TOC Change Management

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About TOC-Lean Institute

We are experts in Change Management, based on the Theory of Constraints approach.

We provide consultancy, training, and implementation support for organisational change programmes

Aims of the presentation

- To introduce the Theory of Constraints (TOC) approach to change management
- To demonstrate the process of TOC from the recognition that there is a problem through to solution implementation and verification of results

Basics of the TOC approach

Every 'flow' system is governed by its constraints

We can only improve the flow by acting on the constraints

Service flows often contain 'failure demand'

Financial measures and decision-making must be aligned to performance

We must creatively resolve the conflicts that arise whenever change (improvement) is proposed

We must reduce complex situations to the essential features which drive (most of) the undesirable effects which obstruct the flow

The TOC Change Process

- It starts with knowing the goal of the organisation
- The second step is to determine where we are with respect to the goal
- The third step is to identify what is holding us back from achieving the goal – the key question here is “what to change?”

The TOC Change Process

- Once we know what to change we can then ask the next question, “what to change to?” This is where the full solution is constructed and validated before actual implementation
- But what about possible negative implications of implementing the solution – what the TOC process calls negative branch reservation (NBR)

The TOC Change Process

- So if there are no unresolved NBRs then what stops us from implementing the solution – obstacles!
- This is where we answer the question "How to effect the change?" through the use of two more of the TOC change tools
- Finally – make it happen and verify that the results show progress towards the goal

The starting point – what is the Goal?

In a previous seminar with the NHS in the East Midlands we asked people to write down the Goal of the organisation

Then

We asked the same people to write down two undesirable effects which obstruct progress towards the Goal

Goal Examples

To make sick people better; get 'em in, treat 'em, get 'em out

To provide the right care at the right time to the right person

To treat people and return them home, independent and safe, as soon as possible

To commission and provide the most cost effective healthcare service for local people within the resources available

To deliver effective and efficient primary care based services

More Goal examples

To provide healthcare timely and effectively to the local community

To ensure all critically ill patients or patients at potential of becoming critically ill with the region receive equal access to the same level of care

To improve the health of people in the local area

To provide healthcare to the people

Yet more Goal examples

Bring quality care closer to home

To treat patients in the community and prevent hospital admissions

Reduce hospital admission for patients with long term conditions

And what must be the inevitable result be given this wide range of goal statements?

Undesirable Effects

The Goal of the organisation is not clear

Goal is not agreed across all the people and functions

We are not working together

There are continually changing targets and/or priorities (actually two UDEs)

Numerous improvement projects leading to…..

More Undesirable Effects

There are many resource limits imposed

There is insufficient time to complete all the tasks in the day

There is a high level of undue risk-aversion

There are many, and conflictingly perverse financial incentives

There is a lack of clarity on performance

There are many unrealistic targets

There is a high level of poor staff morale

etc……

The analysis of the current situation

We use the UDE's to build a logical tree (CRT) which defines the whole problem and shows us what needs to change

We then build a second logical tree (FRT) which shows us what we need to change to

Going into more detail shows us how to make the change

We will illustrate this process, using the top few UDEs quoted above, and keeping it simple so that you can see the workings

