operations	Head of IT & Data Op	High
MARTIK8		Head of Telematics Proposition and Strategy	Y	High
AYRDONN		Head of Business Partnerships	Y	High
Insight Providers				
FERNAUT		Former Telematics CTO solution consultant	Y	High
MEEHAR1		Former Telematics CTO chief designer	Y	High
OGARRS		Long time CTO design. installer network.	Y	High
ROWLASM		Retail Propositions	Y	High
GIBBSN		Retail Propositions		Medium
ATTWOOJ		Retail/Pricing	Y	Medium
allent7		Fleet Propositions		Low
PERRYJ1		Fleet Propositions	y	
YOUNGB		Business Change PM		Medium
WEBSTDM		Retail Lead BA		Low
SATTERC		Fleet Lead BA		Low
LAMBMJ		Pricing	Y	Medium
ELLENLEE		Pricing	Y	Medium
GARBUTN		Installer Network		Medium
OTTERM		Distribution	Y	High
ELLIOCD		Claims Exploitation		Medium
VALLGRD		Government		Medium
Implementing Party				
		Detailed Designed (Quotes, front end)		Medium
KINGA15		Long time IS detailed designer	Y	Medium
RICKWOL		Design/build of journey data loader, mapping		Medium
PARSLEM		Development Centre Manager		Low
MALCOLES		Billing Tester		Medium
HUWLEWIS		ODS3 Design (Teradata)	Y	Medium
GOULSBRA		Former Delivery Manager: Fleet/Installer Net	Y	Medium
TIMREAL		Billing Component Lead	Y	Medium
Users				
SPARKEL		Sales Manager		Medium
GREENR4		PAYD CSR (Lead), Testing	Y	Medium
HOWARK1		Installer Network Operations		Medium
HEYBOPC		Telematics Operations Manager/ Claims	Y	High
Consumer				
CLOVEJ1		PAYD BA who bought PAYD		Low
COUGILD		Telematics Director		
MARTIK8		Head of Telematics Proposition and Strategy	Y	
AYRDONN		Head of Business Partnerships	Y	
MOSSP		Telematics Support Manager		
Support Functions				
MOSSP		Telematics Support Manager	Y	Medium
WEBBM		IT Support		Low

SNAC™ - to understand multi dimensionality of the problem (objectives derived)



Understanding the problem and business eco-system in a holistic and in depth fashion through multiple perspectives

How the needs were summarized ? – an example

Needs expressed by stakeholders on System / Architecture Flexibility

FRISBYH.N.1 - Continue to provide the IT platform to support PAYD beyond Sept 2007
FRISBYH.N.2 - Deliver Metafleet proposition
FRISBYH.N.3 - Ability to launch new propositions
FRISBYH.N.4 - Quick & Cheap delivery of IT solutions
FRISBYH.N.5 - Establish a low cost operating model for Telematics
FRISBYH.N.6 - Deliver Rossi - Retail proposition
OGARRS.N.2 - Ability to build new Applications without changes to the existing Infrastructure in less time and cost.
OGARRS.N.3 - To get support for the new Telematics Framework from the Business Unit Head
HEYBOPC.N.2 - To enable Traffic Master to give meaningful reports for the RAC Vans.
HEYBOPC.N.3 - It will be useful to automate manual operations.
HEYBOPC.N.4 - Insurance base System should be changed. Also there is a need to bring Customers onto HUON and GEMINI.
HEYBOPC.N.5 - Beyond 2009, Migration of Customers to "Fleet" solution is required. This does not require SAS.
HEYBOPC.N.6 - "A window of VVD-DMS that other users can view is required. This window can be something like a web window so that the full control of the System need not be given to the User."
HEYBOPC.N.7 - A request needs to be made for the GEMINI to move to SIP as SIP has a user-friendly UI for the underwriters to use.
GOULSBRA.N.1 - Flexibility in design
ROWLASM.N.2 - There is a need for Solutions designed for Flexibility.
OTTERM.N.1 - We need to identify a cost effective solution for HUON and a way of migrating to the new platform.

