



Continuous Improvement & Innovation

Dr. Daniel Butruille
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*All what can
be imagined is
REAL*

Pablo Picasso

25.10.1881-08.04.1973

Change Agents

- Innovation. Capability for placing in the market original and efficient products, which create value for customers and shareholders.
- Continuous improvement. Strategy for a permanent search of process optimization, reducing costs, achieving quality excellence and decreasing operating times, with the aim of assuring the total customer satisfaction.

The Innovation Drive

- Innovation:
 - **New ideas, or a current way of thinking applied in a different way, leading to significant changes.**
- Innovation approach :
 - **Products, services, markets**
 - **Business models**
 - **Operation systems**

Outcome Impact

Continuous Improvement

Improves **QUALITY**

Decreases **DELIVERY TIME**

Decreases **STOCK**

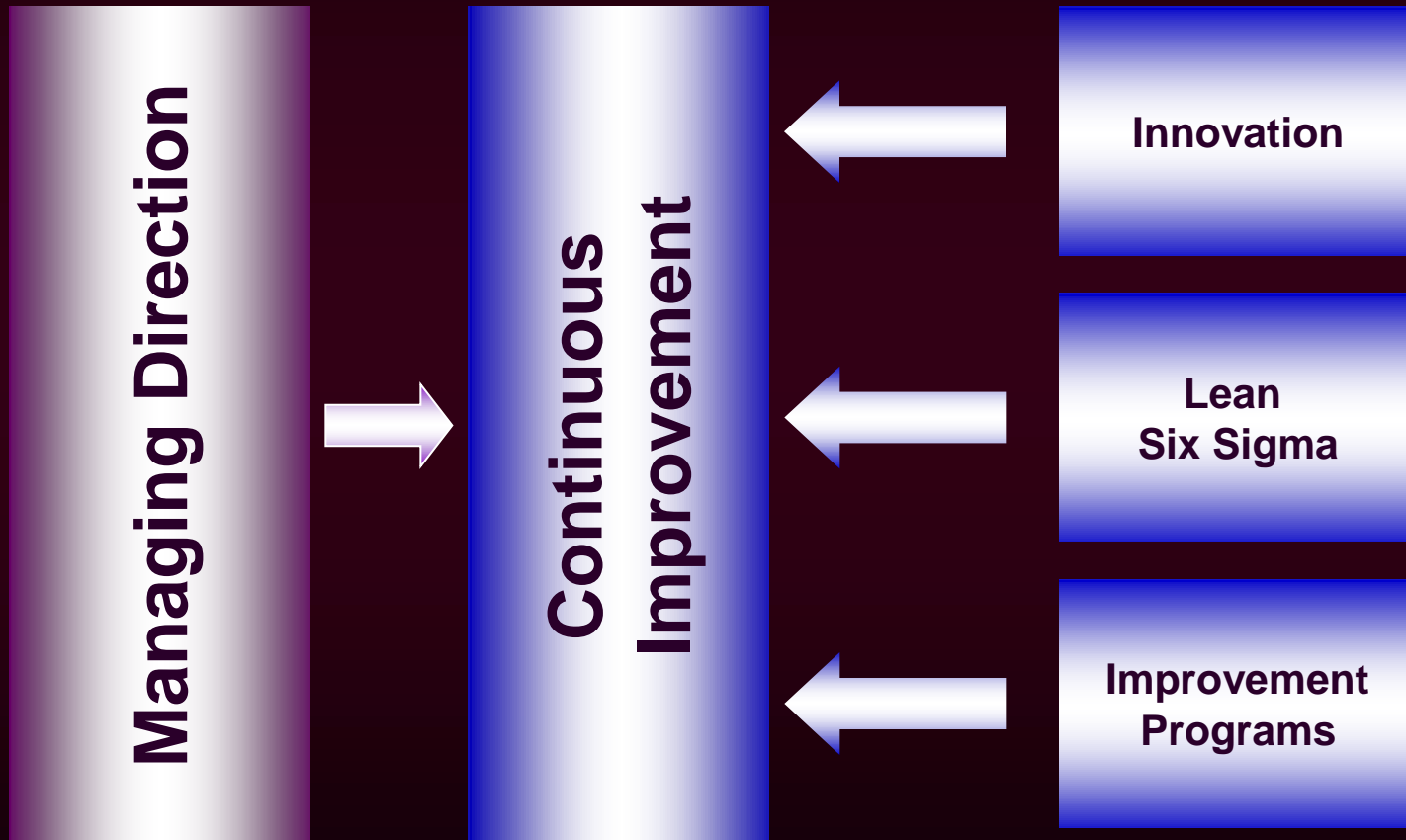
