

Building a Business Case for Lean

John Darlington (LERC) & Marie Jones (Child Protection)

The Thinking behind Flow Accounting



....."And Moses chose able men out of all Israel and made them heads over the people, rulers of thousands, rulers of hundreds, rulers of fifties and rulers of tens"

Exodus 18:25

- Most large organisations adopt this sort of structure
- It is based upon the valid premise that one person can only manage between 5-15 direct reports effectively
- Splitting things up in an attempt to deal with "complexity"

The Thinking behind Flow Accounting



- Historically the above structure was adopted by the Church and Army but using different means.
- Now despite the massive growth towards globalised manufacturing organisations and growth in size and volume of service organisations the basic pyramid shape is the same
- Not every part of the organisation adheres to the extended pyramid of the diagram; support functions do not for instance
- So we get “line managers” and “staff or functional managers”

The Thinking behind Flow Accounting



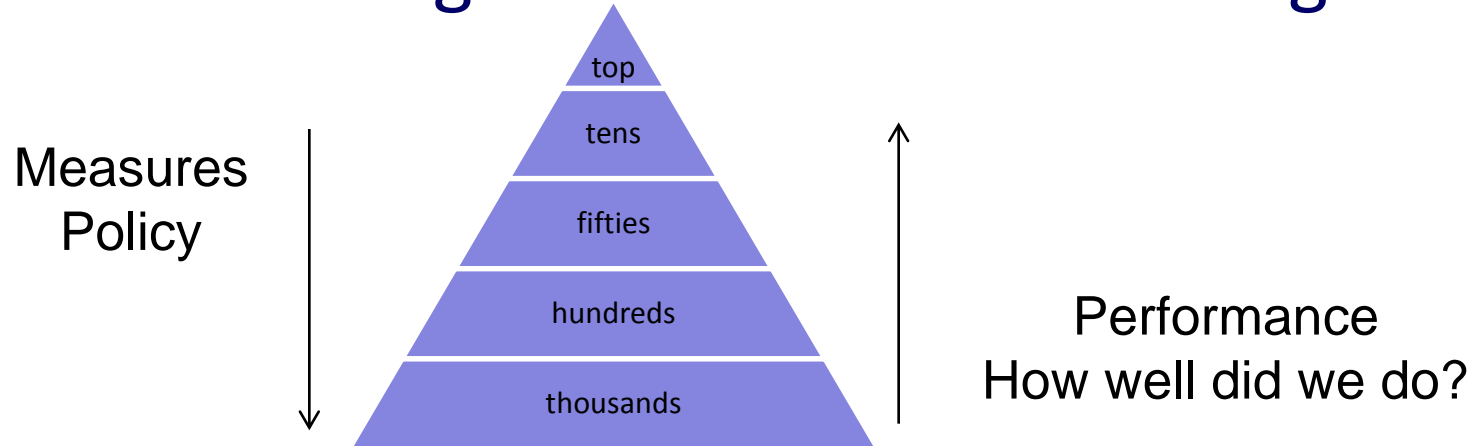
- To work well every organisation relies on the FLOW of information down and up it's structure. Note we call this information not data because it is “filtered” at every level by the managers; “Give me an executive summary”
- Only the magnitude of the decision distinguishes managers
- And here lies a potential flaw; can a local manager make a decision with a viewpoint of the entire organisation? Does she or he have such extensive knowledge?
- Another way of putting it is whether the CEO would make the same decision if they were substituted for a middle manager?

The Thinking behind Flow Accounting



- To judge whether our manager is effective and their department is run well we develop policies for them, which when quantified deserve the title “measurements”.
- The dilemma we create in doing this is that the local manager tries to optimise what they can control, her or his local system.
- And this begs the question “are the sum of the local optima the same as the optima of the whole?”
- Most people see that the trying to optimise parts of the whole is NOT the same as trying to optimise the whole

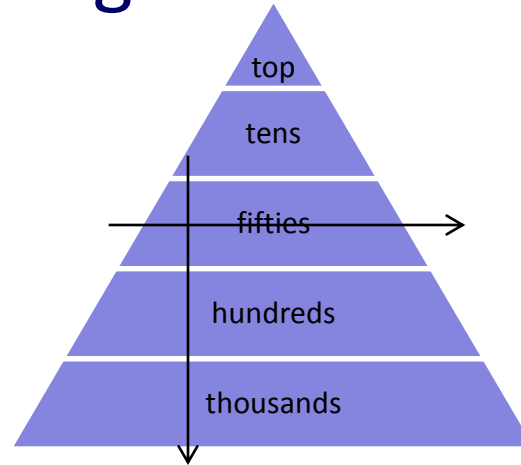
The Thinking behind Flow Accounting



- The key information a local manager needs to contribute positively to the whole is associated with the limitations of the organisation. It's constraints to achieving it's goal.
- Fortunately there are relatively few constraints limiting a business achieving it's purpose. We can prove this later but for the purposes of describing the objective of flow accounting it is sufficient that we acknowledge the existence of few constraints.... Pareto does exist

The Thinking behind Flow Accounting

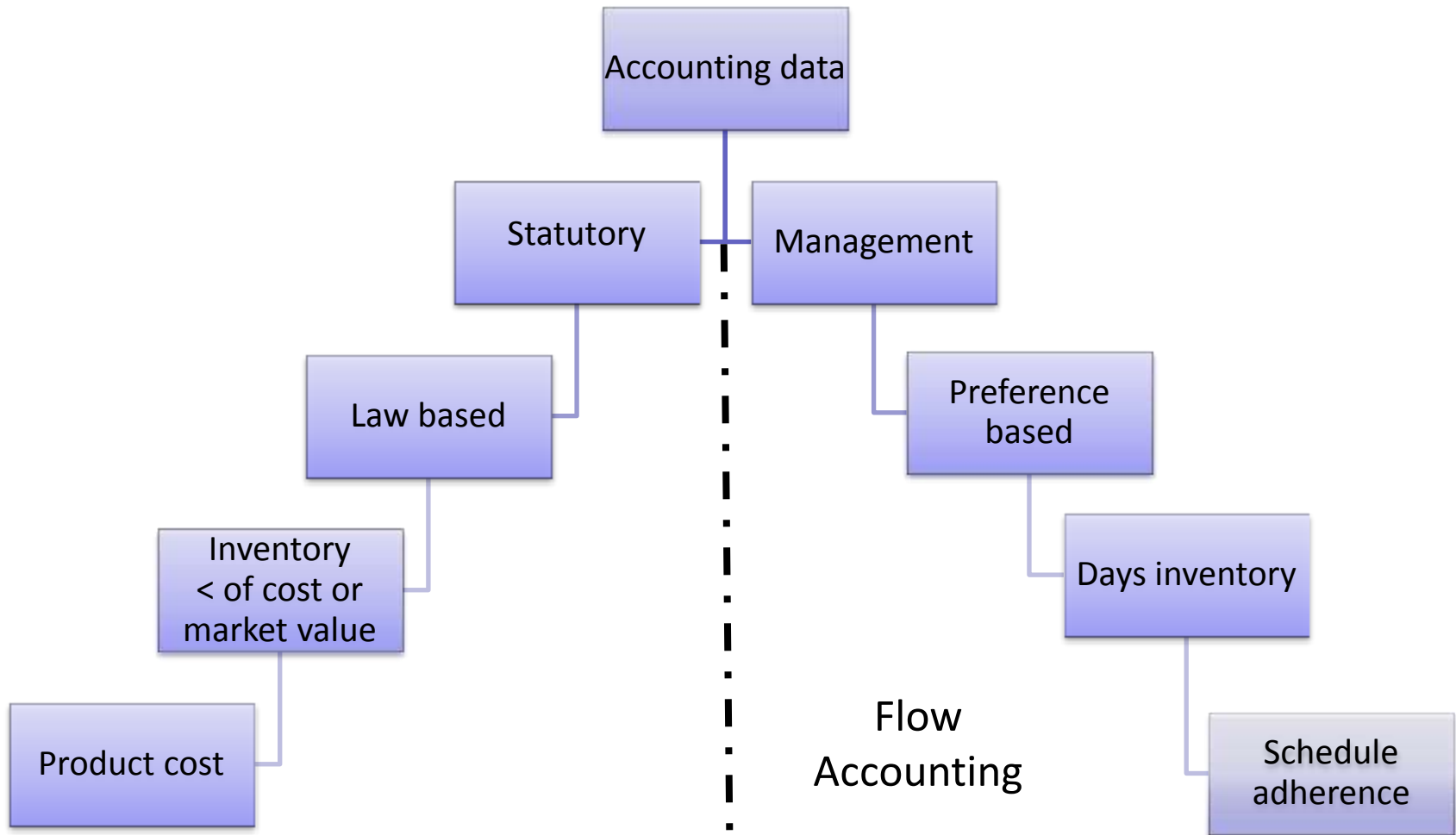
More Successful
Financial Accounting



Less Successful
Management Accounting

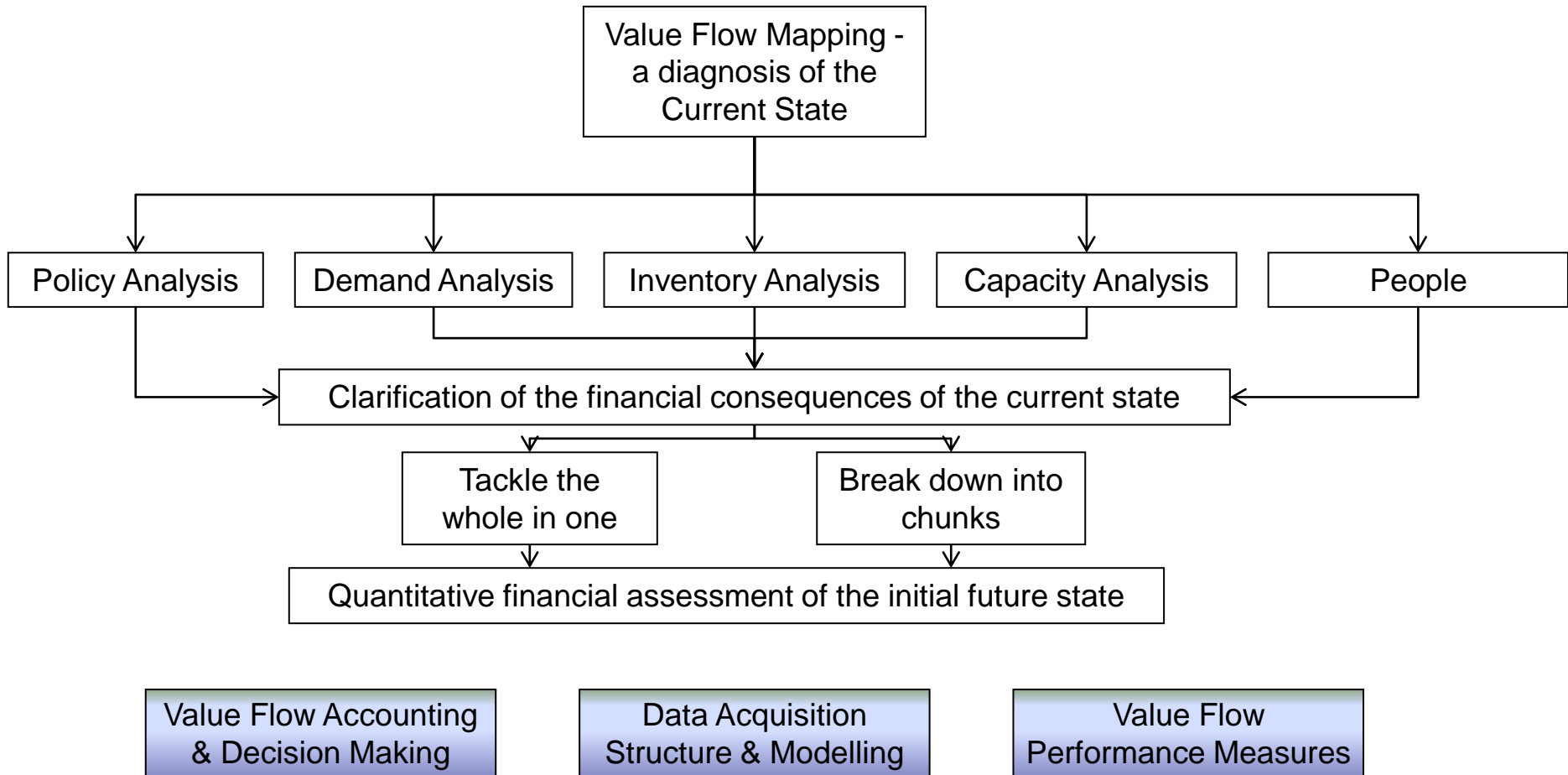
- So Flow Accounting emphasises the “whole” and the interaction of the parts.
- It tries to always encompass the boundary walls of the organisation because that is the only place real money changes hands.
- Sub systems must understand how they can contribute positively to the goal of the whole organisation. And not be fooled into some local cosmetic optimisation.
- So the challenge for the design of a systematic approach is to identify the few constraints to the goal for the organisation and develop measurements that allow local managers and other employees to contribute in a positive way.

