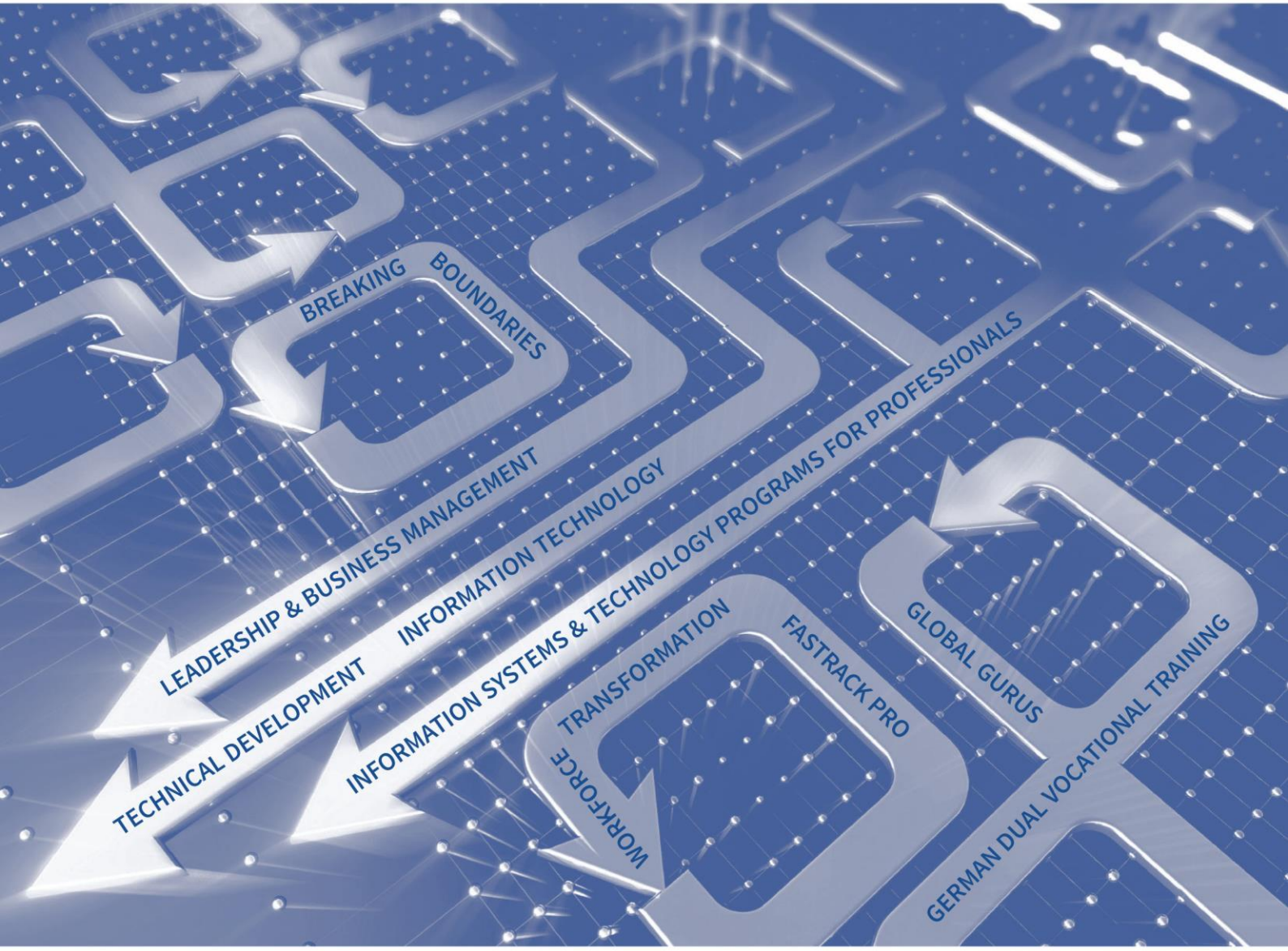
Training

HRDF SCHEME
100% Claimable

PSDC

DECISION OPTIMIZATION



FasTrackPRO

DECISION OPTIMIZATION

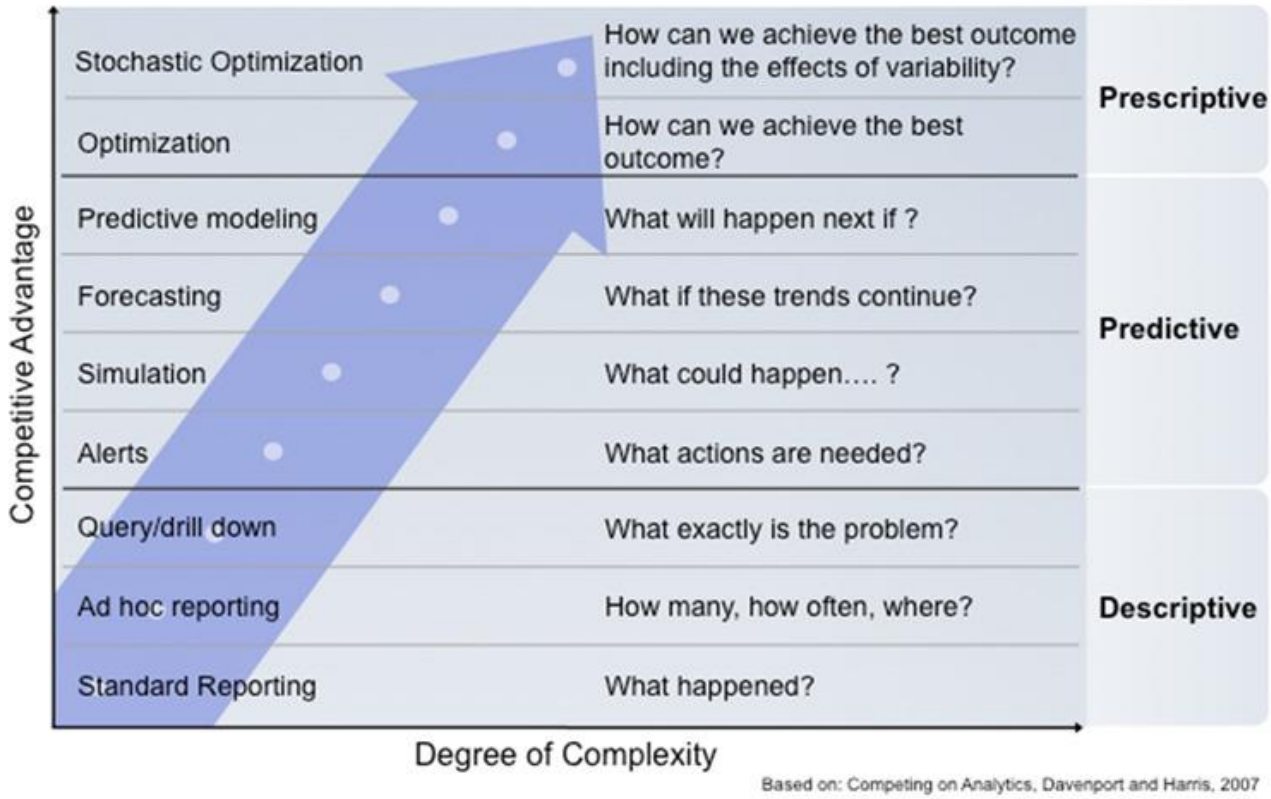
Learn how to make the best choices in optimizing performance measures (e.g. minimize cost, maximize profit) within boundary conditions (e.g. resources constraints) using advanced analytical methods and mathematical software called solvers.

INTRODUCTION

Traditionally businesses will focus on efficiency to differentiate themselves from competitors. This includes waste reduction, faster throughput time, and better customer service. While efficiency is still important in today's environment, it is no longer sufficient for differentiation.

Today's buzzwords include Big Data and Analytics. Actions include installing huge IT infrastructure for data collection and storage, acquiring skills in processing structured and unstructured data and in advanced statistical software like R, and implementing data visualization. Provided that data is available and usable, companies will have personnel and tools for reporting and prediction.

However, the management still has to make decisions based on gut feel. There is no actionable recommendation provided by the systems and reports, or what-if analyses to quantify what will happen if different course of actions are taken.



There are 3 types of analytics: descriptive (what has happened), predictive (what will happen), and prescriptive (what should happen). This training is about the third level analytics, prescriptive, which sits at the top of analytics evolution diagram above. Prescriptive analytics recommends one or more courses of action and showing the likely outcome of each decision so that the business decision-maker can take this information and act. It uses advanced analytical methods from Operations Research (OR) / Management Science (MS) / Decision Science for quantitative decision making to help make better decisions. No more gut feel or crystal ball in decision making.

