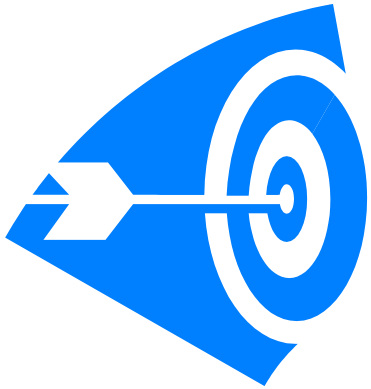
Course:

Government Process Re-engineering

Day 2

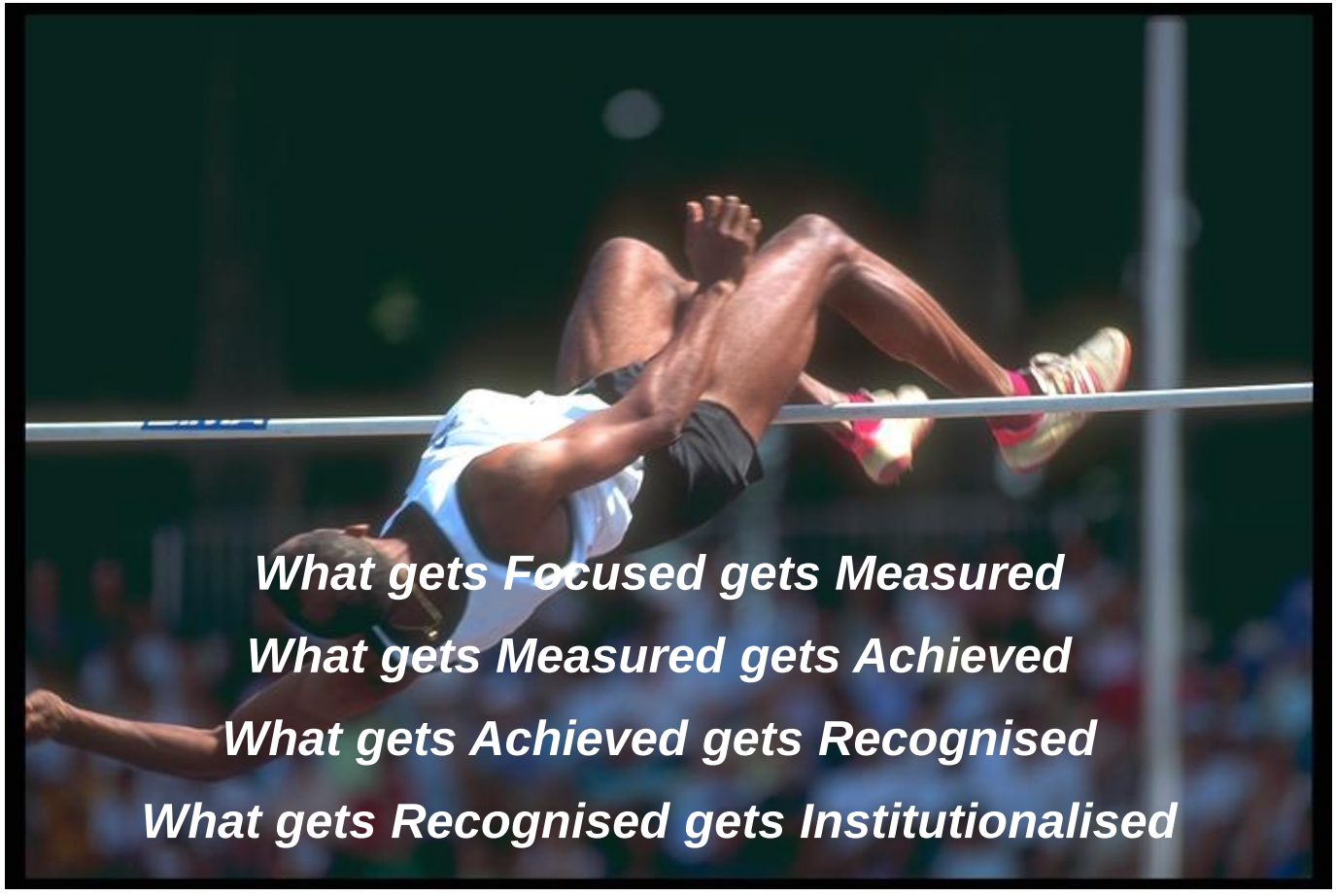
Session 3: Collecting Data for Process Mapping