Two Uses of Accounting data



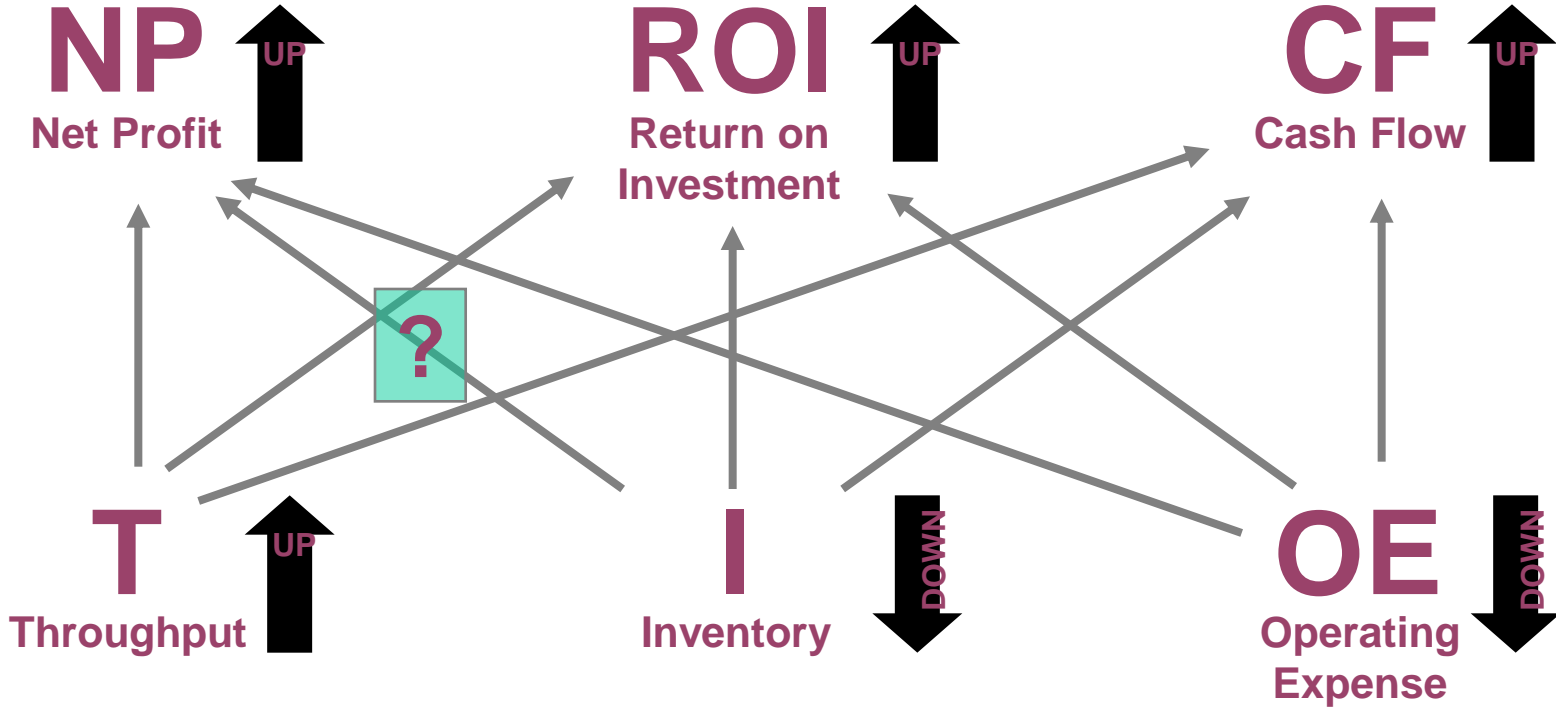
Lean Accounting

Structure of the Flow Accounting Process

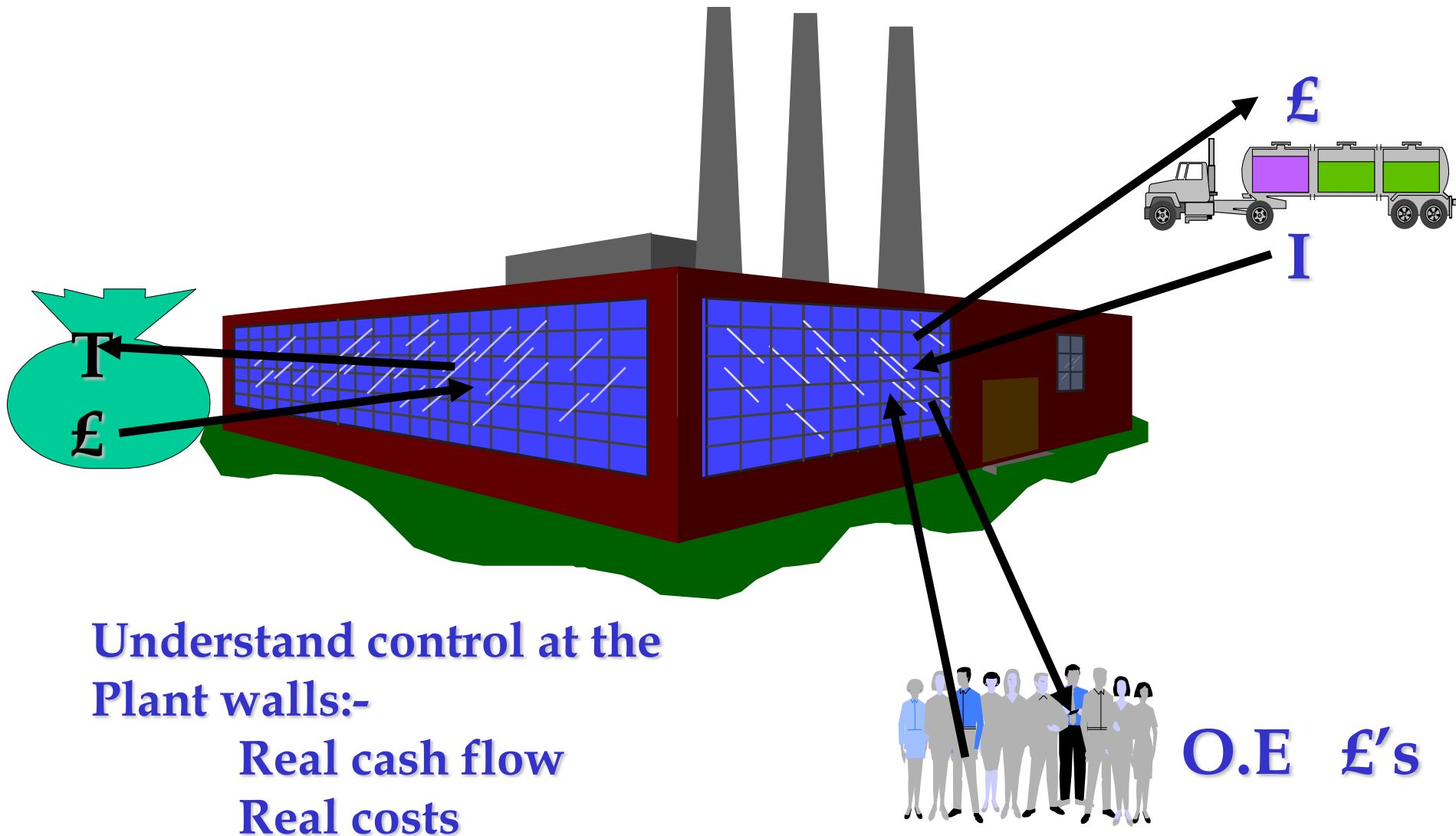


- Financially quantified current state
- Testing cause and effect analysis

Measures (Simultaneously)



Boundary measures



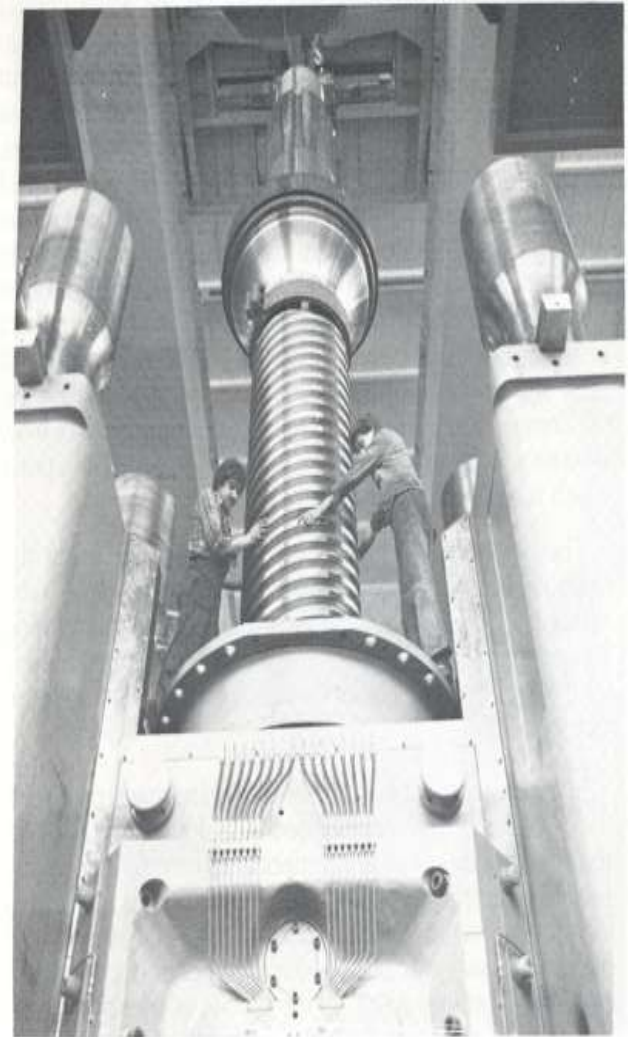
Understand control at the
Plant walls:-

Real cash flow
Real costs

A Case Study example “It’s too expensive to stop”



The 16,000 Tonne Weingarten Percussion Screw Press.



The 900 mm diameter screw which weighs 35 tonnes is fitted. The screw is the most heavily stressed part and a great deal of research, carried out in joint co-operation between several universities and Maschinenfabrik Weingarten, lies behind its design.

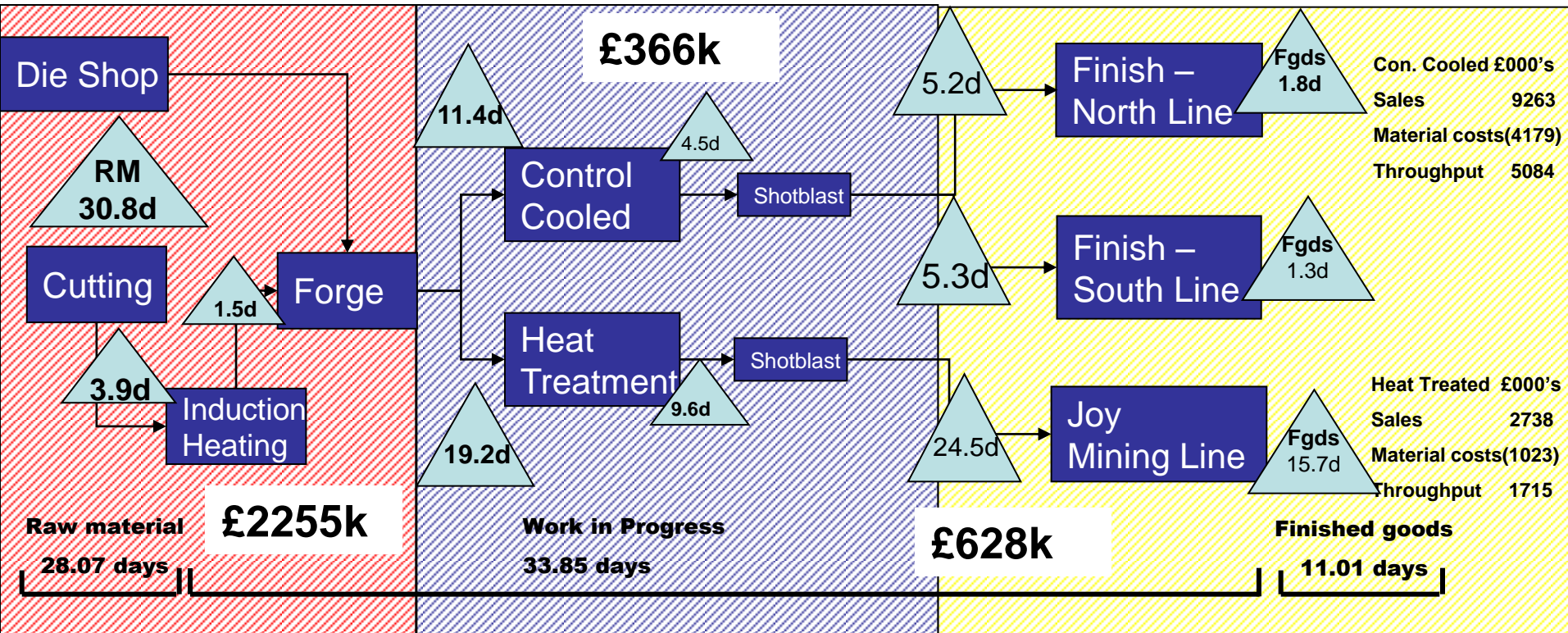
Value Flow Mapping Forging Business (local “efficiency” gone mad in the name of “unit cost”)

CC OTIF
90% by week

What about looking at the inventory lead times by the distinctive value streams (June results)