Minimizes **RESOURCES NEED**

Simplifies **MANAGEMENT**

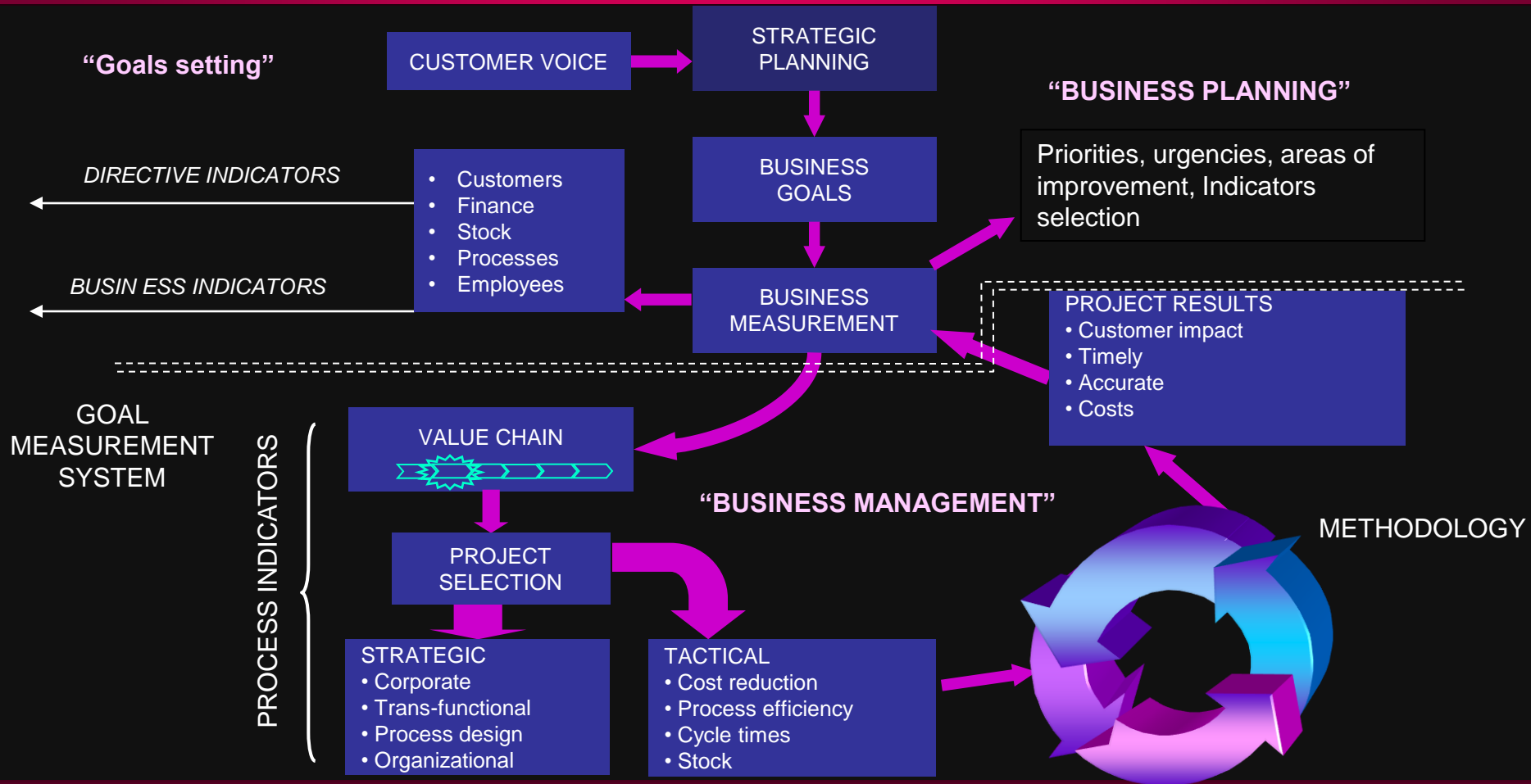
Reduces **COSTS**

Maximizes **PROFIT**

An Strategic Tool



Strategic Reinforcement



The Innovation Role

Integration of structures and tools for transforming today's good ideas in tomorrow's successful products and services...

Innovation depends on both creative ideas and excellent execution...

An Excellent Execution

***Discipline to achieving things
timely and well done***

The success of Continuous Improvement and Innovation is based on capabilities to execute process improvement projects *in due time*, achieving *the expected outcome*, by means of *teamwork* integrated for this aim, with the guide of *a competent leader*.

Key Success Factors

- ✓ Top management commitment
- ✓ Managers active participation
- ✓ Adequate project selection
- ✓ Follow up and discipline
- ✓ Motivation and acknowledgement
- ✓ Success case diffusion