What a CRT looks like

UDE/DE

Entity

UDE/DE

UDE/DE

Entity

Entity

Entity

Entity

Entity

Entity

The CRT from our UDEs

UDE - Departments do not work together well

Relations between departments are constantly changing

Departments take different amounts of time to adapt to a change in targets

Departments are not all working to the same goal

UDE - Targets keep changing

UDE - The Goal is not bought-in to

UDE - The Goal is not clear

Starting to determine the solution – the DEs

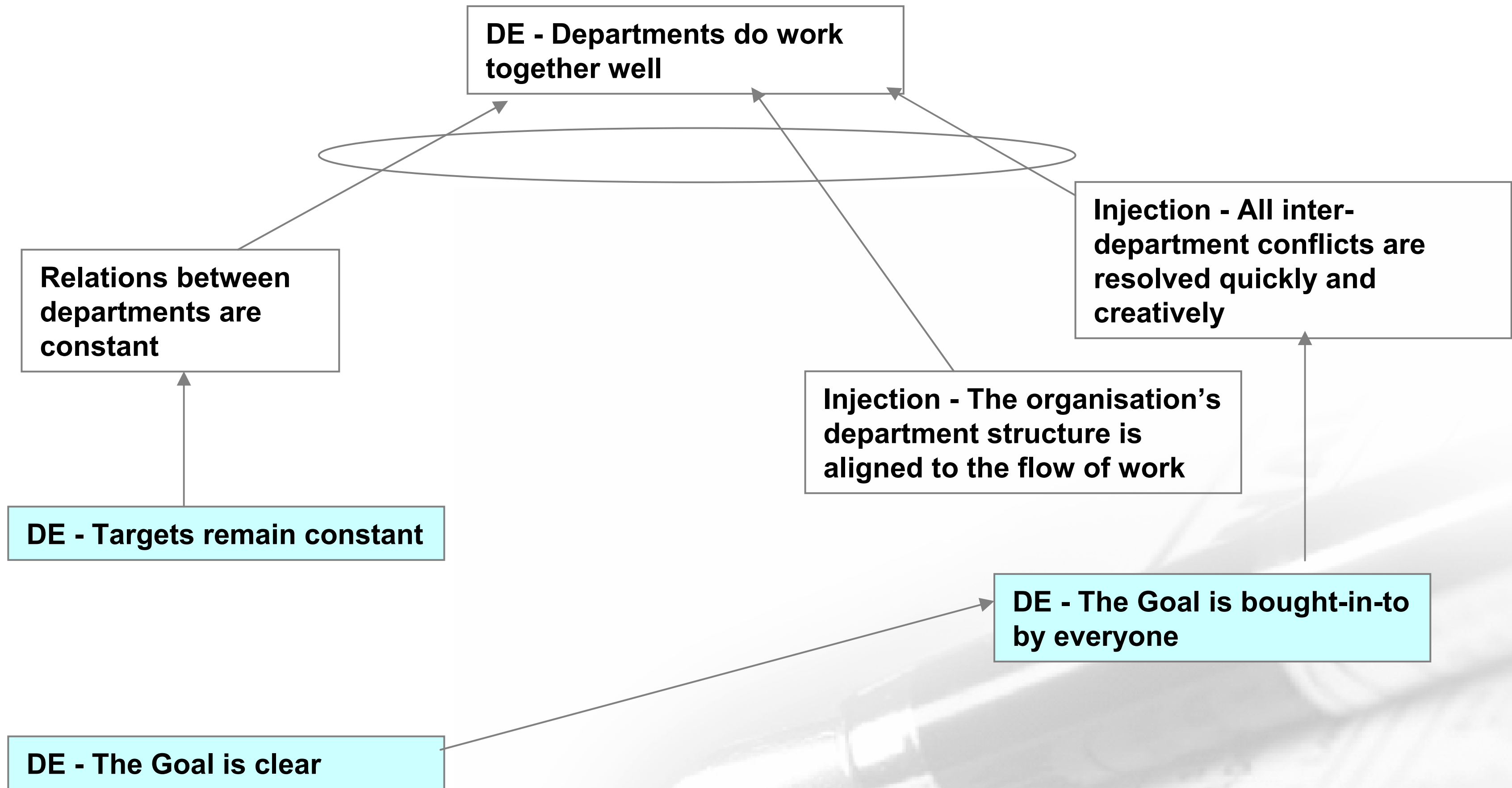
- For each UDE there is a corresponding Desirable Effect (DE)
- So work through each UDE to determine the correct DE
- Determine measures to inform us as to when the DE has been achieved, or the UDE has been dealt with, thus measuring progress towards the goal

UDEs and DEs

- The Goal of the organisation is not clear
- Goal is not agreed across all the people and functions
- We are not working together
- There are continually changing targets and/or priorities (actually two UDEs)
- There are many resource limits imposed
- There is insufficient time to complete all the tasks in the day
- There is a high level of undue risk-aversion
- There are many, and conflictingly perverse financial incentives
- There is a lack of clarity on performance
- There are many unrealistic targets
- Staff morale is low

- The Goal of the organisation is clear
- Goal is agreed across all the people and functions
- We are working together
- Targets and/or priorities remain constant
- There are few resource limits imposed
- There is sufficient time to complete all the tasks in the day
- There is a low level of undue risk-aversion
- There are very few perverse financial incentives
- There is clarity on performance
- There are no unrealistic targets
- Staff morale is high

The Core FRT



What the future might look like

DE - Departments do work together well

Relations between departments are constant

Injection - All inter-department conflicts are resolved quickly and creatively

DE - Targets remain constant

Injection - Departments work to their targets

Injection - The organisation's department structure is aligned to the flow of work