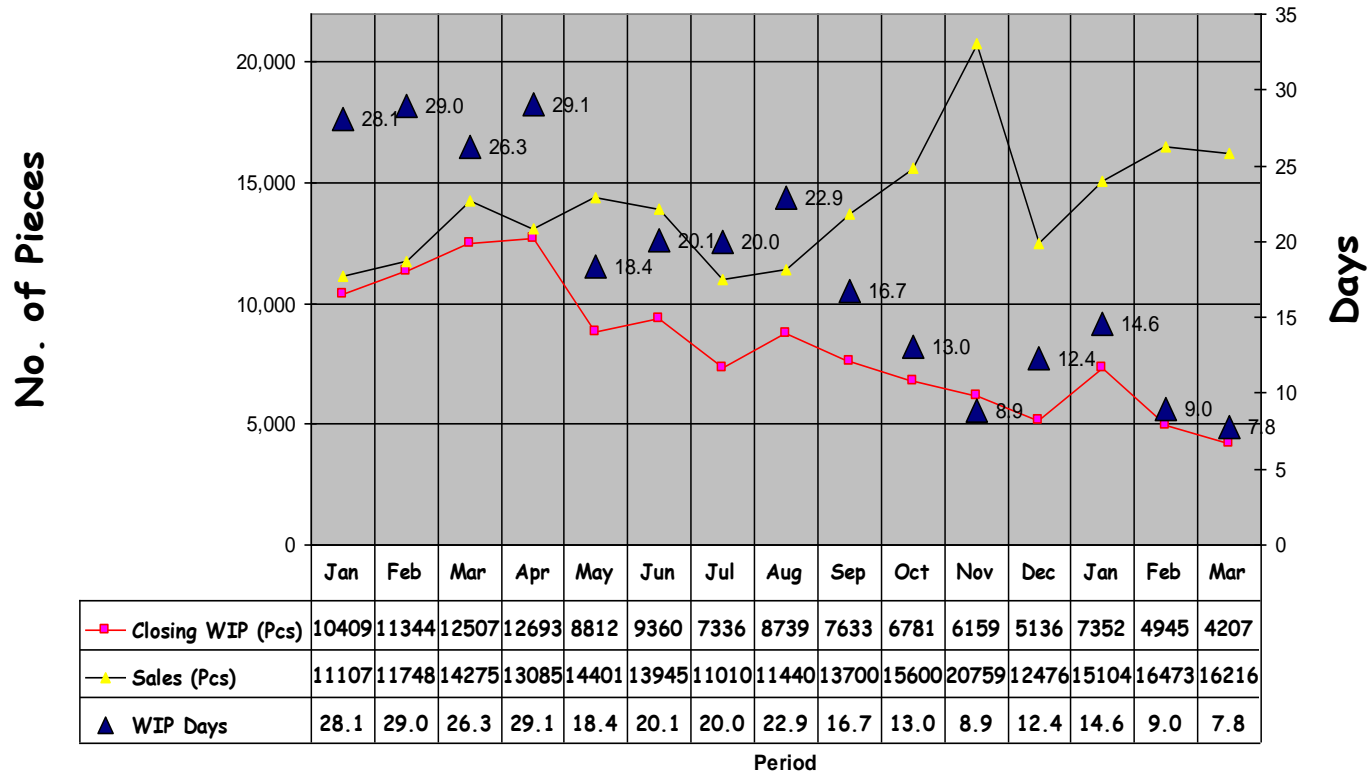
HT OTIF
72% by week

Overheads £3048k



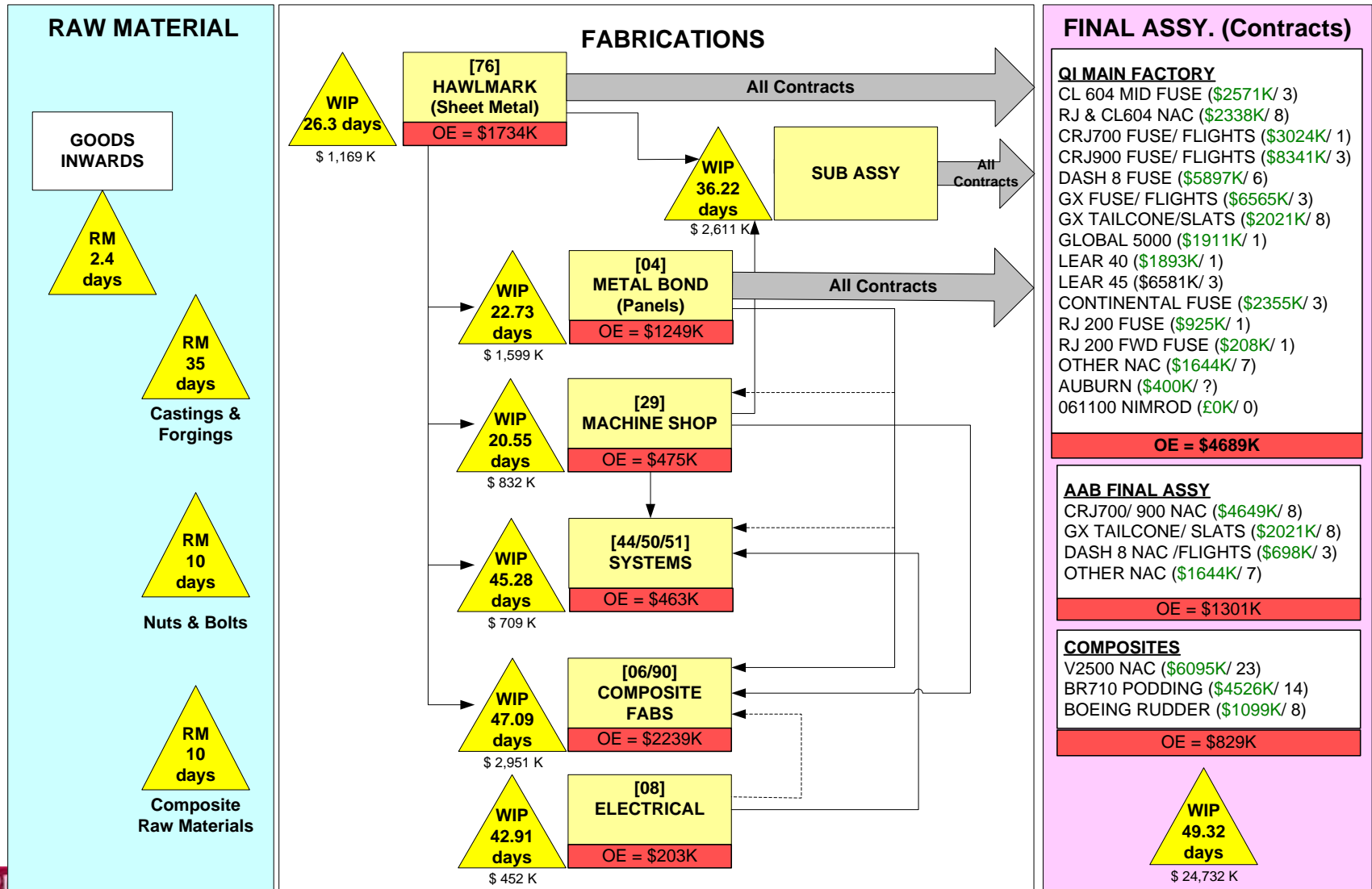
Measure of Improvement

Manufacturing Lead Time as Measured by Days Inventory in WIP



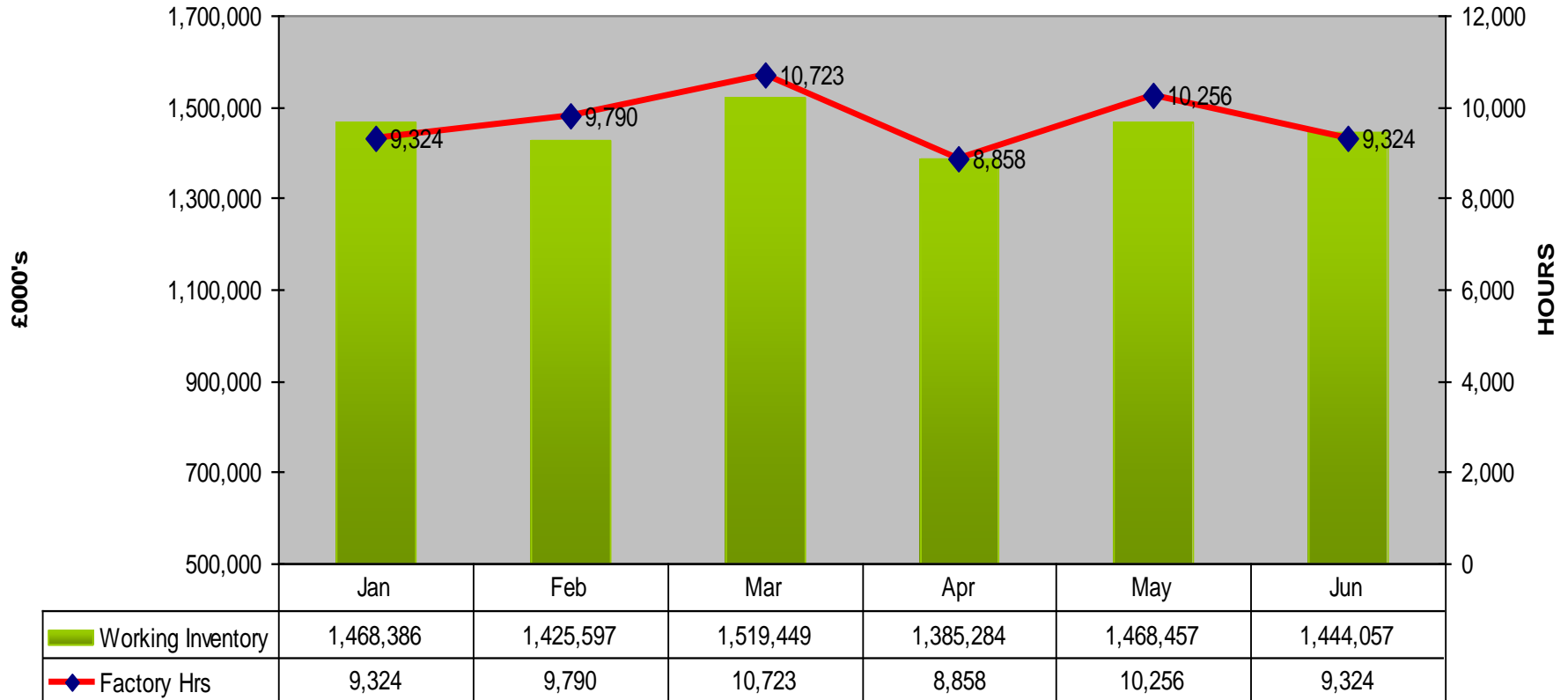
Value Flow Mapping

Large Aerospace... (“keep ‘em busy” Syndrome)



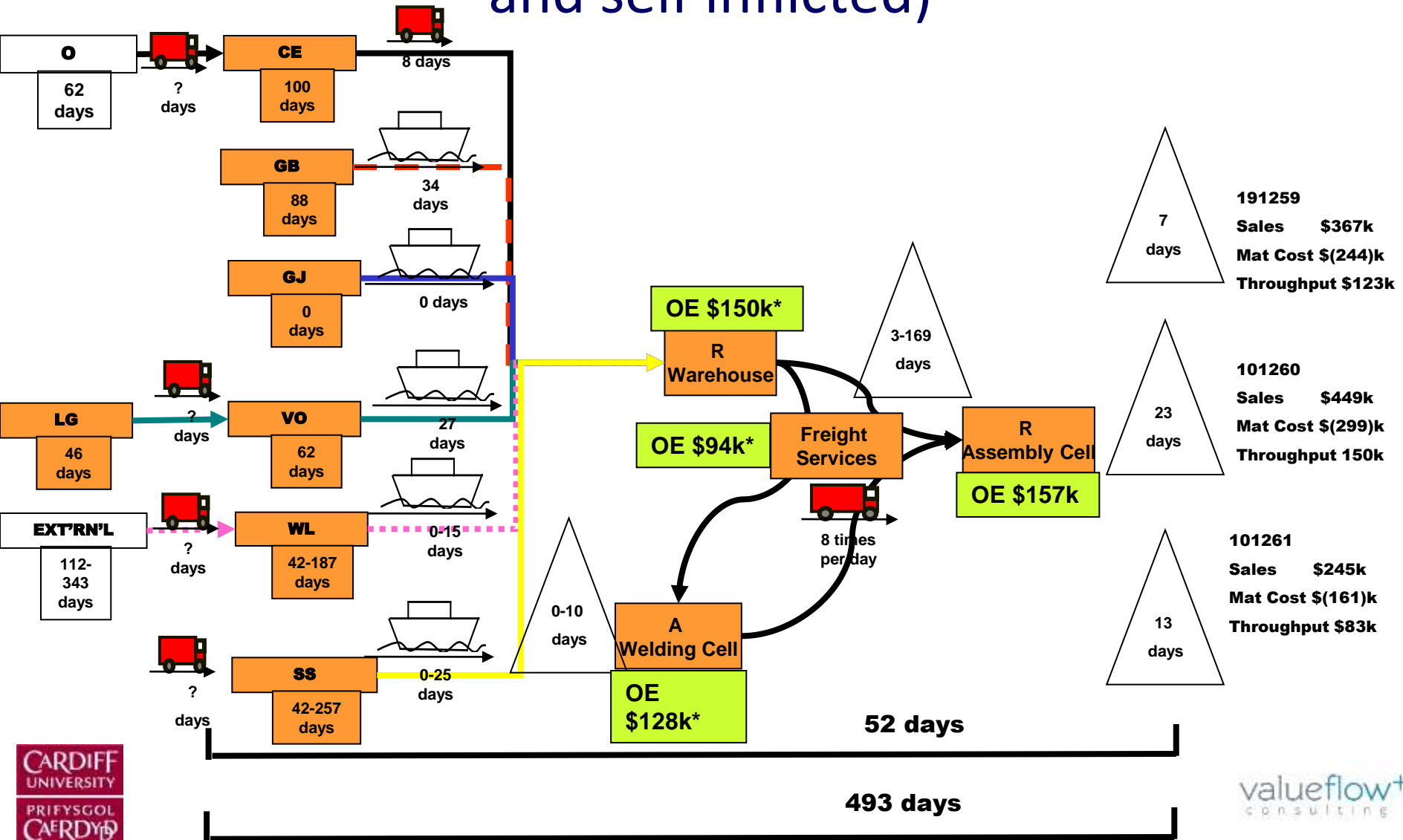
Relationship of Hours Worked to Manufacturing Lead Time