Continuous Improvement Steps



***Fixture and
Correction***

Productivity
to Survive

Capacity Reinforcement
INCREASING
Result\$



***Efficiency and
Redesign***

Improvement
to Compete

Capacity Development
DETERMINANT
Result\$

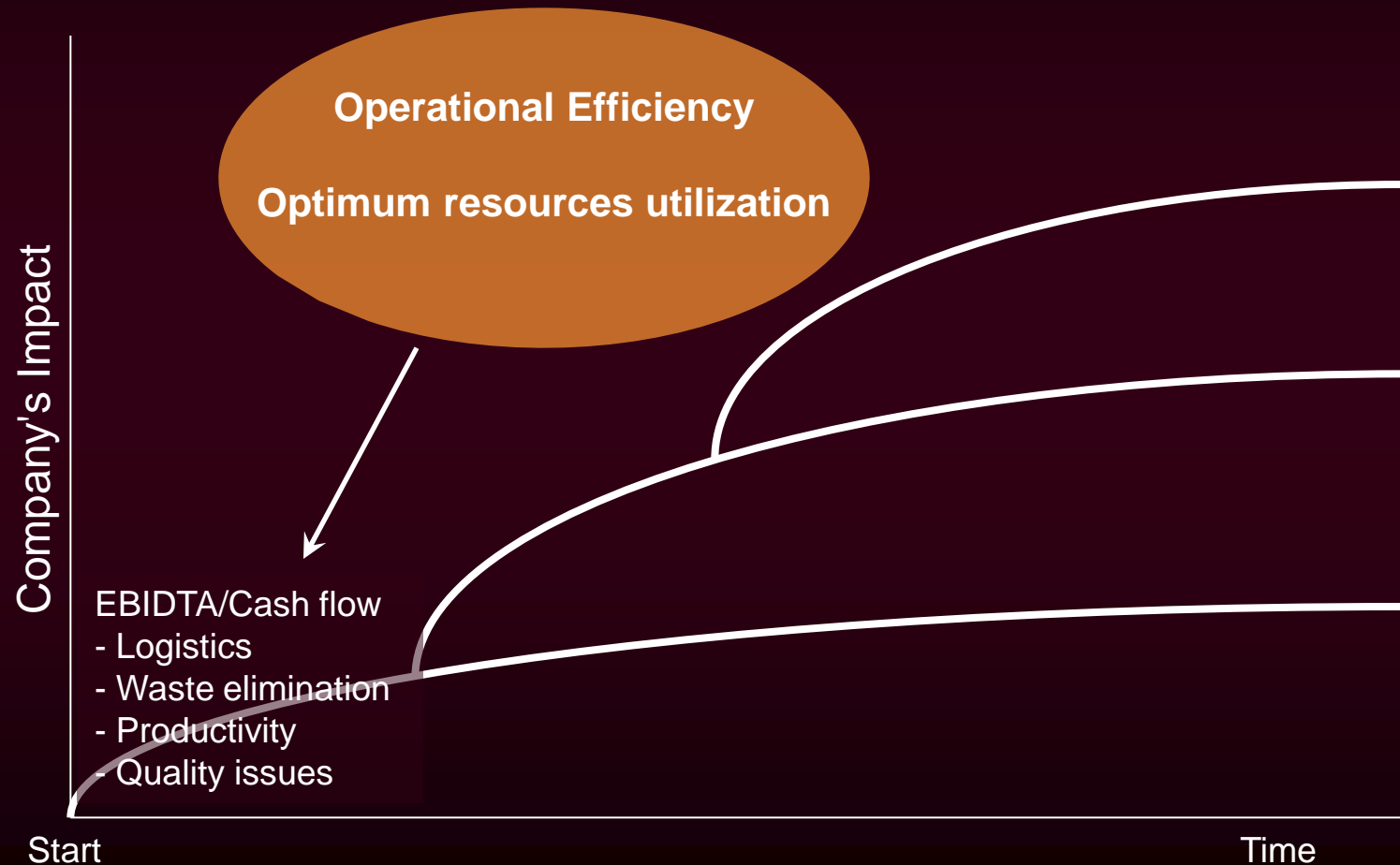


***New Processes
and Products***

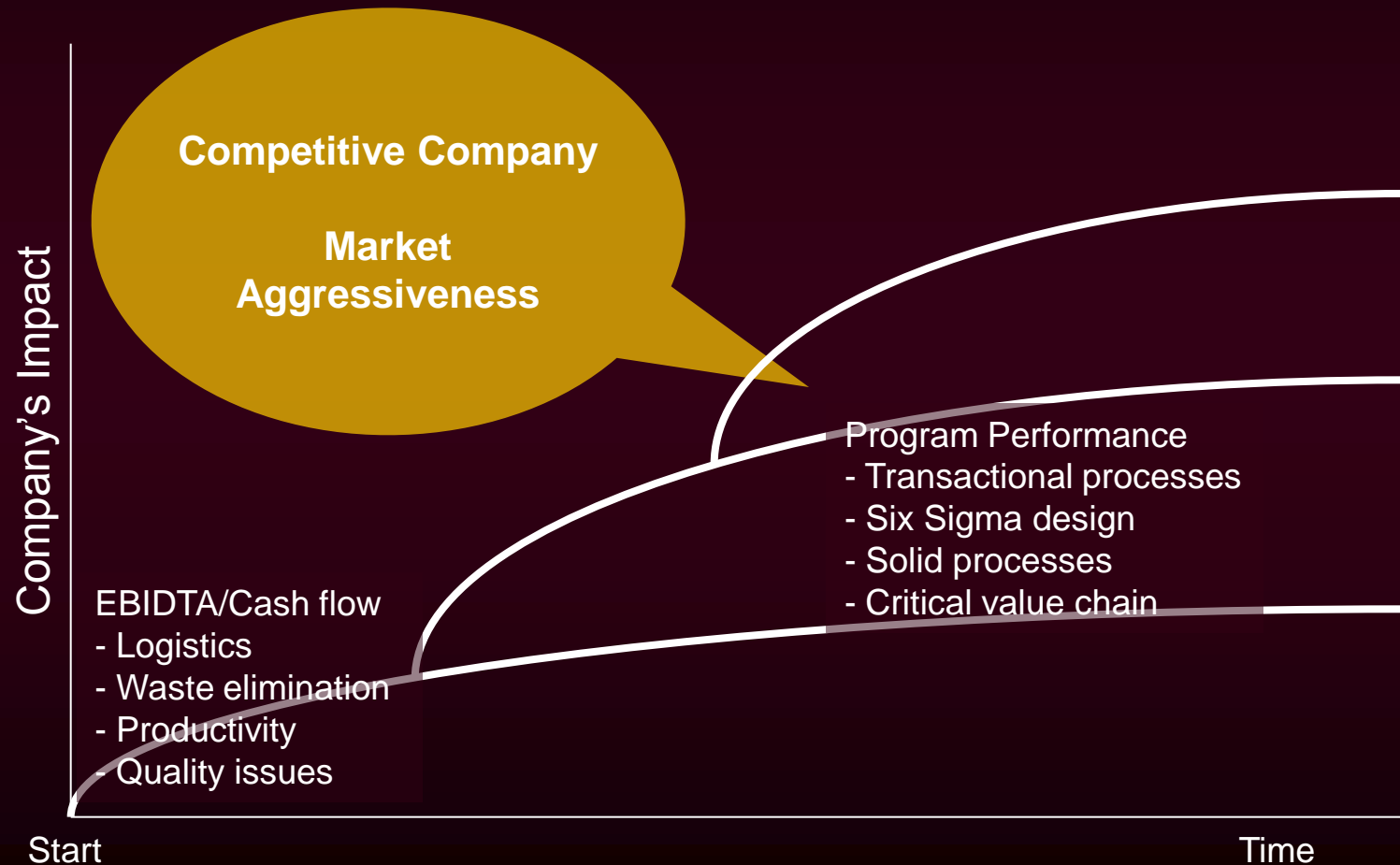
Growth with
Six Sigma Processes

Capacity Positioning
INTEGRAL
Result\$

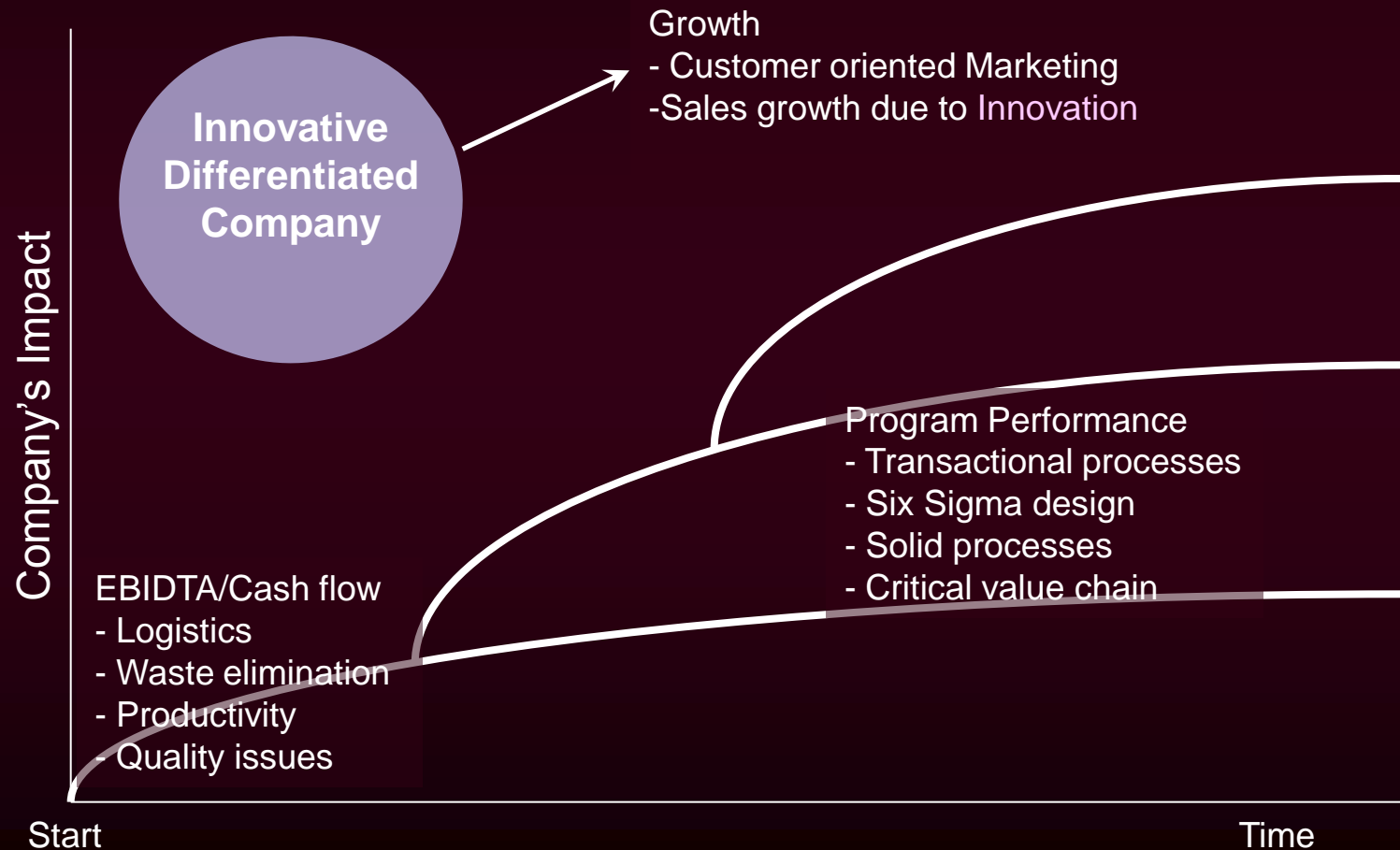
Outcome Impact



Outcome Impact



Outcome Impact



Specialized Tools

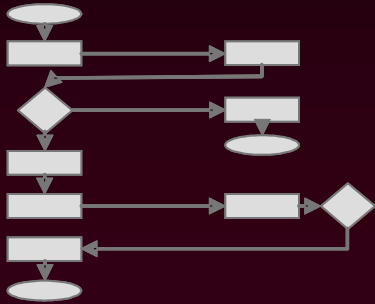
- Order and Discipline: **5 S**
- Operation Continuity: **TPM**
- Operating Time Optimization: **SMED**
- Working Capital Minimization: **VSM**