Injection - Departmental targets are based on the Goal

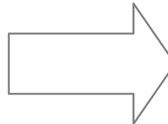
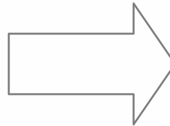
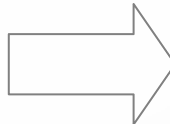
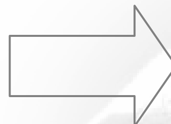
DE - The Goal is bought-in-to by everyone

DE - The Goal is clear

Injection - Everyone understands and agrees with the Goal

Injection - The Goal of the organisation has been defined by the management team

So what is stopping us - obstacles

INJECTIONS		OBSTACLES
Injection - The organisation's Goal has been defined by the management team		- We do not know how to define the Goal of the organisation - We do not have a consensus on the Goal of the organisation
Injection - Everyone understands and agrees with the Goal		- Staff do not all know the Goal of the organisation - Staff do not all understand how the Goal of the organisation relates to the purpose of the Health Service
Injection - Departmental targets are based on the Goal		- We do not know the department's work affects the overall flow - We do not know what level of departmental performance is best overall
Injection - Departments work to their targets		- Staff do not know how the targets relate to the Goal - Staff do not know how their tasks affect the targets - Supervision is not based on the Goal-based targets - Incentives are not aligned to the Goal-based targets

Developing the Intermediate Objectives

OBSTACLES

INTERMEDIATE OBJECTIVES

- We do not know how to define the Goal of the organisation

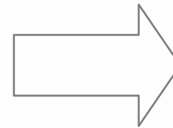
- We do not have a consensus on the Goal of the organisation

- Staff do not all know the Goal of the organisation

- Staff do not all understand how the Goal of the organisation relates to the purpose of the Health Service

- We do not know the department's work affects the overall flow

- We do not know what level of departmental performance is best overall



- Map the flow of work through the system
- Determine the capacity at each stage
- Identify the constraint
- Determine the constraint capacity
- Calculate the maximum departmental throughput, given the constraint

- Staff know how the targets relate to the Goal

- Staff do not know how their tasks affect the targets

- Supervision is not based on the Goal-based targets

- Incentives are not aligned to the Goal-based targets

But

Hang on a minute..........

Sometimes fixing one problem creates another problem

Injections, as well as having positive outcomes, can sometimes have a negative branch

This can also apply at lower levels such as Intermediate Objectives

Negative Branch Reservations

An injection or lower-level action that is necessary for our DEs, but also has a negative effect

If we do <necessary action> we will find that <bad effect> will happen

If we ignore these reservations:

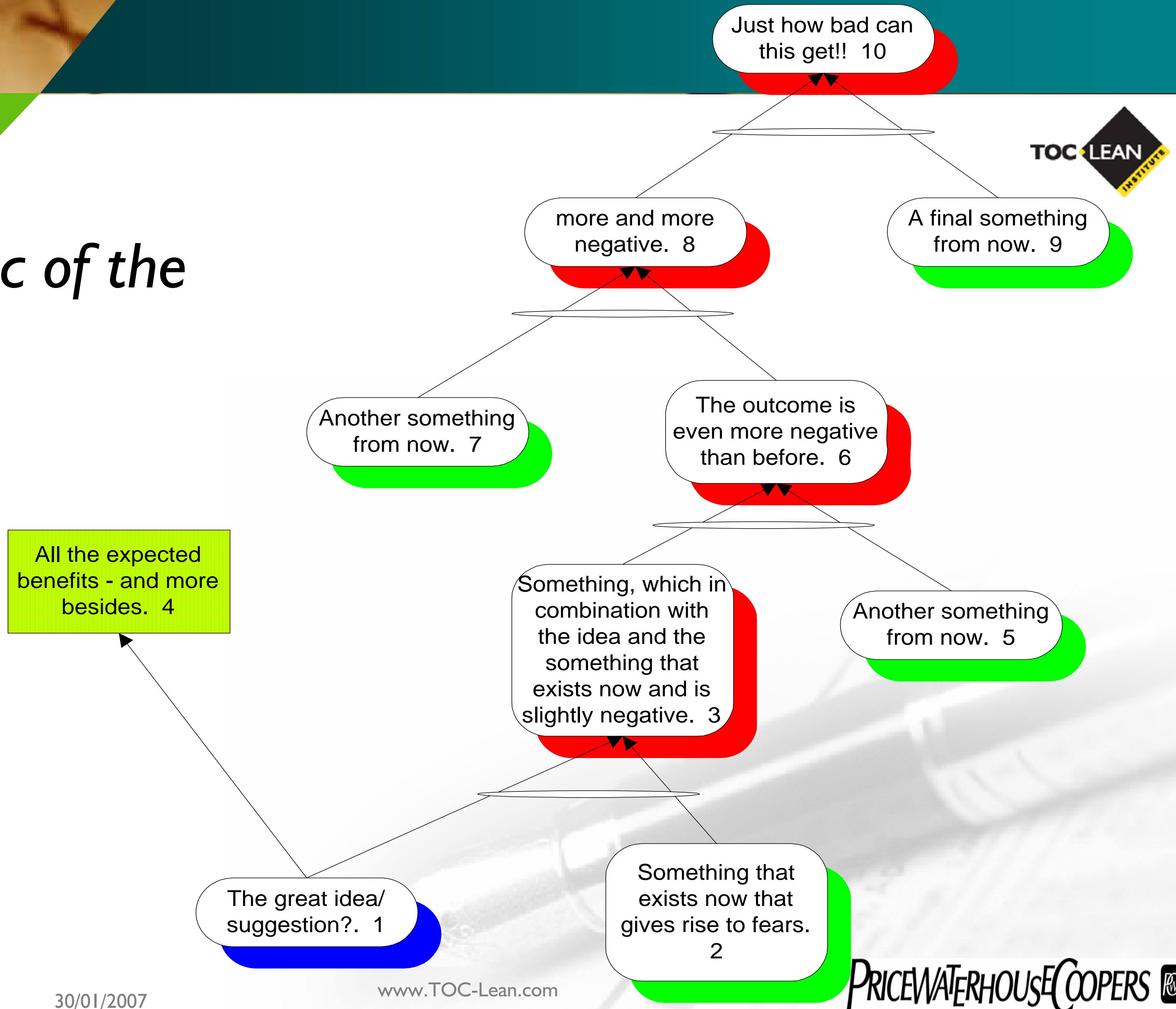
- Our plan risks being seriously flawed
- People will be reluctant to buy in to the plan

Negative Branch Reservations

We invite people to put on the table their 'negative branch reservations'

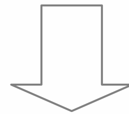
We have to get all these on the table, screen them, and solve the ones that need solving

The Logic of the NBR



NBRs in this environment

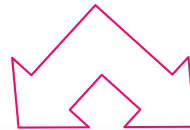
We can't work to new methods because we will be punished for missing the old targets



We can work to new methods if we can prevent ourselves being punished for missing the old targets

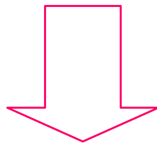
NBRs ctd

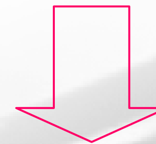
We can work to new methods if we can prevent ourselves being punished for missing the old targets



If the old targets reflect real performance, we will still meet them when we use the new methods

If the old targets do not reflect real performance, it is perverse to measure us against them





Inform target owner of the change at operational level

Negotiate agreement of target owner to change the targets

The Thinking Process for the solution

Injections:

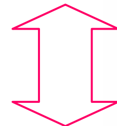
- All the step changes necessary to turn the UDEs into their opposite DEs

Intermediate Objectives

- Everything necessary to overcome the obstacles which block the injections
- Everything necessary to overcome the negative branches of the injections

Tasks

- Everything necessary to deliver the intermediate objectives
- Everything necessary to overcome the negative branches of the intermediate objectives



Every task has a chain of logic linking it up to a UDE / DE or negative branch

Making it happen

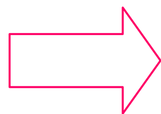
Turn the task list into a project plan:

-Identify the dependencies between tasks

-Identify the skills and time needed for each task

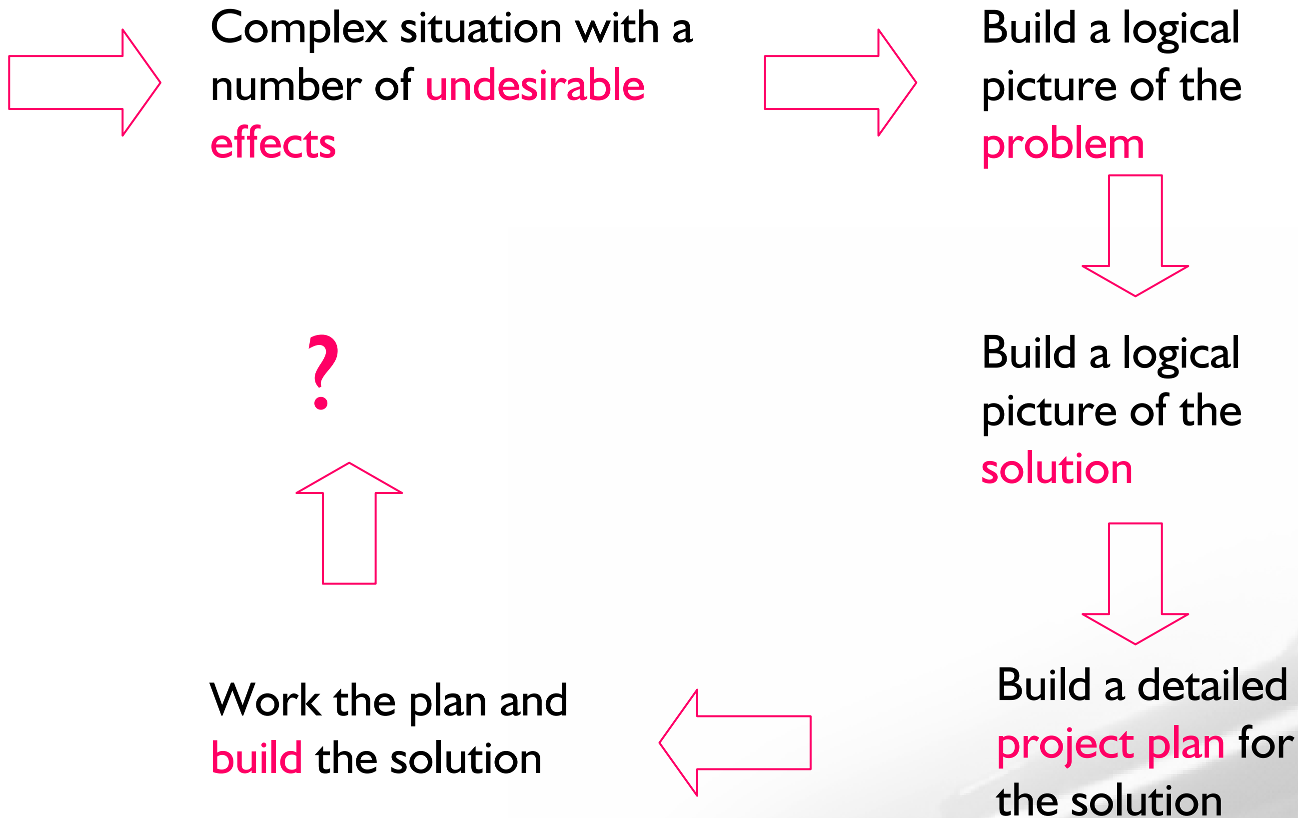
-Determine the timeline

- Obtain the resources



Work the plan

Summary



Linking Goals to Outcomes

There are two sides to healthcare systems: the Clinical side, concerned with giving each patient the treatment they need, and the Managerial side, concerned with obtaining and deploying resources to facilitate and support the Clinical work

TOC provides the basis for resolving conflict and building bridges between the two sides

Linking Goals to Outcomes

Our examples are based on Managerial issues (Goals, performance measures, interdepartmental cooperation), which are important in one way because they were raised spontaneously by the group of managers we were talking to, but they are also important because:

The way patients are treated is the consequence of how we use the staff and equipment available, and

How we use those resources is determined by the policies and procedures we follow, and

Our policies and procedures are the outcome of our interpretation of our goal, and the performance measures we adopt

What's different about TOC

- TOC solutions are developed from the facts on the ground by logical analysis - there are no preconceived answers
- The logic of TOC maintains unity of purpose between high-level issues (goals, measures etc) and day-to-day issues
- By 'showing the working' it is possible to gain wide buy-in before, during, and after implementation
- Pre-empting problems through seeking - and dealing with - negative branches improves the quality of solutions and the depth of buy-in
- At the end of the process you have the skills necessary to formulate and implement the next level of improvement

Final Thought

You may have seen Sir Gerry Robinson's TV shows about a hospital in Rotherham

He was given the goal of finding ways to reduce waiting times for operations

There was already 10% spare capacity in operating theatres

The hospital Chief Executive was unwilling to use the spare capacity to reduce waiting lists, because through the workings of 'Payment by Results' this would destabilise the finances of the PCT

Until this constraint is tackled, Sir Gerry's work will not impact waiting lists, because the extra operations that are necessary will not be done, regardless of the existence of spare capacity

Questions?