Relationship between Factory Hours and Work in Progress



Value Flow Mapping

Automotive Machining & Assembly... (protracted and self inflicted)



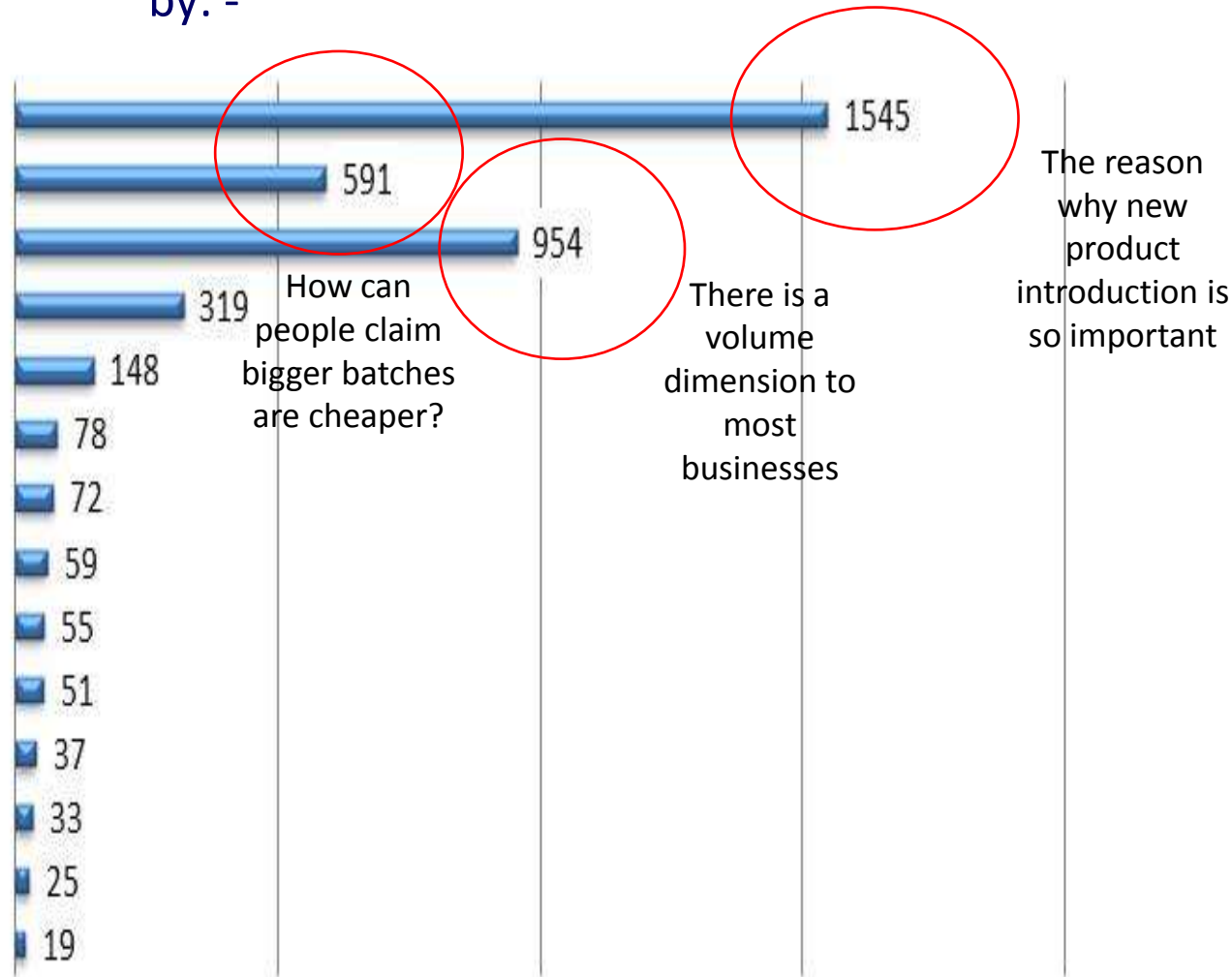
Key Drivers

P&L Actual 2010
Eur000's

Sales	30899
Material Cost	11810
Throughput	19089
Labour	6387
Staff	2967
Depreciation	1566
Energy	1438
Purch Servs	1181
Freight	1090
Consumables	1029
Maintenance	748
Other variable	652
Toolcrib	495
Loss prevention	373
Op Profit/(Loss)	1163

Sensitivity Analysis

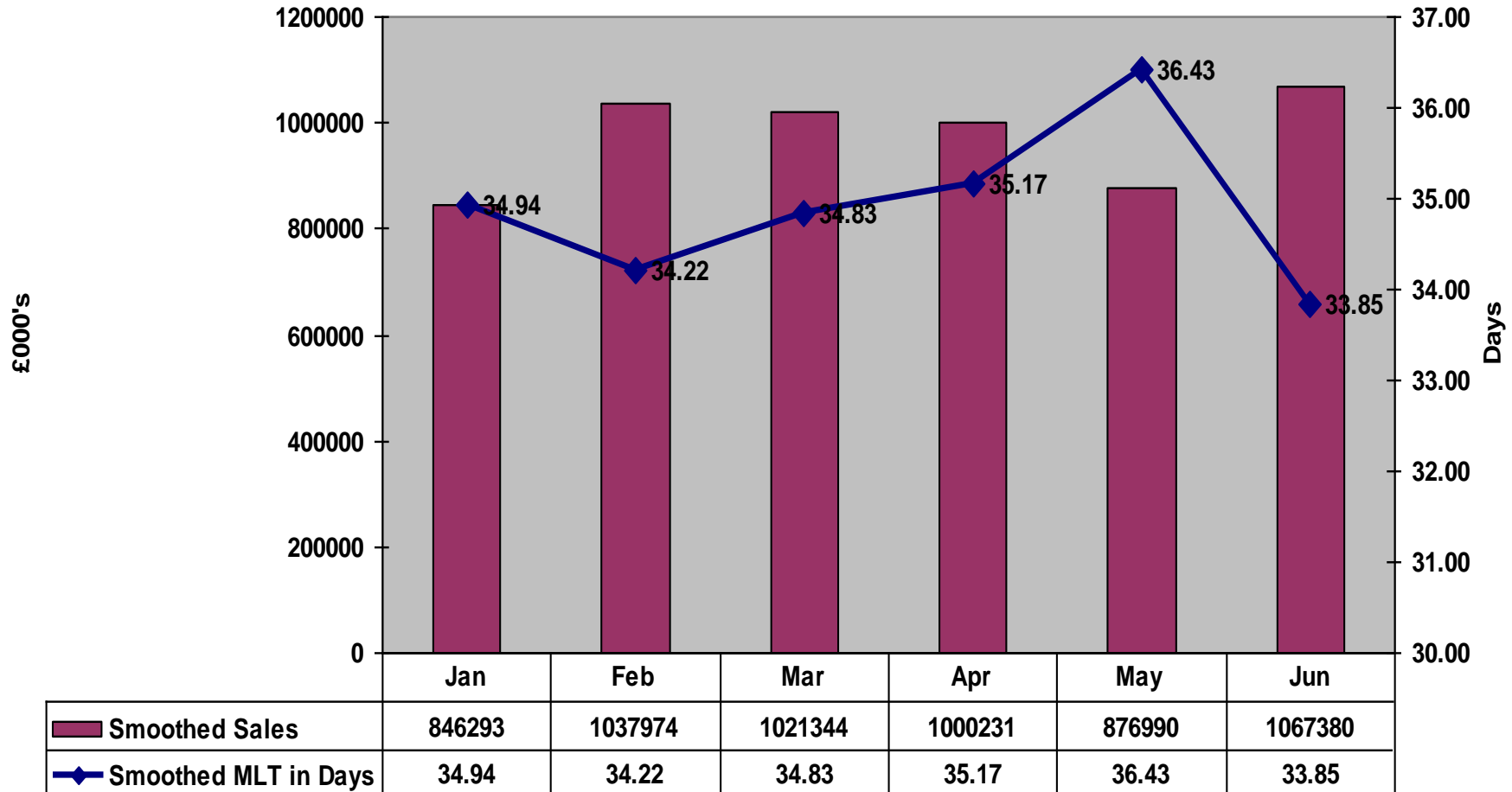
A 5% Change for better effects the bottom line
by: -



Pareto Exists..... Use it!

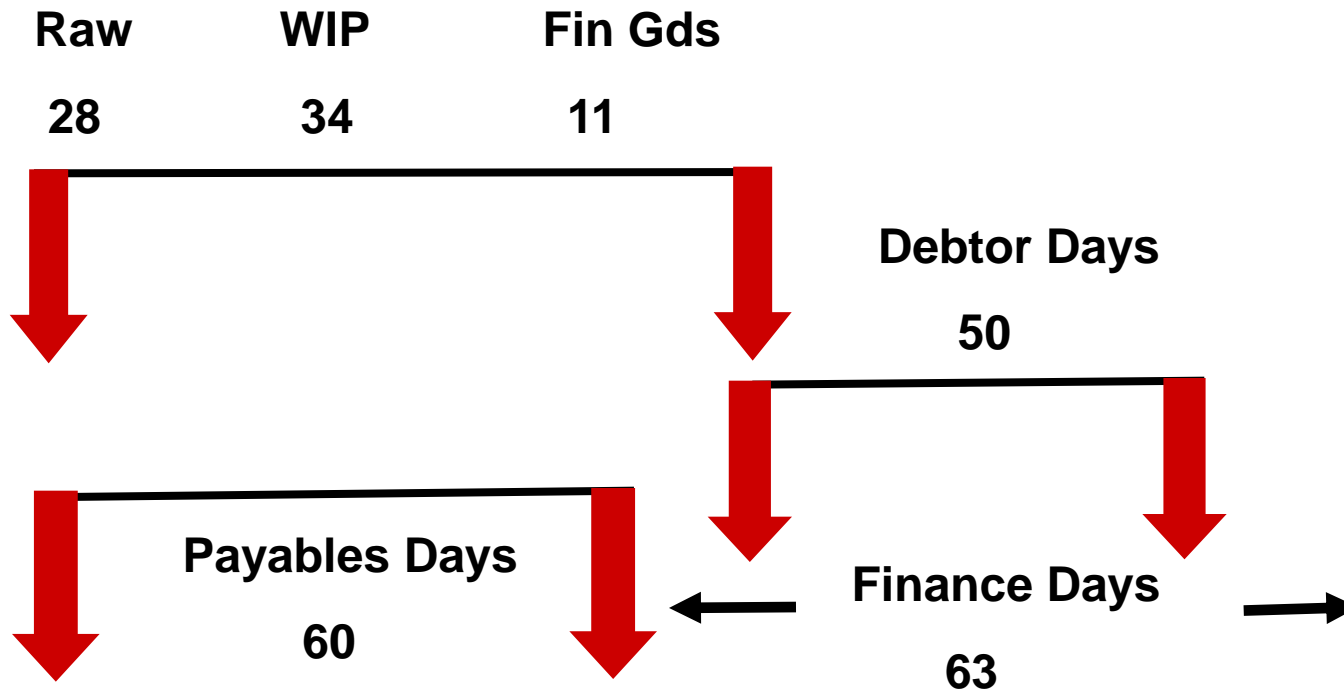
Relationship of Sales to MLT

Relationship between Sales and Manufacturing Lead Time



Working Capital Relationships Current State

Inventory Pipeline in Days



- ***June End Inventory of £1.4 million***

So what conclusions can we come to?

- We do not need a lot of accounting data to show the FINANCIAL CONSEQUENCES of how we run our organisations today
- Making this simple accounting information as visual as possible opens up the possibility of people being better placed to make a contribution
- The current propensity to try and drive cost accounting down to the shop-floor level looks misguided in the light of the opportunities illustrated by Flow Accounting Value Flow Mapping
- What is needed first are POLICY changes; only senior people can do this.
- The lowest common denominators are TIME and MONEY but though closely aligned these are NOT the same.
- Driving for lead time compression is at the heart of Flow Accounting.