- Process Knowledge: **IPO**
- Graphic Analysis of Process Improvement: **SPC**
- Process Control: **SOP**
- Critical Variable Optimization: **DOE**
- Customer Needs Comprehension: **CTC**
- Controlled Processes Translation: **QFD**
- Optimum Design at Low Cost: **DFSS**
- Innovative Solutions: **TRIZ**
- Axiomatic Innovation System **AD**

DMAIC: Definition-Measurement-Analysis-Implementation-Control
IDOV: Identification-Design-Optimization-Validation

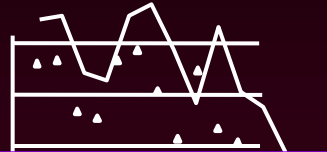
Basic Methodologies

Tools and Methodologies,
including **TRIZ** and **Blue Ocean**,
constitute the Indispensable Knowledge for
Continuous Improvement and Necessary for
its transformation into Innovation

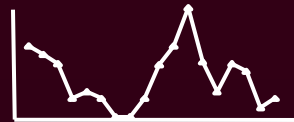
Lean Six Sigma Strengths



Process mapping for Identifying defect sources



Use of control graphs for Identifying and understanding normal and special causes

[illegible]

Verification of calculation and measurement systems

RISK PRIORITY NUMBER (RPN) = SEVERITY X OCCURRENCE X ESCAPED DETECTION					
Score	5	4	3	2	1
Category Severity (SEV)	Severe	High	Moderate	Minor	Negligible
Occurrence (OCC)	Very High	High	Moderate	Low	Very Low
Escaped Detection (DET)	Very High	High	Moderate	Low	Very Low

Documentation of process and product failures to identify causes

Run	A	B	AB	y_1	y_2	y_3	...	\bar{y}	s
1	-	-	+						
2	-	+	-						
3	+	-	-						
4	+	+	+						