Issues expressed by stakeholders on System / Architecture Flexibility

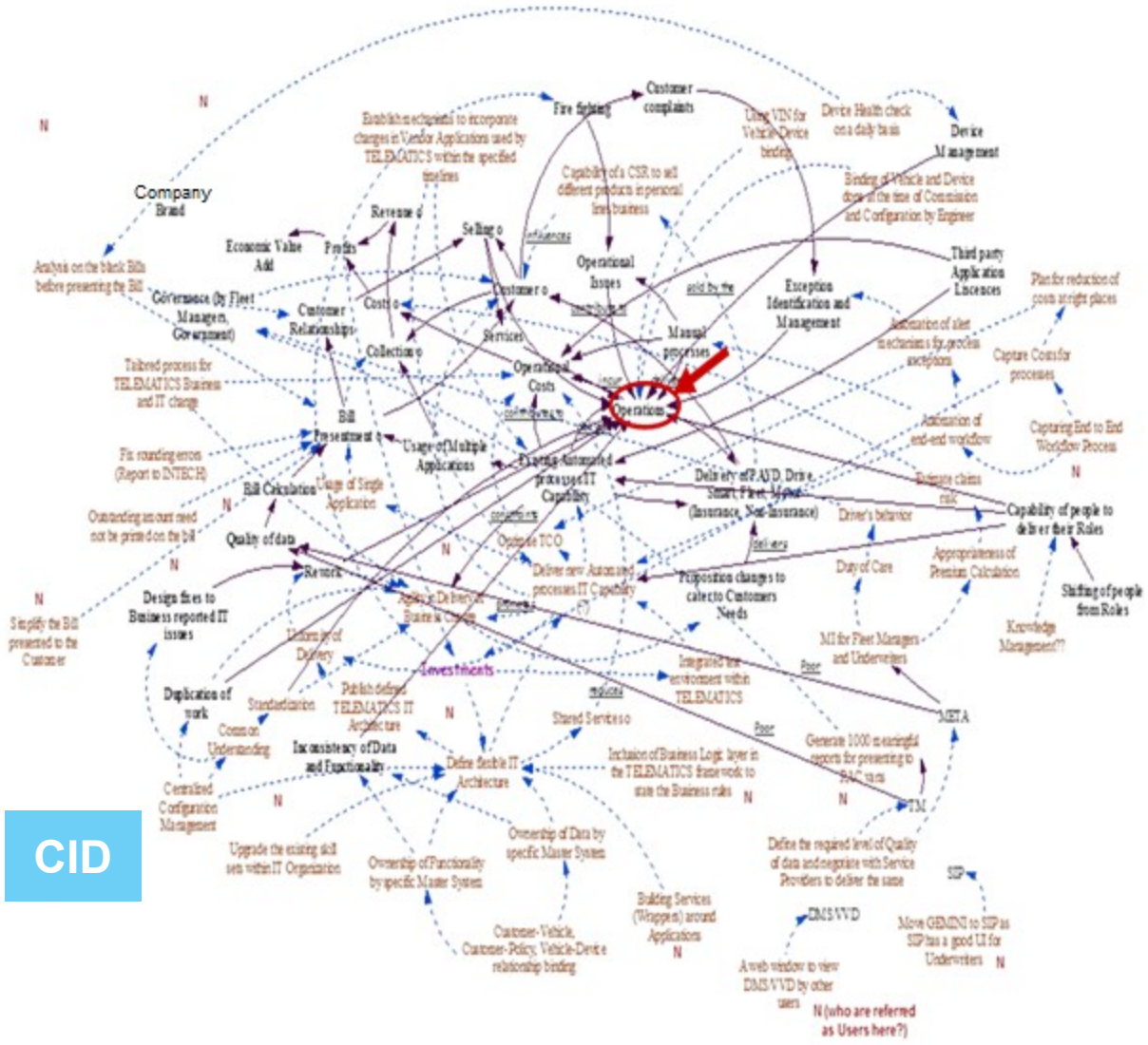
FRISBYH.I.2 - Solution design for the current programmes(Rossi, HUON Migration, Sales Maximization, Mazda) are not being delivered in time for the programmes
FRISBYH.I.3 - Significant manual intervention is required in the business operations for the following processes. A) Billing& Collections B) Vehicle visit Management C) In car device Management 4) Detecting problems in devices 5) Measuring device usage
FRISBYH.I.4 - There is no defined and published IT architecture for telematics that is accepted as the best fit to meet the business needs.
FRISBYH.I.5 - Configuration management of IT components is not centralized. Where available it is managed separately based on the technology in use.
ROWLASM.I.1 - Existing Solutions are not flexible for new propositions.
OTTERM.I.1 - Extension of HUON license cannot be perceived as a good strategic option.
GOULSBRA.I.1 - The existing infrastructure is highly inflexible. It takes more than 6 months to make IT Changes to support a changed Business proposition.
GOULSBRA.I.2 - There is Data duplication across multiple systems. Inconsistency of data exists.
GOULSBRA.I.3 - There are lots of manual processes still in place.
GOULSBRA.I.4 - The interfaces are bad. Quality of data used for billing is poor.
GOULSBRA.I.8 - Moving to EXCEED can pose challenges around differentiated pricing.
ELLENLEE.I.1 - There is no single system that acts as a master. Functionality is duplicated across systems.
ELLENLEE.I.4 -There exists difficulties in Synchronizing data among three different systems.