A thought on “advances” in accounting thinking

To name a thing is gratifying.....but it is also dangerous: the danger consists of one's becoming convinced that all is taken care of and that once named the phenomenon has also been explained. (*Primo Levi Other People's Trades*)

A Flow Accounting Case Study

Children's Social Services

Marie Jones

Operations Manager – Business & Performance

Children & Families Services

Conwy County Borough Council

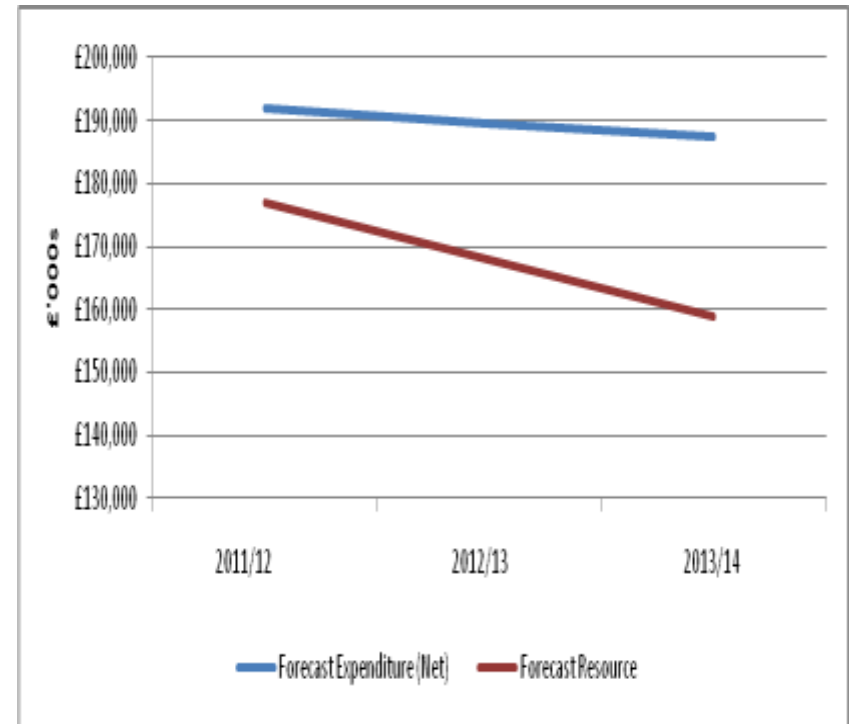
Research Project

- Lean MSc 2010 Cardiff University (LERC)
- It was **NOT** an evaluation of social work practice
- The earlier commissioning study had been conducted which over a 2 yr period had:-
 - Established a service picture and stakeholder views.
 - Evaluated service compatibility
 - Studied the effectiveness of interventions

Service Context

The Corporate Spending Gap:-

- Reduced Settlements
- Caps on local taxation
- Reduced income
- Redistribution of Grants



Children Services Budget represents 5% of LA revenue

Service Context

Operational Challenges:-

- The regulatory framework.
- Serious case investigations
- Centrally imposed operational framework (Integrated Children System).
- IT system for case recording & workflow

Service Context

Operational Challenges:-

- Culture of continuous change (but not improvement)
- Declining performance

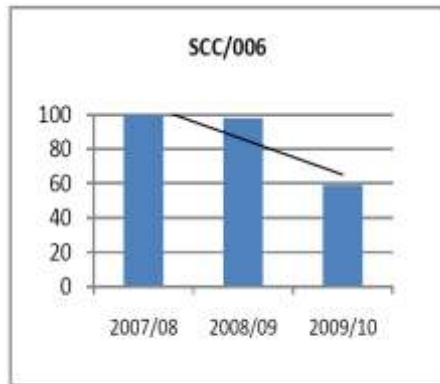


Figure 26: SCC/06 % Decisions

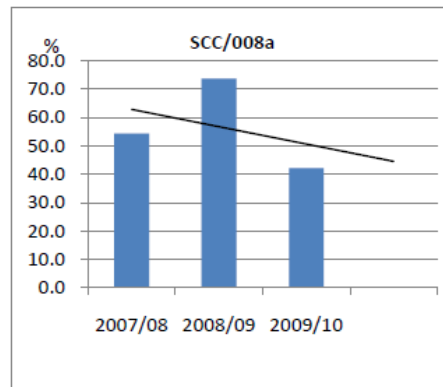


Figure 28: SCC % IA in 7 days

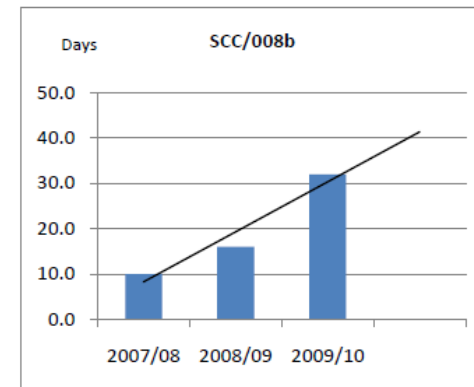
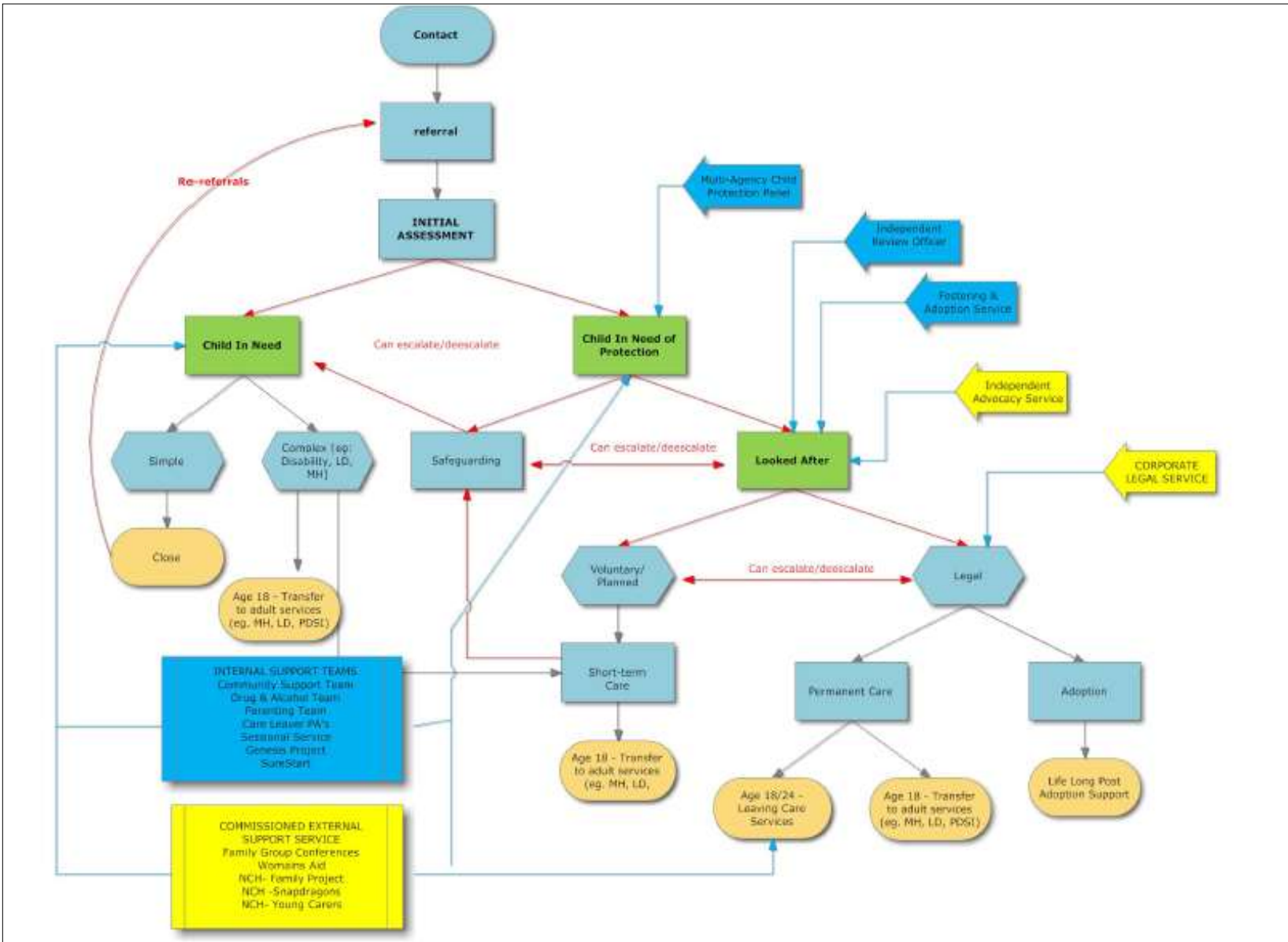


Figure 29: SCC8b: IA Avg time

- Increasing expenditure

?? Flow Accounting ??

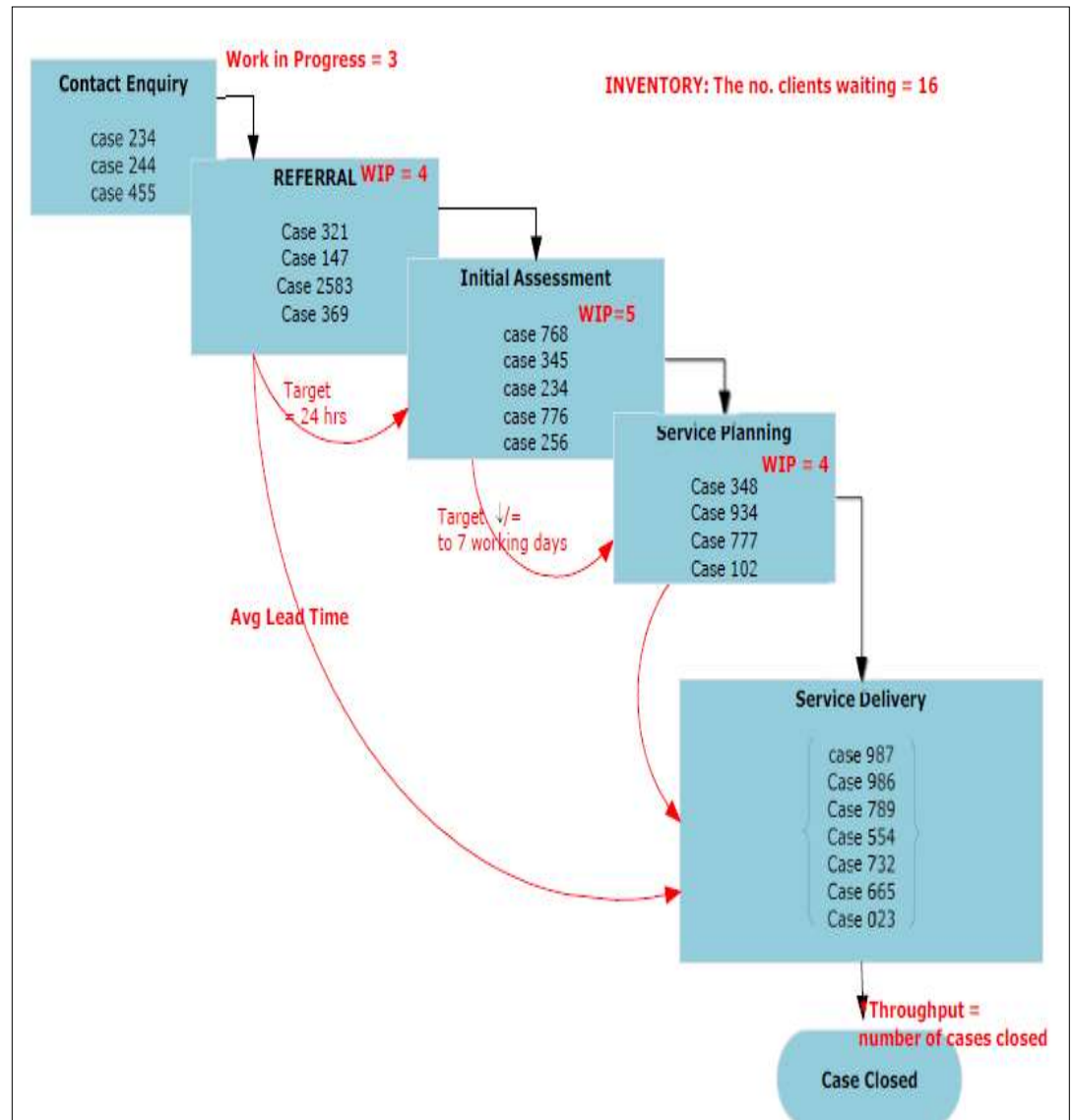
- Accounting practices
 - Cash limited budget, principle that the service can only manage what it can control.
- Organisational measure would not be profit
 - ... the budget is a necessary operating condition.*
- No obvious production machinery
 - but the ICS is a flow system*



Terminology: Throughput ?

The rate the
organisational goal is
achieved.....

*“ to safe guard and
protect the welfare of
vulnerable children
and their families
through reducing
vulnerability,
increasing resilience
and managing risk”.*



Terminology

Inventory?

- All the money tied up in the things it intends to sell.