Agenda



- Why is data required for GPR?
- Understand the types of data relevant to the process
- Learn how to identify which data to collect
- Understand sampling and other data collection techniques

Why to collect data? (1 of 2)



Why to collect data? (2 of 2)

- Data is used in process analysis
  - To quantify the problem at hand ("*it takes too long for getting a passport*" vs. "*issuance of the passport takes 41 days on average*")
  - To identify which sub process is the least efficient
  - Shows bottlenecks, idle time, productive time

- Use of Data in Monitoring & Evaluation
  - To identify the metrics to be monitored post implementation of GPR
  - Setting target metrics ("to-be" state)
  - To obtain baseline metrics ("as-is" state)
  - To measure and showcase project success ("*Average time for passport issuance has come down from 41 days to 5 days*")

Measure of Excellence / Performance metrics

Customer / Citizen's Point of view

- Hassle free service delivery
- Adhering to promises made on Turnaround Time
- Error free deliverables – Deliver the right product at right place at right time
- Value for money
- Customer Satisfaction

Stakeholder's Point of view

- More time to carry out value adding tasks
- Doing more with less resources
- Higher revenue to the department
- Accountability & Transparency issues
- Providing error free service delivery

Measures of Excellence (MoE)

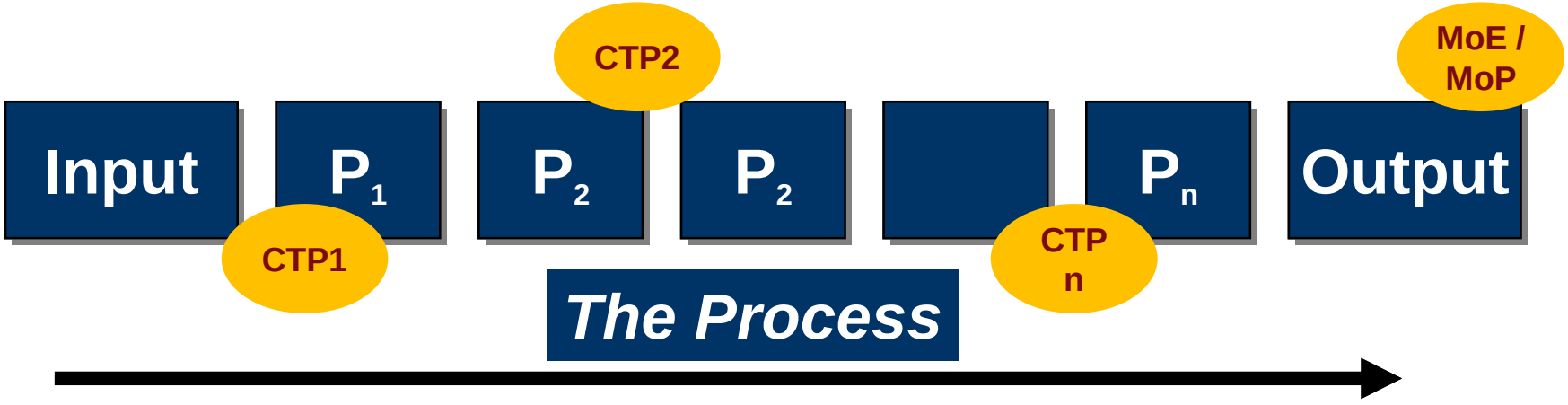
- Customer centric
- Measure effectiveness of a process
  - Critical To Quality (CTQ) &
  - Critical To Time (CTT)

Measures of Performance (MoP)