Refined & Summarized through Stakeholder workshops on emerging theme "System Flexibility"

Architecture with flexibility to deliver

- future propositions, both insurance and non-insurance
- Product design, including document formatting
- Pricing variations/customization
- Partner independence

Cybernetic Influence Diagram™ (CID) – to analyze the problem in business context

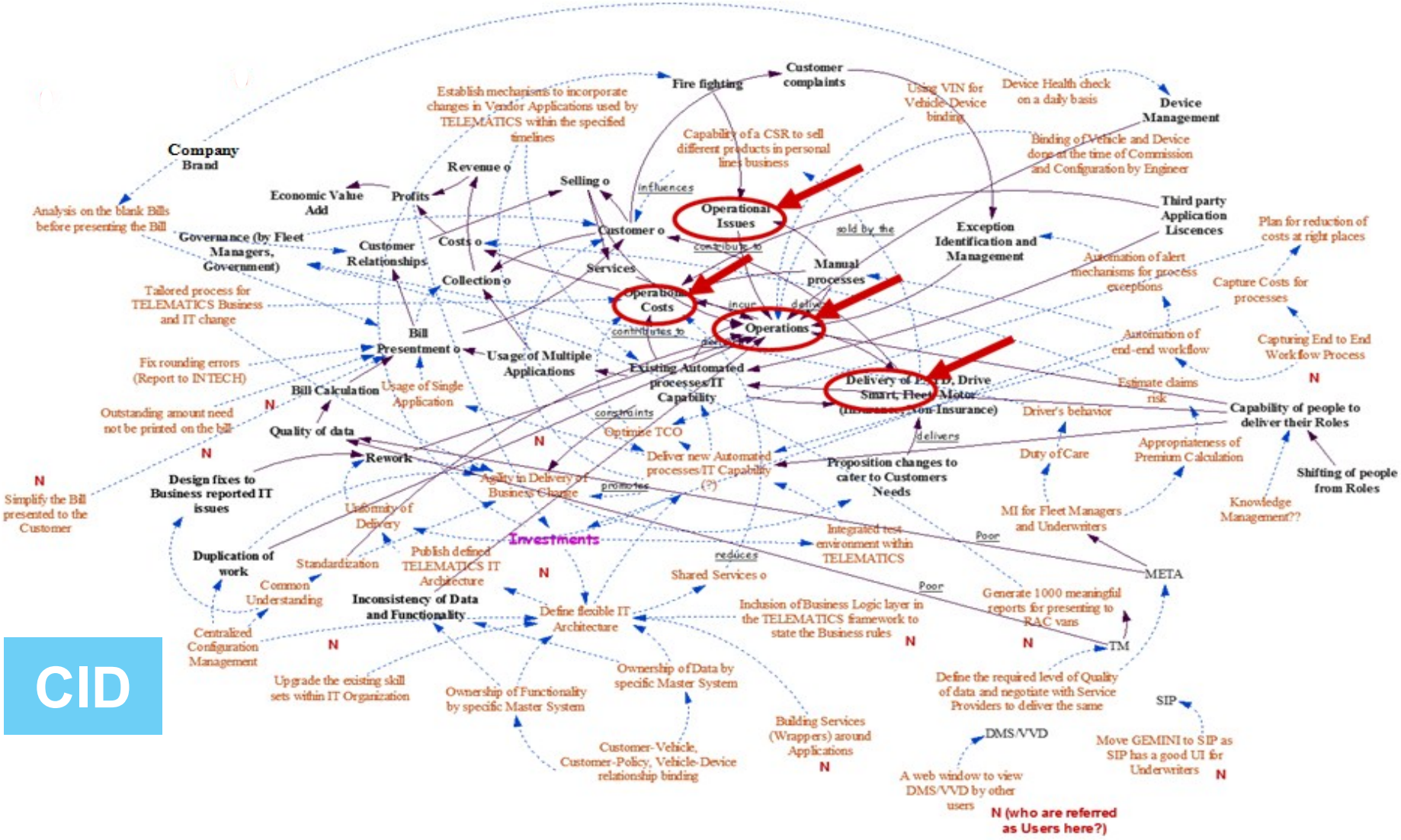


CID

Key challenges / inferences from analysis

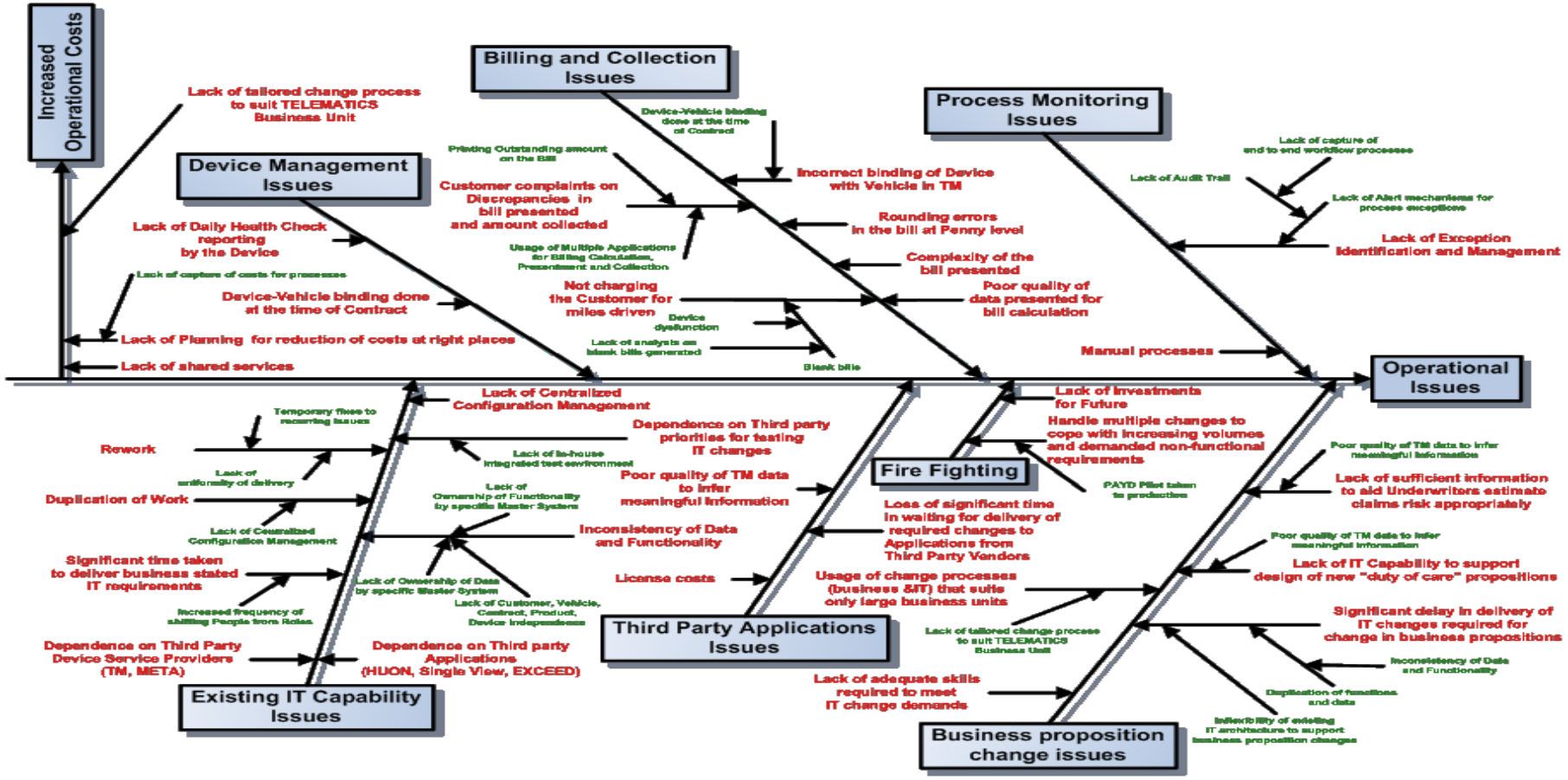
- The context of Telematics P&L is extremely complex
- There were significant functional gaps that were preventing the system from functioning in an effective and efficient manner
- There were a large number of operational issues due to the incomplete implementation of projects
- Operations was a major **merge point** and had significant impact on the cost
- **Business model and the propositions were not financially viable with the current implementation**
- **Inadequate Architecture flexibility** to deliver
  - Future propositions, both insurance and non-insurance
  - Product design, including document formatting
  - Pricing variations/customization
  - Partner independence
  - Quick IT Delivery