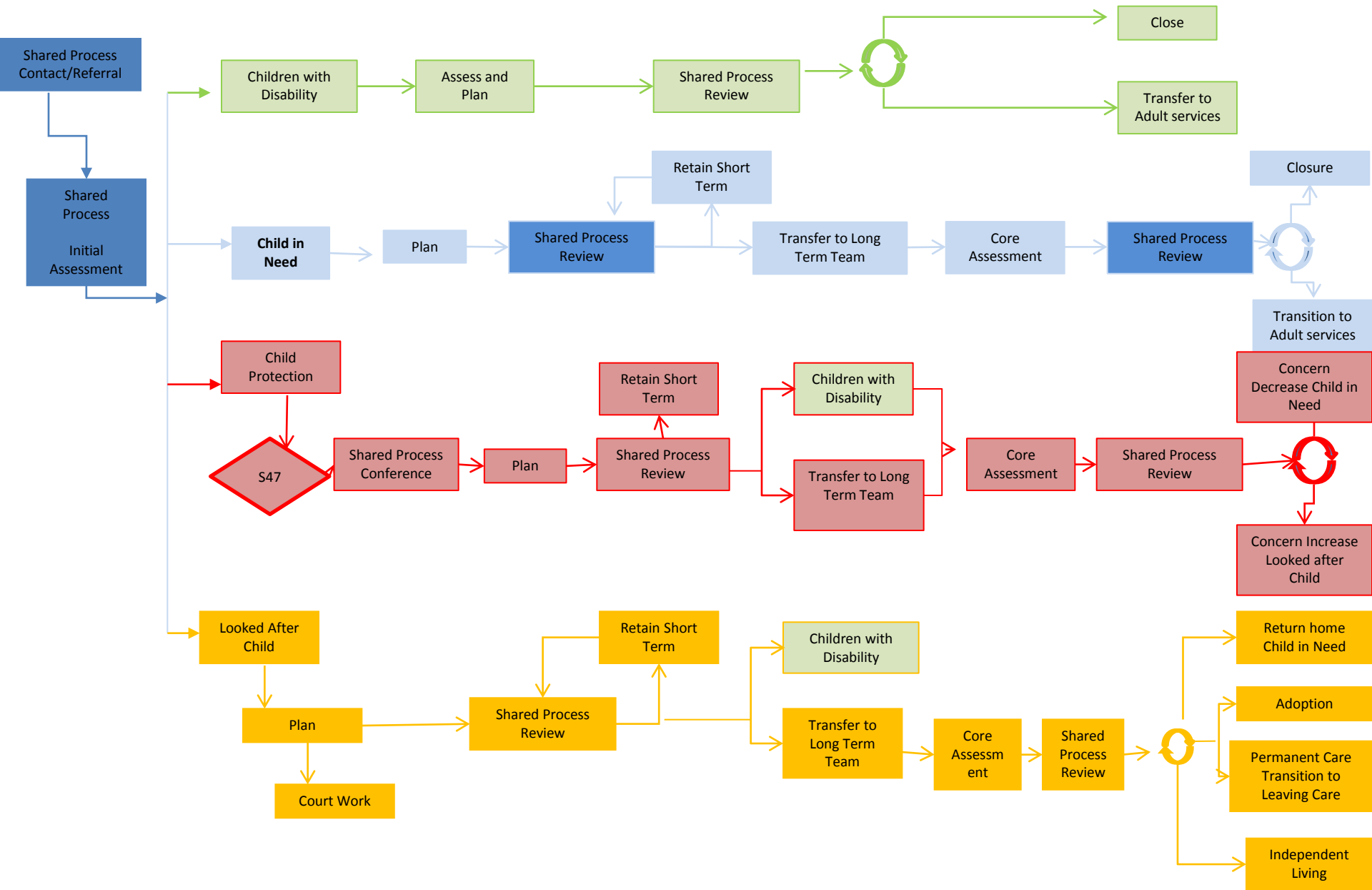
.....all the children & families waiting for something....

Operating Expense ?

- All the money going out of the organisation.

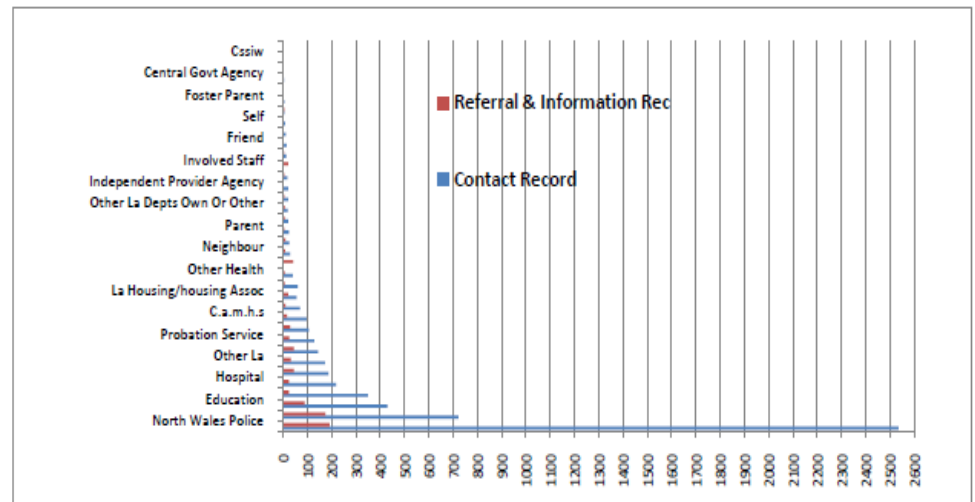
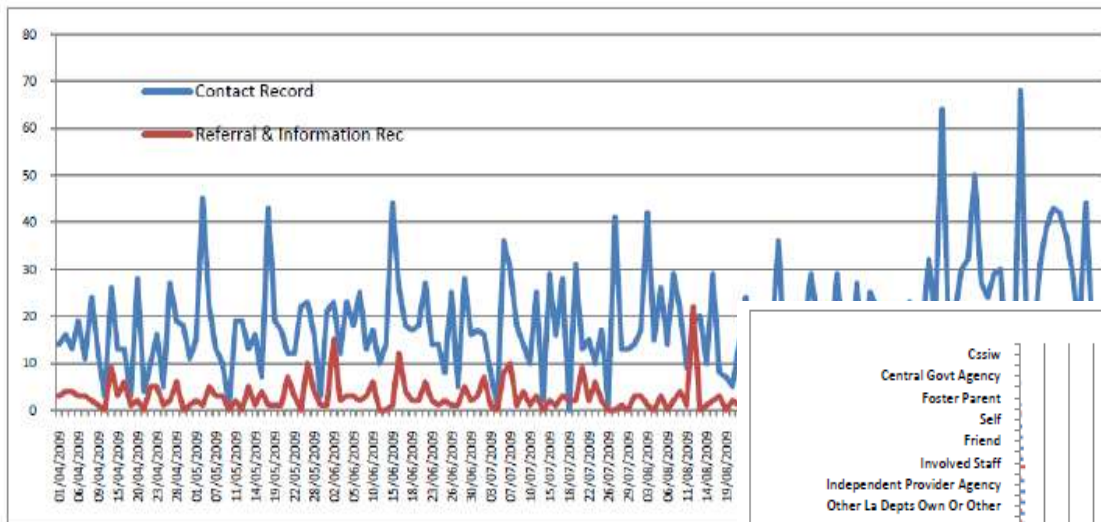
.....the service expenditure...

Constructing the Value Flow Map



Analysing Demand

Contact Demand = 6387, but this was 2836 children.



Analysing Demand

All Demand = 7112

Contact = 6387

Referral 725

Shared Process Contact/Referral

725

Shared Process Initial Assessment

475

IA = 7 days

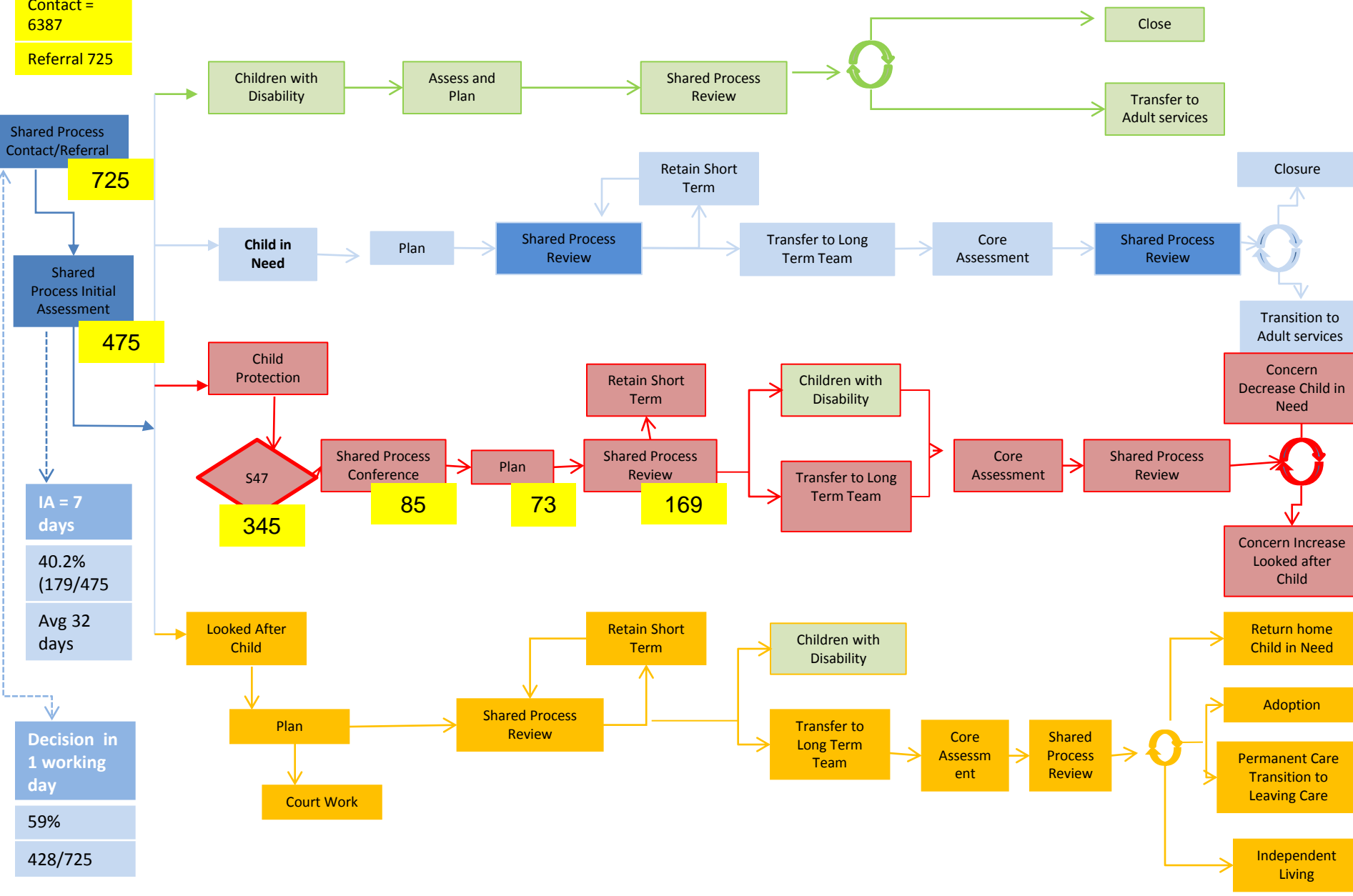
40.2% (179/475)

Avg 32 days

Decision in 1 working day

59%

428/725



Inventory Analysis

How to identify?

- Follow the procedural workflow of ICS
- Work waiting at decision points or tasks would become apparent.

Low levels of data being reported

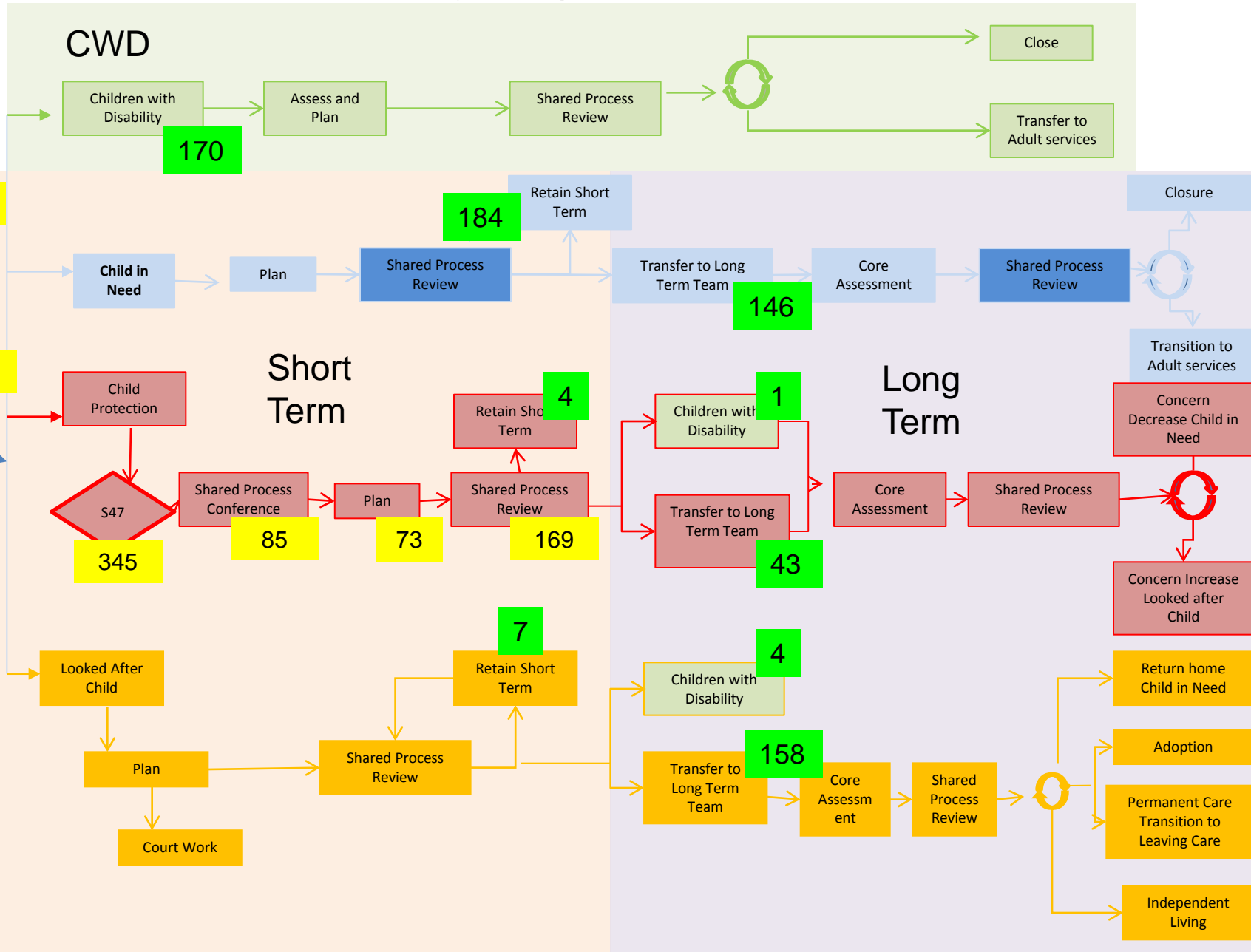
- No confidence in the reports
 - ? Technical error or under-reporting