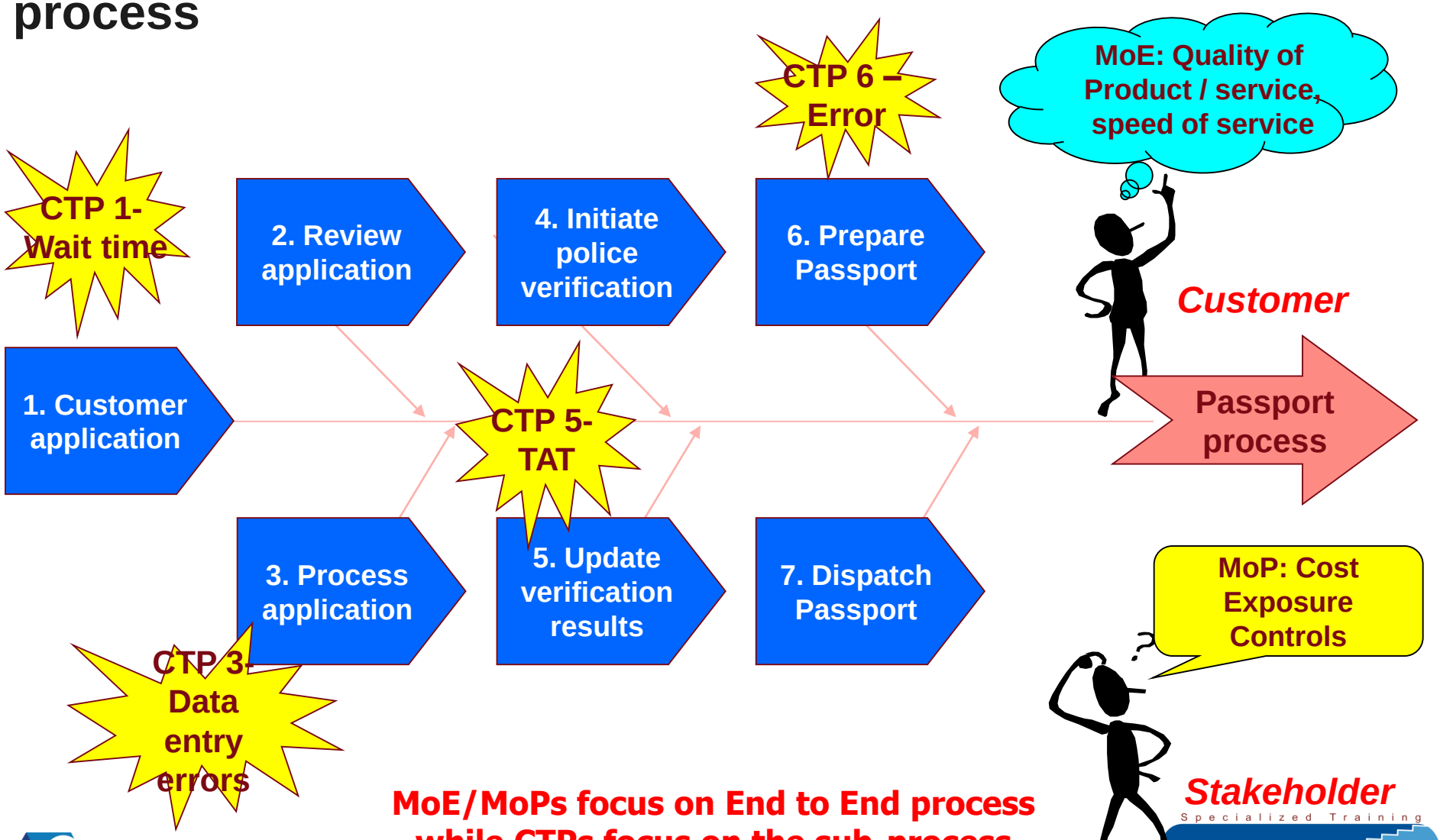
- Stakeholder centric
- Measure efficiency of a process
  - Critical To Cost (CTC) &
  - Critical To Revenues (CTR)

Critical To Process metrics (CTPs)

- CTPs are the levers for delivering on the MoE / MoPs
  - Parameters from the various phases of the process which drive the MoE / MoPs
  - CTPs are not end to end but are specific to sub-processes and need to be measured & streamlined in order to improve the MoE/MoPs
  - The CTPs act as design variable – the specifications for CTPs get dictated by the MoE / MoPs targets which in turn influences the associated sub-process
- MoE / MoPs = F (CTP)



CTP parameters are the internal check for the health of the process



MoE/MoPs focus on End to End process while CTPs focus on the sub-process

TAT - Turn Around Time

What variables to select for data collection?