Operations is a major *merge point* – Operational issues have influences on Operations and its costs



CID

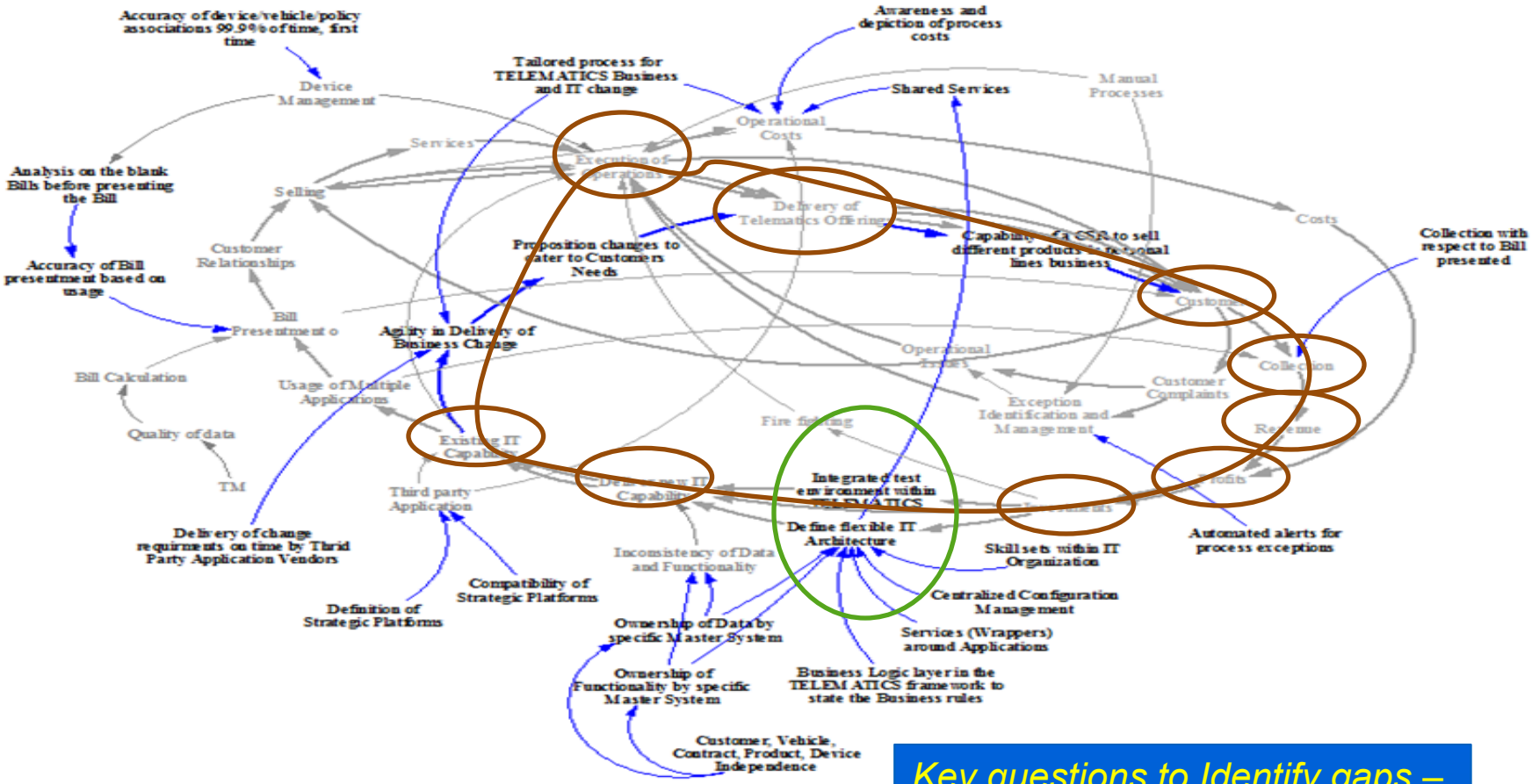
Detailed analysis – *to identify causes and hence possible interventions for Operational issues*