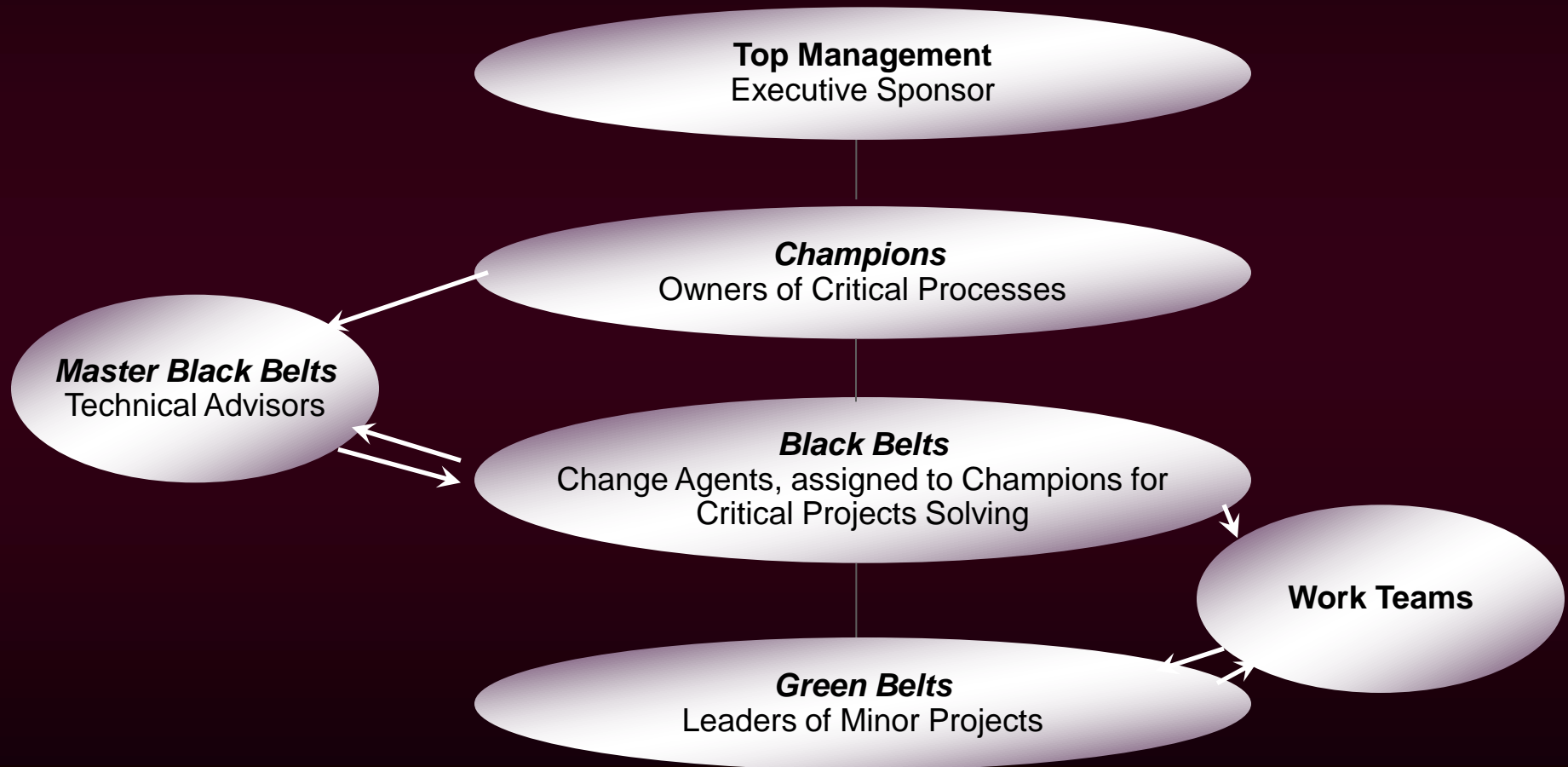
Experiment design to achieve variation immune processes

$$\hat{s} = \bar{s} + \frac{\delta_A}{2} A + \frac{\delta_B}{2} B + \frac{\delta_{AB}}{2} A \cdot B$$

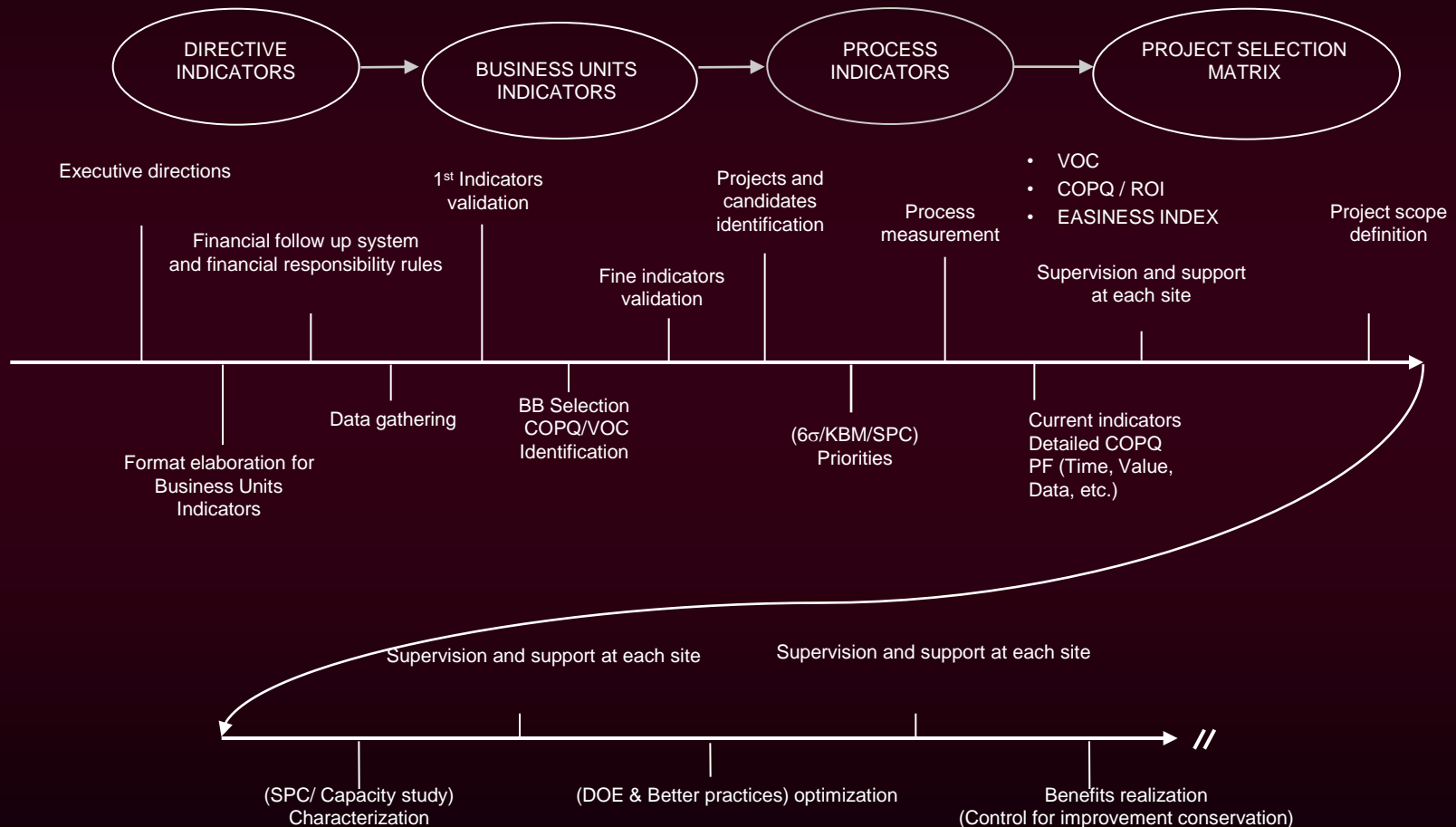
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Lean Six Sigma Actors