- If you would like a copy of the presentation then give us your business card with an e-mail address and we will send it to you

- Thank you

KEY STAKEHOLDER FEEDBACK

"We could have a long or a short discussion about the potential of the TOC approach to achieve a breakthrough in the emergency pathway. Let's have a short discussion……it works!" Jan Elliot Director of Patient Access Oxfordshire Health and Social Care system

"Rigorous application of the TOC principles has enabled us to radically improve our performance in a very challenged system. Having achieved big wins in the Accident Emergency, I am pleased to see we have also managed to achieve even bigger wins in applying these principles, in partnership with our colleagues in Social Care, to the Acute and Community discharge process. I believe the Theory of Constraints is also the direction of the solution we have all been seeking that will enable us to simultaneously improve the quality of patient care whilst achieving a breakthrough in both the emergency and elective pathways across the whole system." Mike Williams, Chief Executive Officer, Oxford Radcliffe Hospitals

Appendices

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The five steps in managing change

- Step one: gain consensus on the problem through the use of the TOC analysis tools – CRT and Cloud
- Step two: gain consensus on the direction of the solution through the use of the FRT
- Step three: gain consensus on the benefits of the solution to all interested parties – a win-win
- Step four: deal with all the reservations (NBRs and Obstacles)
- Step five: Make it happen

Five steps of focusing

- Step 1 - Identify the constraint in the flow
- Step 2 - Exploit the constraint
- Step 3 - Subordinate all other functions to the operation of the constraint
- Step 4 - Elevate the constraint
- Step 5 - Prevent inertia – go back to step 1

Key tools of TOC thinking processes

Current Reality Tree - Logical analysis of undesirable effects and related factors

Future Reality Tree - Logic of converting undesirable effects to the opposite desirable effects with injections

Prerequisite Tree - Identification of obstacles to achieving the injections

Negative Branch Reservations - dealing with those necessary actions which have an additional negative effect

Transition Tree - Planning the steps required to achieve an intermediate objective

Cloud - Creative resolution of conflict

Bibliography

Ted Hutchin "Unconstrained Organisations" ISBN 0-7277-3016-9

Eli Goldratt, "The Goal" ISBN 0-56608-665-4

Debra Smith, "The Measurement Nightmare“ ISBN 1-57444-246-5

Julie Wright & Russ King "We All Fall Down" ISBN 0-88427-181-1

John Seddon "Freedom from Command and Control" ISBN 0-95461-830-0

A case study

- The following case study was prepared by Alex Knight and his team for presentation at the TOC-ICO conference held at Cambridge University in September 2003 and shows just what can be achieved.

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MAKING TOC THE MAIN WAY OF MANAGING THE HEALTH SYSTEM

Alex Knight AND TEAM

TOCICO UPGRADE CONFERENCE

CAMBRIDGE 2003

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THE HEALTH CONTEXT

- The largest employer in Europe with a workforce of over 1.3million people, many of whom operate as highly qualified front line staff (doctors and nurses)
- The largest London teaching hospital employs more staff than, for example, the whole of Hewlett Packard Europe
- In a typical teaching hospital there are more than 400,000 visits to outpatient clinics per year; 60,000 inpatients; 25,000 operations and 75,000 attendances to the Accident and Emergency Department
- The Number One pledge of the UK Government at the last election was to deliver a breakthrough in performance in health care
- In the last three years, the national budget has been increased by over 30% and number of patients treated has increased by 3.7%
- There are backlogs of between 9 and 18 months for operations
- Many Chief Executive/Senior management posts remain unfilled.

The chain of activities

Electives
4 hours
GP referrals
Ambulances
Minors
A&E
Home
Acute
Days
Home
Social & Health Care
CH
Days
Home
Social & Health Care
Residential & Nursing Care
Days
Home
Social & Health Care
Social & Health Care
12 hours
Days
Days

- A&E
- Home
- Acute
- Social and Health Care
- Community Hospital
- Residential & Nursing Care

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MAKING TOC THE MAIN WAY

There is a structured, credible process for organisations to lead them from ignorance to a full switch to the TOC way

The professional community supports TOC

TOC knowledge is readily available

Implementations are made known

We will build only the entities which we cannot reasonably expect that others can be persuaded to do (correctly)