- Addressing the operational issues will optimize the operational costs
- Quantifying the costs will help in prioritizing

Identifying the issues using Fishbone (Cause-effect) diagram
[Black text denotes the major causes, Red the sub-causes and Green the 3rd level]

Detailed analysis – *to identify gaps and validate interventions*



Identifying the gaps (possible interventions) using CID
[Factors in grey are one that form the current context while those in Black are the interventions identified]

Key questions to Identify gaps –

- What gap (barrier) is leading to the root causes of issues identified in fish-bone ?
- What gap (barrier) is resulting in the needs identified in SNAC?

System Objectives - satisfying the needs while addressing the constraints

case of architecture with flexibility

Related Constraints

- HUON is out of support form Sep 2007
- Not all IT systems are under the control of the Telematics IT team
- Client ITS budgeting process does not promote shared services
- Business change and IT Change processes are not suited for small and medium Bus
- Currently there is no Integrated Environment for Testing within TELEMATICS, affecting development plans
- Cost

Needs

Architecture with flexibility to deliver :

- Future propositions, both insurance and non-insurance
- Product design, including document formatting
- Pricing variations/customization
- Partner independence

Workshop

Objectives

- *Enhance Billing and Collection capability & process*
- *Improve MI and Reporting capabilities*
- *Revise IT architecture & Change management process for flexibility and speed of implementation*
- *(Optimize IT cost) Share IT capabilities with other internal business units*
- *(Optimize IT cost) Outsource services & Choosing products for IT capabilities*

Related Alterable

- Available skills and resources with in the IT organization to deliver the change programmes
- IT Landscape & components
- Business Processes
- Market
- Architect for Non-functional requirements