Lean Six Sigma Path



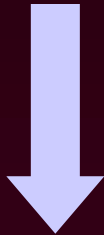
From Continuous Improvement to Innovation

- *Innovation* enables companies to position in market niches, differentiating from competitors, and getting benefits from a temporary competitive advantage.
- The path to innovation passes first through a dedicated strategy of *Continuous Improvement*, as a preparatory step of process control, and then through the application of powerful methodologies and diverse tools to enhance their competitiveness.

From Continuous Improvement to Innovation

TOOLS

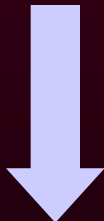
Lean / Six Sigma



Quality, competitive costs,
productivity, on time delivery,
controlled stock, short cycles

V S M, **D M A I C**
C/E, S P C, D O E,
S M E D, 5 S, T P M

**Lean / Six Sigma
Design**



Market positioning, sales growth,
quality service, reduced lead time

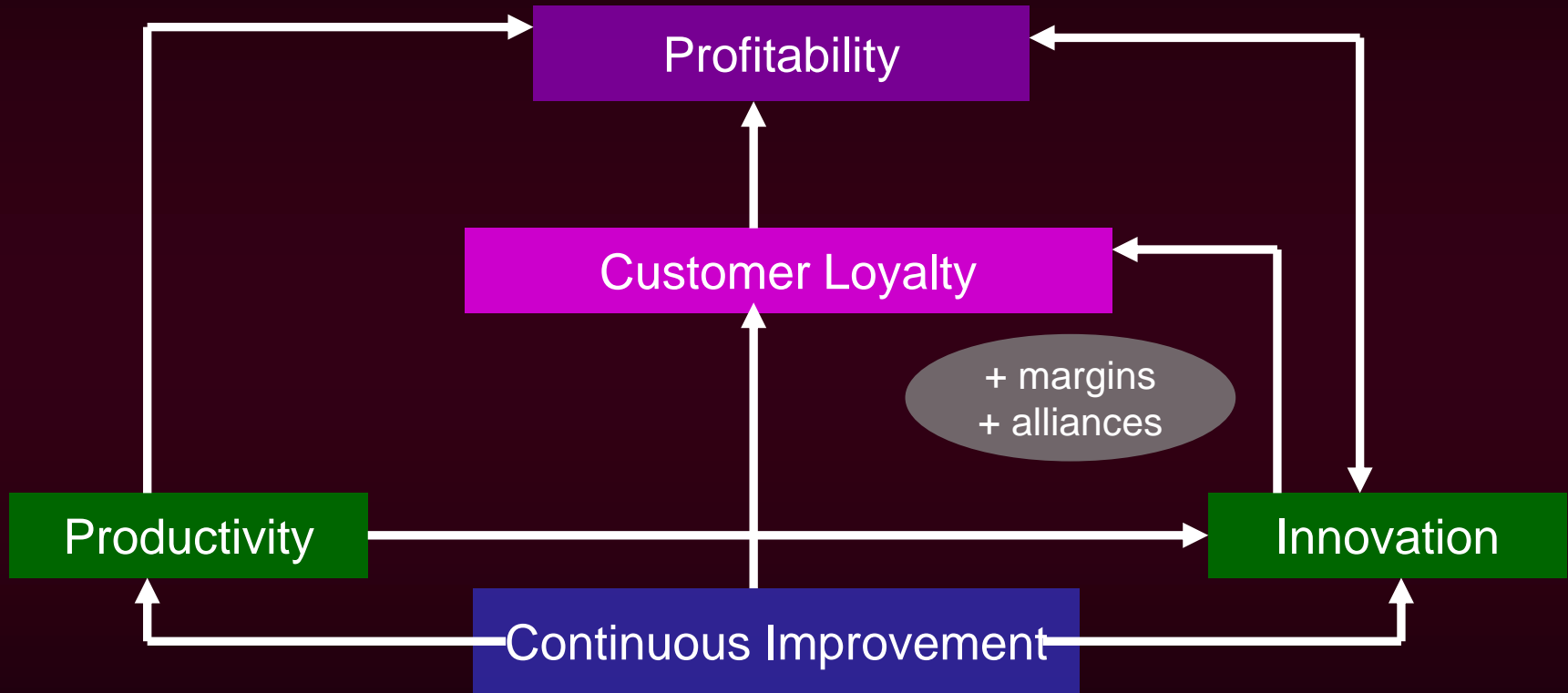
I D O V, **V O C**,
Q F D, C T C, D F S S
D O E, V S M