The chain of activities – the start

Electives
GP referrals
Ambulances
Minors
BUFFER
MANAGEMENT
4 hours
12 hours
A&E
Home
Acute
Days
Social & Health Care
Home
CH
Days
Social & Health Care
Home
Residential & Nursing Care
Days
Social & Health Care
Home
Social & Health Care
Days
Days

- A&E
- Home
- Acute
- Social and Health Care
- Community Hospital
- Residential & Nursing Care

THE EMERGENCY DEPARTMENT BUFFER MANAGEMENT SYSTEM

- Simple, practical and quickly understood by all
- Minimal disruption
- Visible real time buffers
- Capture reasons for buffer penetration
- Buffer analysis report to support decision making
- Concept to everyday use in 4 weeks

THE WEEKLY BUFFER MEETINGS

- Multidisciplinary team
- Maximum 1 hour
- Identifying top causes of delay
- Development of implementation plan to eradicate causes within a week
- Escalation of system-wide policy issues

RESULTS ACHIEVED FROM IMPLEMENTING THE THEORY OF CONSTRAINTS

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HOSPITAL #1

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IN THE LAST 8 WEEKS PERFORMANCE HAS REMAINED OVER 95%

600
400
200
0

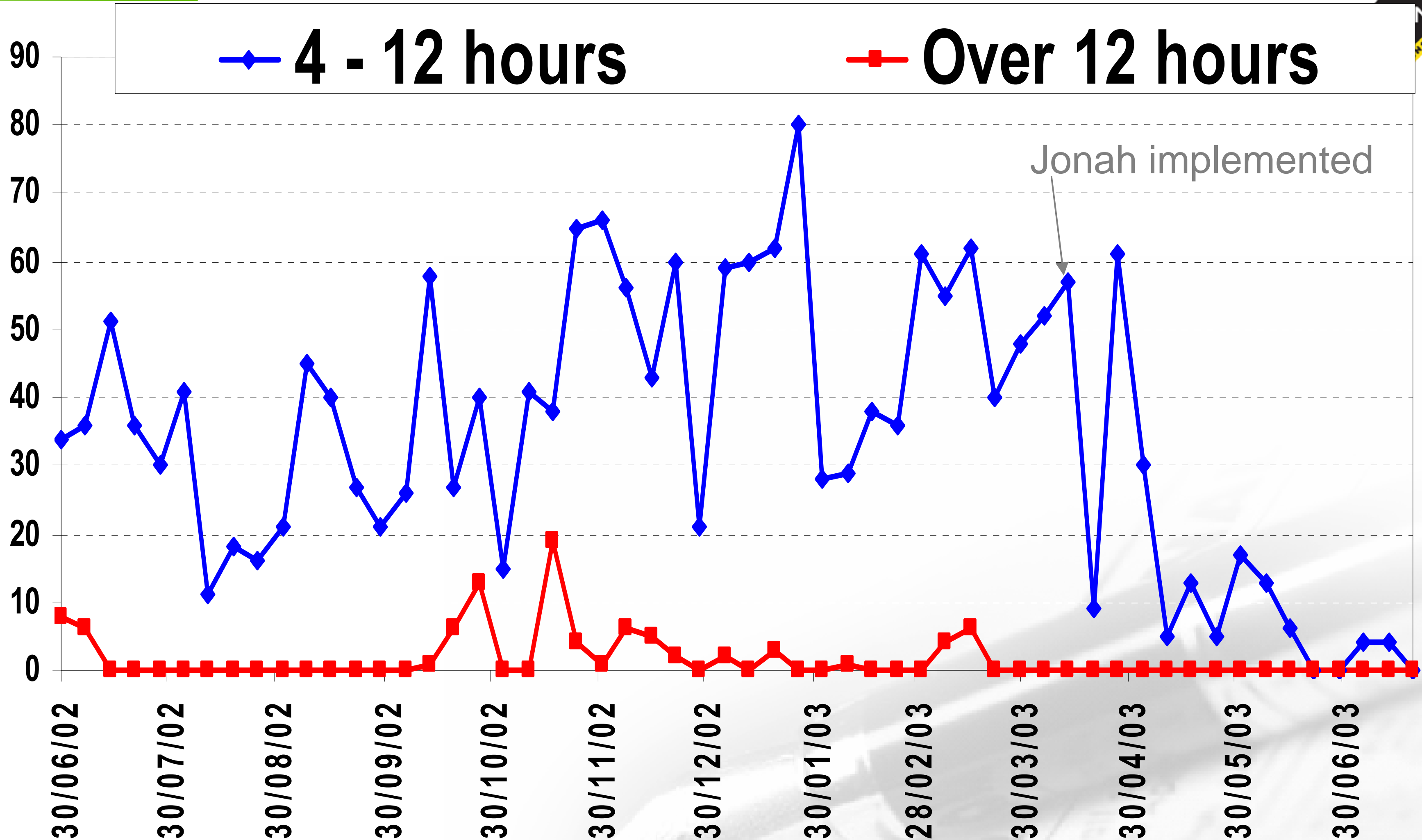
100%
95%
90%
85%
80%
75%
70%
65%
60%

Jonah implemented

30/06/02 30/07/02 30/08/02 30/09/02 30/10/02 30/11/02 30/12/02 30/01/03 28/02/03 30/03/03 30/04/03 30/05/03 30/06/03

DELAYED ADMISSION VIA A&E

as per weekly SitRep



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MEDICAL OUTLIERS and DELAYED DISCHARGES

as per weekly SitRep

Medical outliers — Delayed discharges

IN THE LAST 8 WEEKS THERE HAVE BEEN NO MEDICAL OUTLIERS

60
50
40
30
20
10
0

Plus 11 on infected wards

30/06/02 14/07/02 28/07/02 11/08/02 25/08/02 08/09/02 22/09/02 06/10/02 20/10/02 03/11/02 17/11/02 01/12/02 15/12/02 29/12/02 12/01/03 26/01/03 09/02/03 23/02/03 09/03/03 23/03/03 06/04/03 20/04/03 04/05/03 18/05/03 01/06/03 15/06/03 29/06/03 13/07/03

HOSPITAL #2

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HAVING ACHIEVED 100% RECORD FOR PATIENTS TREATED WITHIN 4 HOURS, THE BUFFER HAS NOW, *VOLUNTARILY*, BEEN REDUCED TO 3 HOURS AND PERFORMANCE HAS AGAIN BEEN IMPROVED TO OVER 95%

MEDICAL ASSESSMENT UNIT