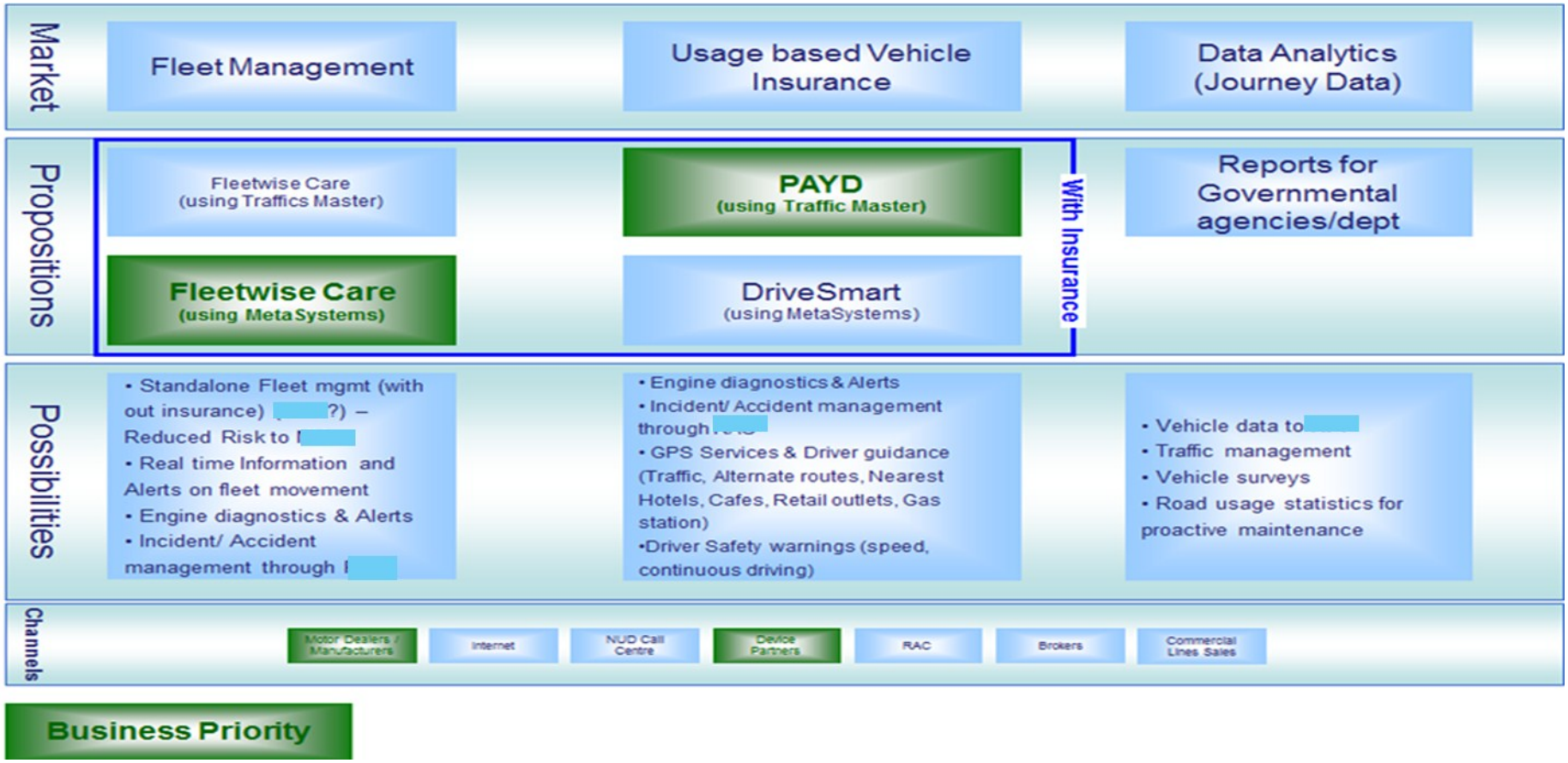
Solution Recommendations

The approach to materialize the overall objectives was a two prong one.

1. Refining the Core Business Operating Model

2. Strategic Recommendations for the following areas:
    a. Business direction – Commercial lines
    b. Business direction – Personal lines
    c. Billing & Collections
    d. IT Flexibility
    e. Operations Management
    f. Best fit IT components

Solution element –
Core Business Operating Model diagram



This model captures the essence of the business in a simple diagram and depicts the Market/s, Propositions, Channels , Strategic focus areas and the options / possibilities within each of the focus areas. Strategies and recommendations followed….

How the solution recommendations adds up? : tracing from Goals to Outcomes

Telematics Strategy

Objectives(What?)