OR/MS is not new as it started during World War II. Optimization problems need to be formulated as mathematical models and solved to get the solutions/recommendations. Today's computing capability has enabled very large and complex practical problems to be solved very quickly. Unfortunately OR/MS applications are not widespread in Malaysia compared to USA, Europe, South Korea, Taiwan, and Singapore.

This training is very practitioner-centric. While some basic theories are covered, the focus is on learning the fundamentals of mathematical optimization and how to apply it. Mathematical modelling is both art and science. It is difficult to learn and initially hard to apply into real-world problems. With his industry experience, the trainer will teach how to apply mathematical optimization using real-world examples and tools used by industry.

PROGRAM OBJECTIVES

Upon a successful completion of this course, participants will be able to:

- Understand where O.R. fits in the analytics big picture and how it helps decision making
- Understand Linear Programming (LP) concepts and modelling techniques
- Read algebraic expressions and develop legible spreadsheet models with named ranges
- Formulate decision-making problems as LP models and solve with solvers, including Excel

WORKSHOP METHOD

It is conducted in a seminar room and consists of 40% lectures, 40% exercises, and 20% discussions. Participants will learn algebraic expressions, developing legible Excel models, Excel add-ins Solver and OpenSolver, and IDEs (Integrated Development Environment), LpSolve and IBM ILOG CPLEX Optimization Studio Community Edition.

COURSE CONTENT

DAY 1	
♦ Introduction to Analytics & Operations Research ♦ Algebraic Expressions and Spreadsheet Modelling ♦ Linear Programming (LP) and Solvers ♦ Manpower Planning, Blending Problems ♦ Multi-period Inventory Modelling	Exercises include: ⇒ Dorian Auto ⇒ Diet problem ⇒ Manpower planning ⇒ Blending ⇒ Sailco inventory
DAY 2	
♦ Multi-period Production Smoothing ♦ Transportation, Assignment, Transhipment ♦ Network Flow Models ♦ Investment Problems ♦ Goal Programming	Exercises include: ⇒ Production smoothing ⇒ Minimum cost flow models ⇒ Network models ⇒ Investment models ⇒ Multi-criteria decision-making
DAY 3	
♦ Integer Programming (0-1 and either-or) ♦ Travelling Salesman Problem ♦ Building scalable models with database interface ♦ Review & solve problems brought by participants	Exercises include: ⇒ Knapsack, fixed-charge ⇒ Facility location, set-covering ⇒ TSP ⇒ Reading database into model

WHO SHOULD ATTEND

Managers and executives who are involved in what-if analyses and recommendations / decision making of investment, pricing and revenue management, portfolio management, risk analysis, strategic planning, facility site location, production planning and scheduling, resource allocation, assets optimization, cost reduction, etc.

PRE-REQUISITES

- Familiar with Microsoft Excel spreadsheet modelling
- Have experience with what-if scenario analyses to support management decision making

TRAINER'S PROFILE

Dr. Anwar Ali has 27 years' experience in semiconductor industry, 2 years at Texas Instruments followed by 25 years at Intel Technology Sdn Bhd. He was a Principal Engineer for his last 5 years at Intel. He practised Operations Research (discrete event simulation and mathematical optimization) for 13 years. His areas of expertise include high fidelity equipment simulation modelling, factory capacity modelling and optimization, and the relevant enterprise data integration involved.

Dr. Anwar Ali completed his B.Eng. in Mechanical Engineering (Industrial Engineering major) from Universiti Teknologi Malaysia (UTM) in 1988, M.Sc. in Decision Science from Universiti Utara Malaysia (UUM) in 2005, and Doctor of Engineering in Engineering Business Management from UTM in 2014.

DURATION

3 days (9:00 am – 5:00 pm)

TRAINING DATE

20 – 22 February 2017

COURSE FEE

SBL-Claimable
RM3,000/pax

TRAINING DATES & REGISTRATION

Log on to **http://www.psdc.org.my**.

ADMINISTRATIVE DETAILS

Venue	PSDC 1, Jalan Sultan Azlan Shah, Bandar Bayan Baru, 11900 Bayan Lepas, Penang
Payment	Crossed cheque made payable to '***PENANG SKILLS DEVELOPMENT CENTRE'*** one week before commencement date
Registration	http://www.psdc.org.my
Cancellation	PSDC reserves the right to cancel or postpone any program but with due notice to the company(s).

For further information, please contact Elly Leong at 04-643 7909 (ext 523).
E-mail: training@psdc.org.my

To find out more, call our **FasTrackPRO Team** at **ext 523**
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