Analysing Demand

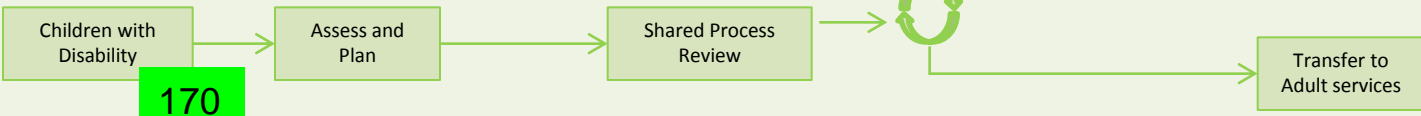
All Demand = 7112

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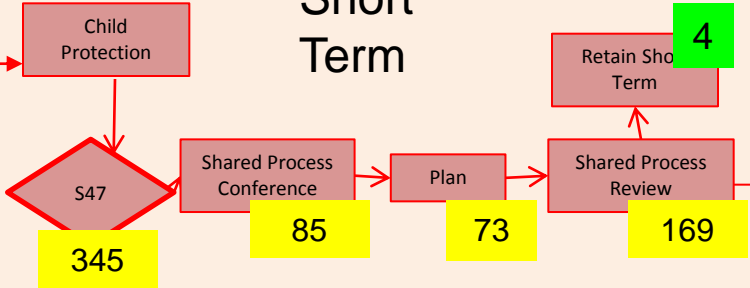
Referral 725



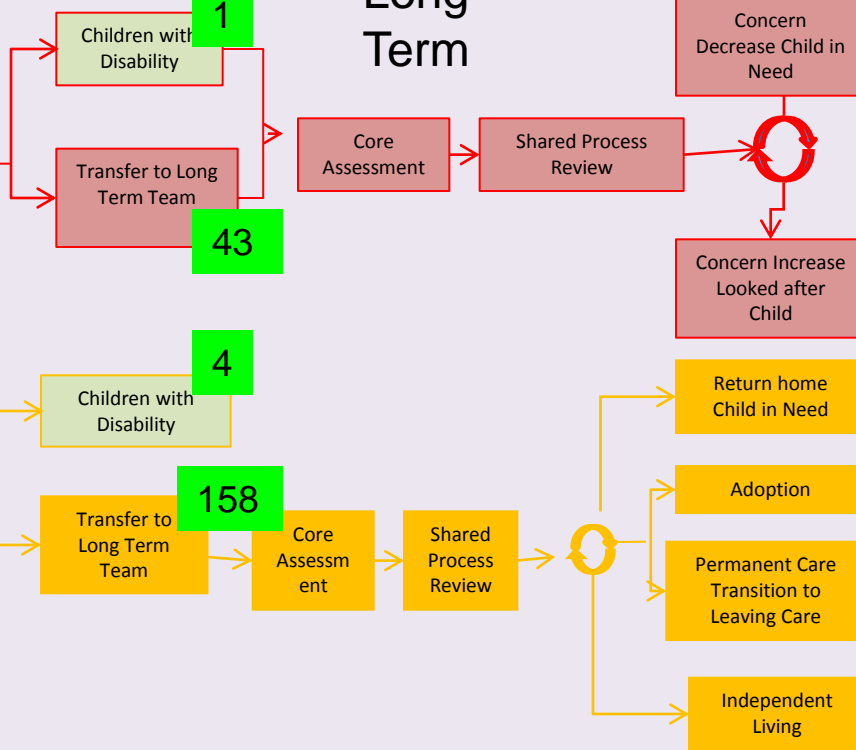
CWD



Short Term



Long Term



Shared Process Contact/Referral: 725

Shared Process Initial Assessment: 475

IA = 7 days

40.2% (179/475)

Avg 32 days

Decision in 1 working day: 59%

428/725

170

184

146

4

345

85

73

169

7

1

43

4

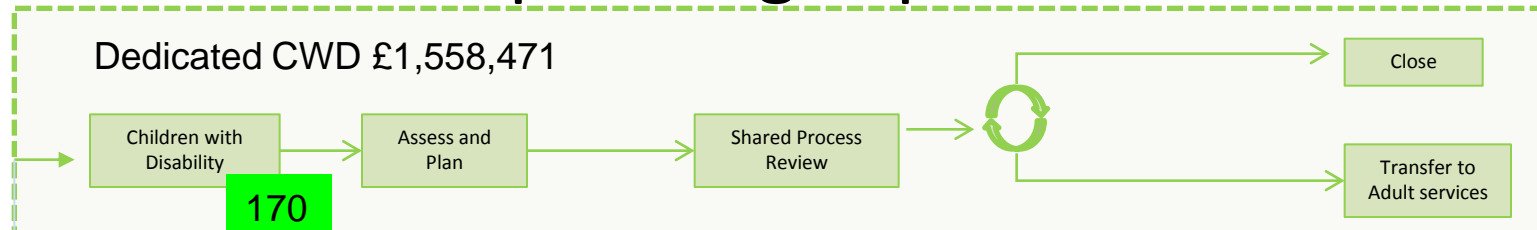
158

Operating Expense

All Demand = 7112

Contact = 6387

Referral 725



Shared Process Contact/Referral 725

Shared Process Initial Assessment 475

IA = 7 days

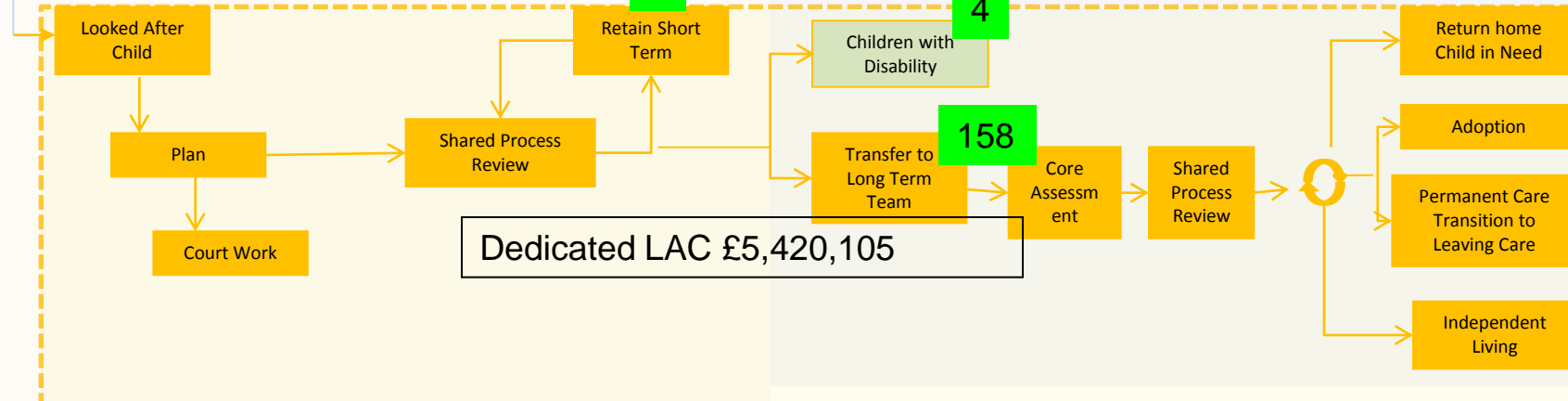
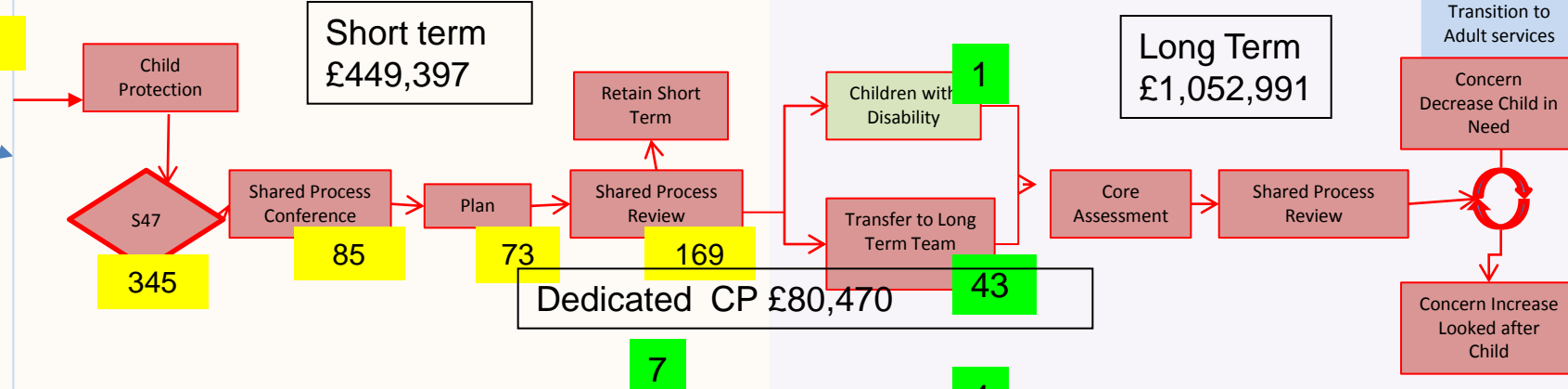
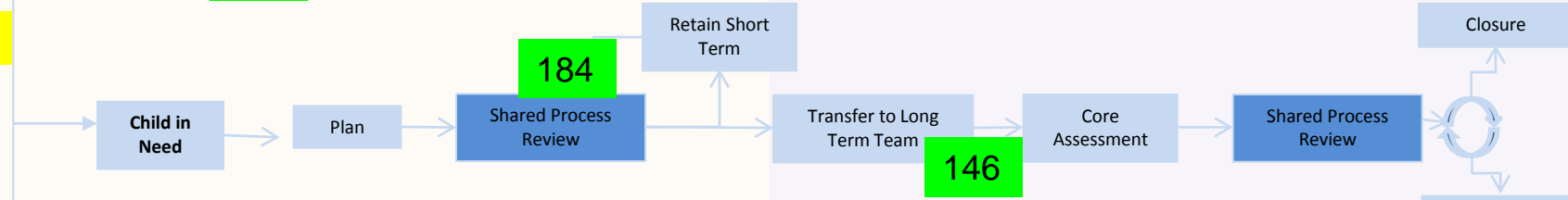
40.2% (179/475)

Avg 32 days

Decision in 1 working day

59%

428/725



Shared Service Resources £1,274,253

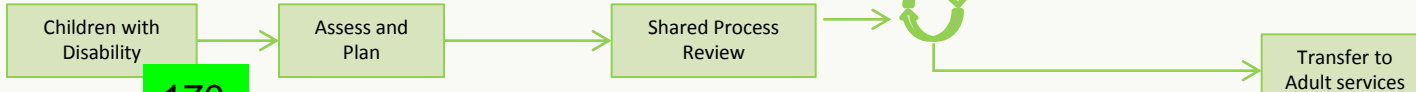
Overhead Costs £1,558,471

All Demand = 7112

Contact = 6387

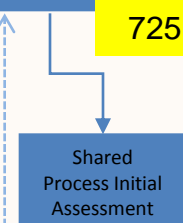
Referral 725

Dedicated CWD £1,558,471



Shared Process Contact/Referral

725



IA = 7 days

40.2% (179/475)