7. Low cost operating model for IT capability	6. Change management process suitable for telematics	5. Understand and align IT to business operating model	4. Quick and cheap delivery of IT solutions	3. Speed to market for new launches	2. Grow through launch of new products	1. Make Telematics P&L Profitable	Objectives(What?)	1. "Fleetwise care" to be sold with multiple tiers (4) based on increasing service features, starting from 'Duty of Care' as the basic and priced accordingly upwards with annual target of 15K vechicles and 3 Million Non-Insurance Revenue (non linear)	2. All Pricing to be per vehicle / month basis	3. Metasystems to be the preferred partner for Commercial lines due to price advantage, capability and match in business plans	4. Continue PAYD proposition in Personal Lines using Traffic Master (Partner)	5. Personal Lines - Focus on young driver segment (18-23 years age group)	6. Motor manufacturer (OEM) partnerships to be the main sales channel	7. Point of sale for devices to be at the vehicle dealership	8. Establish Oracle B&C as the Single platform for billing and collections	9. Simplify the bill presented to the Customer & define the rules required to automate analysis on the blank bills	10. Define a flexible IT Architecture with - Function Isolation & Single Ownership Relationship Management System Data Masters with Single Ownership Customer, Vehicle, Contract, Product and Device Independence Business Logic layer in the Telematics framework to state the business rules Build services (wrappers) around applications Centralized Configuration Management	11. Upgrade skill sets (Core competencies) within IT Organization	12. Promote usage of shared services for IT capabilities (Immediate target - Share Teradata with other BU's and use Oracle B&C)	13. Have an Integrated test environment within Telematics BU	14. Define and negotiate SLA terms for delivery of changes by vendors of Third Party Applications	15. Develop e-2-e Operations Workflow Management with - a) Process flow b) Process status c) Process rules	16. Automated centralized monitoring of process executions & tracking - Exception identification & alerts, escalations	17. Capture costs for existing business processes and perform	18. Introduce tailored SDLC process for Telematics Business and IT Change	19. Change the Installer Network processes to accommodate the following: a) Device-Vehicle binding by Engineer at the point of commissioning b) Using VIN for Vehicle-Device binding c) Device health check on a daily basis	20. Develop the current integration hub into a service bus
		X		X	X	X	10. Enhance Billing and Collection capability & process		X						X	X	X		X			X					
	X		X	X		X	9. Fix operations issues & refine processes						X	X		X				X		X	X	X		X	
X		X		X	X		8. Improve MI and Reporting capabilities								X				X			X	X	X			
X	X		X	X			7. Revise IT architecture & Change management process for flexibility and speed of implementation			X	X		X	X	X		X		X	X	X		X		X	X	X
X			X			X	6. (Optimize IT cost) Share IT capabilities with other internal business units								X				X								
X			X			X	5. (Optimize IT cost) Outsource services & Choosing products for IT capabilities			X	X			X	X			X							X		X
X				X		X	4. Partner with external established vendors for capabilities which are proven and efficient to materialize the features			X	X		X	X			X				X					X	X
				X	X	X	3. Identify and analyze the features that can be included in each of the offerings						X	X													
		X			X	X	2. Limit offerings to the most valuable and profitable ones	X			X		X											X		X	
		X		X		X	1. Focus on viable markets	X			X	X															

Key Needs/Goals (columns on the left) — **Target Measures (How?)** (columns on the right)

Expected Outcomes

7. Low cost operating model for IT capability	6. Change management process suitable for telematics	5. Understand and align IT to business operating model	4. Quick and cheap delivery of IT solutions	3. Speed to market for new launches	2. Grow through launch of new products	1. Make Telematics P&L Profitable	Expected Outcomes	TM 1	TM 2	TM 3	TM 4	TM 5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
X						X	1. Reduce Financial risk to company	X		X	X		X								X	X	X				
	X	X		X			2. Minimize operational risk	X			X				X		X	X		X	X		X			X	
			X		X	X	3. Improve profits	X	X		X	X							X					X			
X		X	X			X	4. Minimise operational costs						X	X					X	X				X			
	X	X				X	5. Minimize operational issues						X	X	X	X	X			X		X	X			X	X
	X	X	X	X	X		6. Improve speed to market for new propositions				X		X	X	X	X	X	X		X	X				X		X
				X	X		7. Direct connect to Fleet management customers (bypass agents)	X																			
		X		X	X	X	8. Technical capabilities for new propositions		X	X	X		X	X	X		X	X	X			X				X	X

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