- Implementation of TOC approach associated software and weekly buffer meetings started at the beginning of May 2003
- GP involvement started in mid May
- Link with bed managers established in June
- Average length of stay reduced from 5 days to less than 36 hours

HOSPITAL #3

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Percentage of patients < 4 Hours at the Hospital - 2002 -2003 comparison

IN THE LAST 12 WEEKS PERFORMANCE HAS ALSO REMAINED OVER 95%

Month

The chain of activities

Align system wide protocols/policies

- A&E
- Home
- Acute
- Social and Health Care
- Community Hospital
- Residential & Nursing Care

RESOLVING THE ADMISSION AND DISCHARGE BLOCKAGES

- **Cost of the Acute sector is: £200m/1250/365 per bed per day = £440/ bed/day**
- **Total number of reported delayed transfers 2001-02 = 2236**
- **Total reported delayed patient days = 25387**
- **Total expenditure per week by ORH on reported patients delayed = £215,000**
- **Total expenditure per year by ORH on reported patients delayed =£11,200,000**
- **Average length of stay – say 5 days**
- **Number of extra patients who could have been treated if delays eliminated = 5077**
- **Current elective backlog approximately 7500**

RESOLVING BLOCKAGES

- The current cost of the Community sector is:
- £12,000,000/273/365 per bed per day = £120/bed/day
- Total delayed patient days per year = 20184 (approx 20% of available capacity)
- Total expenditure per week by Community sector on patients delayed = £47,000
- Total expenditure per year by Community sector on patients delayed = £2.4m
- Note : If all delayed patient days were eliminated in the community sector, this alone would free up enough capacity in the acute sector to eliminate 80% of all delayed patient days in the acute sector!

HOME

SOCIAL SERVICES → HOME

BUFFER

COMMUNITY HOSPITALS

SOCIAL SERVICES → HOME

HOME

BUFFER

SURGICAL DISCHARGE

BUFFER

MEDICAL DISCHARGE

KEY:

Theatre drum schedule

Beds

Other non-bottlenecks

HOME

D R U M

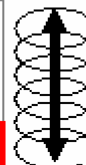
SPACE BUFFER

THEATRE SCHEDULE

BUFFER

MEDICAL CAPACITY

BUFFER



HOME

R O P E

4 hr

12 hr

EMERGENCY DEPARTMENT

SURGICAL ELECTIVE BACKLOG

Minors

GP Referrals

Majors