- Broadly identify the universal set of independent variables (CTP) impacting the CTQ under consideration
  - Y = $f(X_1, X_2, X_3, \ldots X_n)$ where Y is the CTQ (dependent variable) and X_is are the independent variables (CTPs)
- Use a structured process for short-listing the CTPs for which data collection needs to be done

- e.g.: Time taken for issuance of passport is a CTQ in the passport issuance process
- *Time taken for passport issue = f (time taken to file application, processing time, police verification time, …)*

Method for short listing data collection variables: Cause and Effect Matrix

- List the CTQs across the top of a matrix
- Rank and assign scores to each CTQ according to its importance to the customer.
- List the CTPs on the left side of the matrix.
- Determine correlation scores between each cause and CTQ based on the strength of their relationship (E.g. 1 – weak, 3 – some, 9 – strong)
- Cross multiply correlation scores with priority scores and add across for each cause

	Imp	CTP1	CTP2	CTP3	CTP4
CTQ1	0.5	9	1	9	1
CTQ2	0.3	3	1	3	3
CTQ3	0.2	1	3	3	3
Score		**5.6**	1.4	**6**	2

Data should be collected on all CTPs which have high overall correlation with CTQs

Classes of data collected in e-Governance projects

- Time – value added, cycle, waiting, productive / non-productive
- Volumes – transactions / day, units / hour, % of each category
- Rates or Costs - computed, fixed, per unit
- Equipment Used - cost
- Value Added - real value, business value, no-value

Classifying the type of data being collected (1/2)

Continuous

Anything that can be measured on a infinitely divisible continuum or scale and can take up any real number value (at least in principle)

Example

Temperature, Cycle time of process, Cost, TPH etc

Classifying the type of data being collected (2/2)

Attribute or Discrete

- Anything that can be sorted into distinct, separate, non-overlapping categories or designated as either/or, or takes up certain values
- Discrete data can be attribute data (% occurrences), count data(no of defects per 50 invoices) or ordered categories (excellent, good, fair, poor)

Examples

Day of the week (M/T/W/Th/F/Sa/Su)

Defect/No Defect, Off/On

Number of stoppages

Absenteeism (Absent / Present)

Data collection methodology (1 of 2)

- Step 1: Design the data collection plan
  - What data needs to be collected – *Design appropriate template (include desired data formats)*
  - What is the period/ sample size for data – *clearly specify what will qualify as a valid sample*
  - Who will collect the data – *assign clear responsibilities*
  - What are the valid data sources – *seek agreement from stakeholders*

Data collection methodology (2 of 2)

- Step 2: Deploy
  - Clearly articulate the expectations and requirements to the data collector
  - Give sample data formats, if required
  - Review the first few data points collected to ensure data collection is as per the requirements

- Step 3: Review
  - Check the data for integrity, accuracy and sufficiency

Sampling – Means for data collection

- Definition
  - Sampling is a process of collecting only a portion of the data that is available or could be available and using the data in sample to draw conclusions (statistical inference)

- Why Sampling?
  - It is often impractical or too costly to collect the data
  - Sound conclusion can often be made from a relatively small amount of data
  - Some time data collection is a destructive process
  - Sampling provides a ”snapshot” of the process or population at a given point of time

Sampling in real life … a visit to a Mithai shop

- When we go to a mithai shop, most of us taste a little bite of the mithai. Why do we sample the mithai?
- We assume that the entire mithai is made from one base and so if we sample a bit, we can be reasonably sure about the taste of the entire half a kg or one kg of mithai that we want to buy.
- We take a small sample because the mithai wala won't allow us to taste the entire mithai before hand.
- We do similar samplings day on day in our lives

Introduction to Process Mapping Tools

- At the simplest level, Pen & Paper is all that is required to do flowcharting
  - Initially, stencils were available for drawing
  - A stencil can be used if available
  - Alternately, we can also draw freehand

- A fairly common practice in process mapping is to draw individual items on post-It notes and attach them to a chart
  - This enables the items to be moved around without having to do a lot of rework

Process Mapping using Tools

- Practically any software with graphical capabilities can be used to generate flowcharts. For example, in MS Office, we can generate flowcharts in
  - Microsoft Word
  - Microsoft Excel
  - Microsoft PowerPoint
- Microsoft Vision is a dedicated graphing software that can also be used to advanced graphing and additional reporting
- Other similar (free) applications on the Windows platform include
  - Dia 0.96: Dia is designed to be much like the Windows program 'Visio'.

Business Process Management (BPM) tools for process mapping

- BPM tools help organizations to have a holistic view of processes and to intelligently guide, automate, and optimize business processes
- A BPM solution enables decoupling of processes, rules, data, and applications while minimally impacting legacy systems
- Automation and streamlining the processes; from processing an online order to approving a mortgage application.
- The process execution engine needed to manage user workflows, data integration, and track or report process data.
- Key vendors of BPM tools include Savvion, Lombardi & Ultimus