Avg 32 days

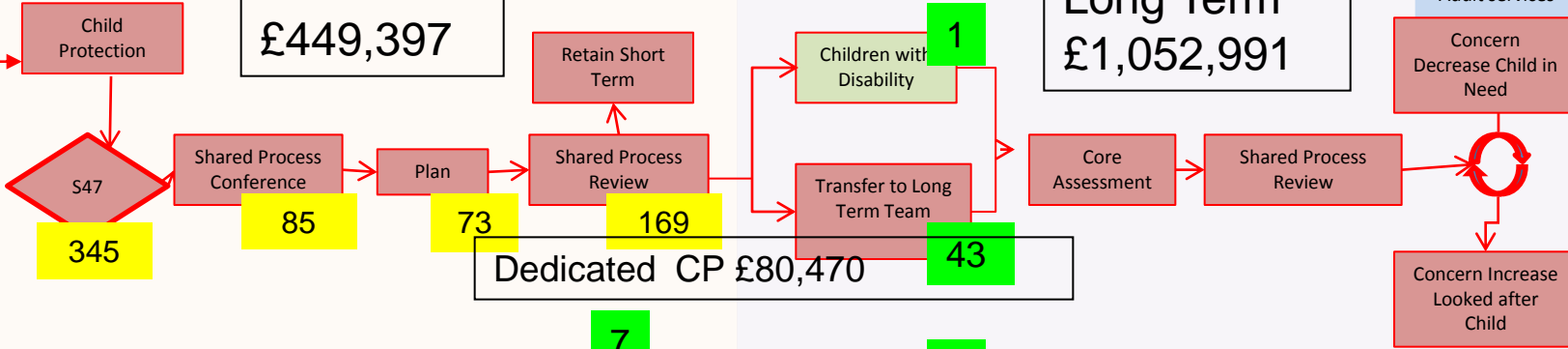
Decision in 1 working day

59%

428/725

Short term £449,397

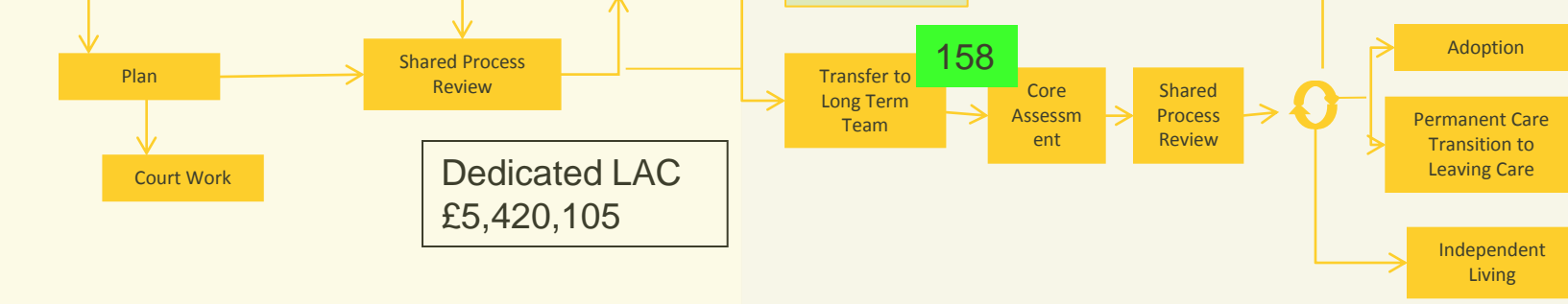
Long Term £1,052,991



Dedicated CP £80,470

Looked After Child

Dedicated LAC £5,420,105



What did it tell us?

THROUGHPUT	
All Demand	7112 C=6387 R= 725
<i>Referral Decisions</i>	428/725 (59%) made in one working day
Initial Assessment	179/475 (40.2%) complete within 7 working days
	32 days average

INVENTORY	
TOTAL	717
CIN TOTAL	500
CWDS	170
ST	184
LT	146
CP TOTAL	48
CWDS	1
ST	4
LT	43
LAC TOTAL	169
CWDS	4
ST	7
LT	158

OPERATING EXPENSE	
TOTAL	£10,853,648
OVERHEAD	£1,558,471
SHARED RESOURCES	£1,274,253
CWDS	£1,017,961
SHORT-TERM	£449,397
CP	£80,470
LONG-TERM	£1,052,991
LAC	£5,420,105

Stage 2: Detailed work

ICS system map

- To understand the complaints of a burdensome system
 - To distinguish between the requirements of ICS and local requirements
 - Assess the statutory fit of National Indicators

Traditional Process Mapping

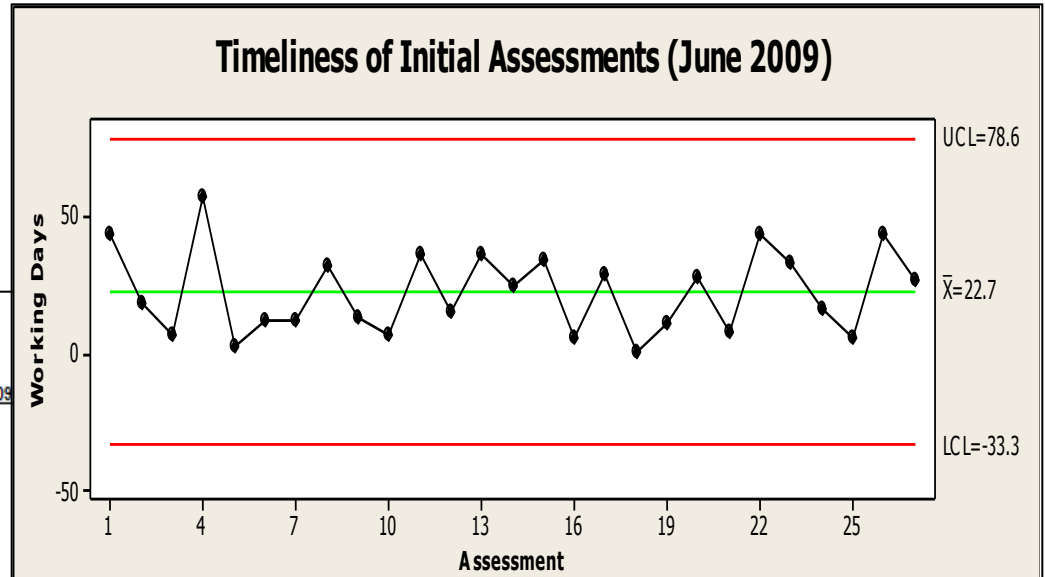
Findings

- Retention/delay of cases at the “contact” stage
- Skill mix and specialist Case Holders in Assessment Team reduced assessment capacity.
- Distinction between gathering information and beginning the assessment process
- High levels of Child Protection investigation but much lower levels of conferencing

Relevance to the system?

1. Levels of the Eligibility Criteria
2. CP referrals do not require consent
3. Supported joint investigation by the police

Variation



Work Flow Model - Children & Family Services - Demand (June 2009)

	All Demand		Referrals Proceeding to Allocation			Initial Assessments Started	Referral Date to IA Start Date	(Allocation)	IA Start Date to IA End Date (Time taken for SW to complete)	IA End Date to IA Complete Date (Time taken for a Manager to authorise IA on the system)	Initial Assessments Completed (Referral Started in period and authorised by a Manager in period)
	Contact Records	R&I Records	Qualified SW	Non-qualified SW	Did not proceed to allocation						
	Overall Totals:	451	81	22	15						
Information Count:	329	78	~	~	~	~				~	
Client Count:											
Sum of Working Days							118	545	152	612	
Average Working Days							3.69	17.03	4.75	22.66	

Type of Variation:

- Request
- Effort
- Ability
- Preference

Capacity

- Availability of the IT system
- Assessment capacity
- Authorisation capacity

Inventory

- Raw data
- Client waiting
- Completed record & storage.

What did we do about it?

Triangulation of knowledge....

- Findings from Commissioning Study
- Findings from Detailed mapping
- Work with practice specialists for professional development

Formed the basis of a Business Case for service development

Understand Customer Value

- Commissioning Study provided insight into Customer views and experiences.
- Inspection by regulators set out the expected results & compliance requirements
- Case Audit by practitioners provided insight into levels of achievement

Manage the constraint

- Fieldwork restructuring Grouped Social Workers into PODS by case need/skill set:-
 - to increase assessment capacity
 - increase case-holding capacity (reduced caseloads)
- Increased the ratio of Senior Practitioners to Case Holders to :-
 - Increase decision making capacity
 - Focus on mentoring, risk and case management support
- Improvements to IT systems & User skills

Align Capacity with Demand

- Fieldwork re-structure:
 - Increased case-holding capacity allowed redistribution of cases to achieve reduced individual case loads.
 - Built in “down-time” for Front Door Assessment Teams
 - Removed specialist case holders from Assessment Teams to increase case allocation opportunities.

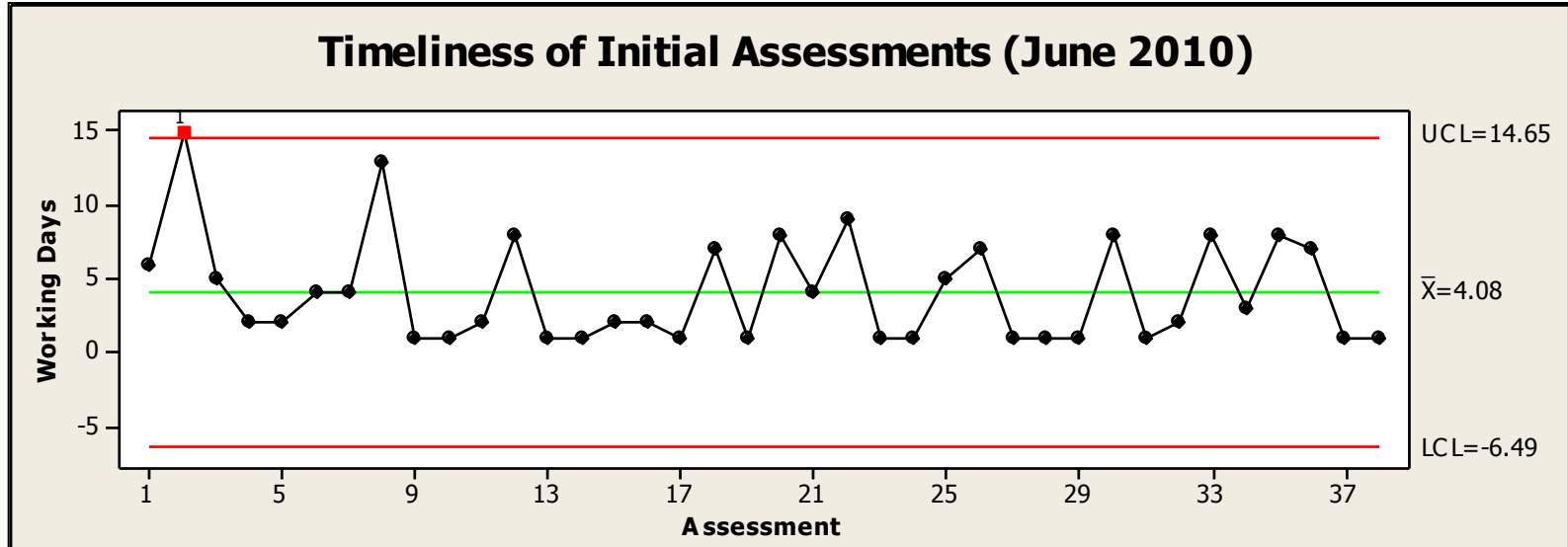
Manage Inventory & Compress Time

- Data clean up / catch up
- Head of Service led practice forums to monitor work in progress.
- Refinement of monitoring / measures reporting
- Relaxation of Assessment timescales
- Devolvement of the scheme of delegation (in-part)
- Eradication of spreadsheets/manual monitoring mechanisms to maximise utilisation of IT system
- Practice forums with partner agencies to conduct case audit of referrals.

Create Flow: Pull

- Practice Developments:-
 - Practice Development Programme with Child Care Experts
 - Development and use of Analysis Framework Tools
 - Review of Case Transfer procedure
 - Specialist POD for Children in permanent care focus on post care independence
 - Redefining managerial boundaries across care pathways
- Expansion of the case-tracker effectiveness tool for Resource Teams

12 months on.....



- Case numbers are the lowest they have ever been.
- The number of Assessment has increased and timescale for completion has remained stable

What did it tell us?

? THROUGHPUT	
All Demand	7773 C= 7084 R= 689
<i>Referral Decisions</i>	662/689 (96%) made in one working day
Initial Assessment	344/525 (65.5%) complete within 7 working days
	16 days average

↓ INVENTORY	
TOTAL	638
CIN TOTAL	429
CWDS	156
ST	137
LT	136
CP TOTAL	42
CWDS	6
ST	2
LT	34
LAC TOTAL	167
CWDS	4
ST	5
LT	159

↑ OPERATING EXPENSE	
TOTAL	£11,430,697
OVERHEAD	£1,551,610
SHARED RESOURCES	£1,343,442
CWDS	£1,088,768
SHORT-TERM	£502,231
CP	£93,094
LONG-TERM	£947,268
LAC	£5,904,284

Maintaining Flow

- Further changes to assessment processes, timescales and case management would take the service outside of compliance requirements (doing the wrong thing righter)
- The work so far has focused only on one type of assessment and is not the full picture.
- Focus has shifted as care costs continue to rise despite fewer children entering the care system and increased numbers leaving care...nights in care continues to go up.

How did Flow Accounting help?

- The Flow Map provided an image that depicted high level care pathways, their interdependencies and financial implications.
- Challenged understanding of demand and capacity but most importantly throughput.
 - Discussion point highlighted by the Commissioning Study took on new relevance
- Exposed the hidden Work in Progress
- Challenged effectiveness of business support mechanisms such as performance reporting/measures and financial processes