Innovation

Capacity to fulfill new customer
needs, participation in new
markets, niche creation

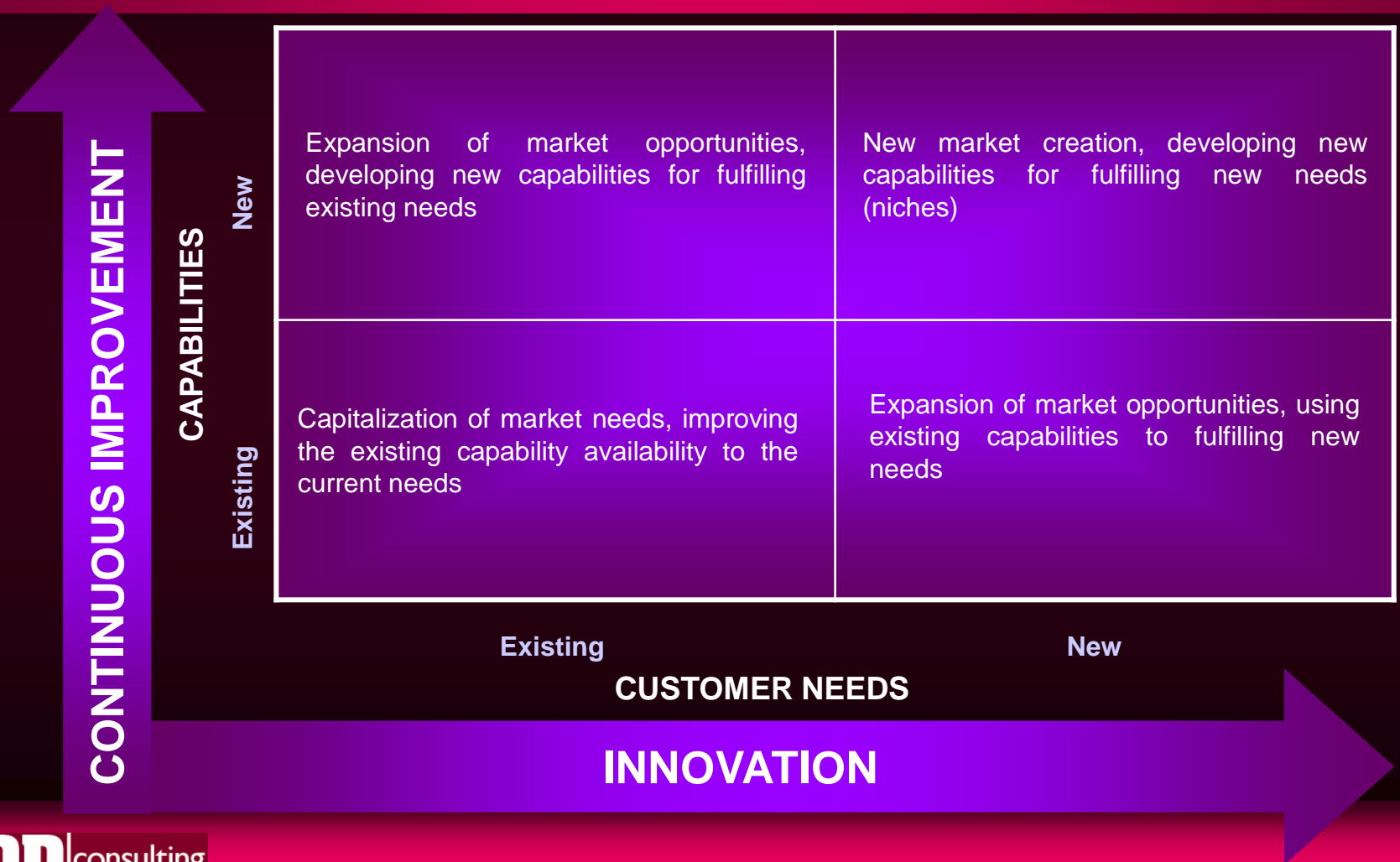
I & D, creativity,
connections,(network
Blue Ocean AD
TRIZ, technology

From Continuous Improvement to Innovation

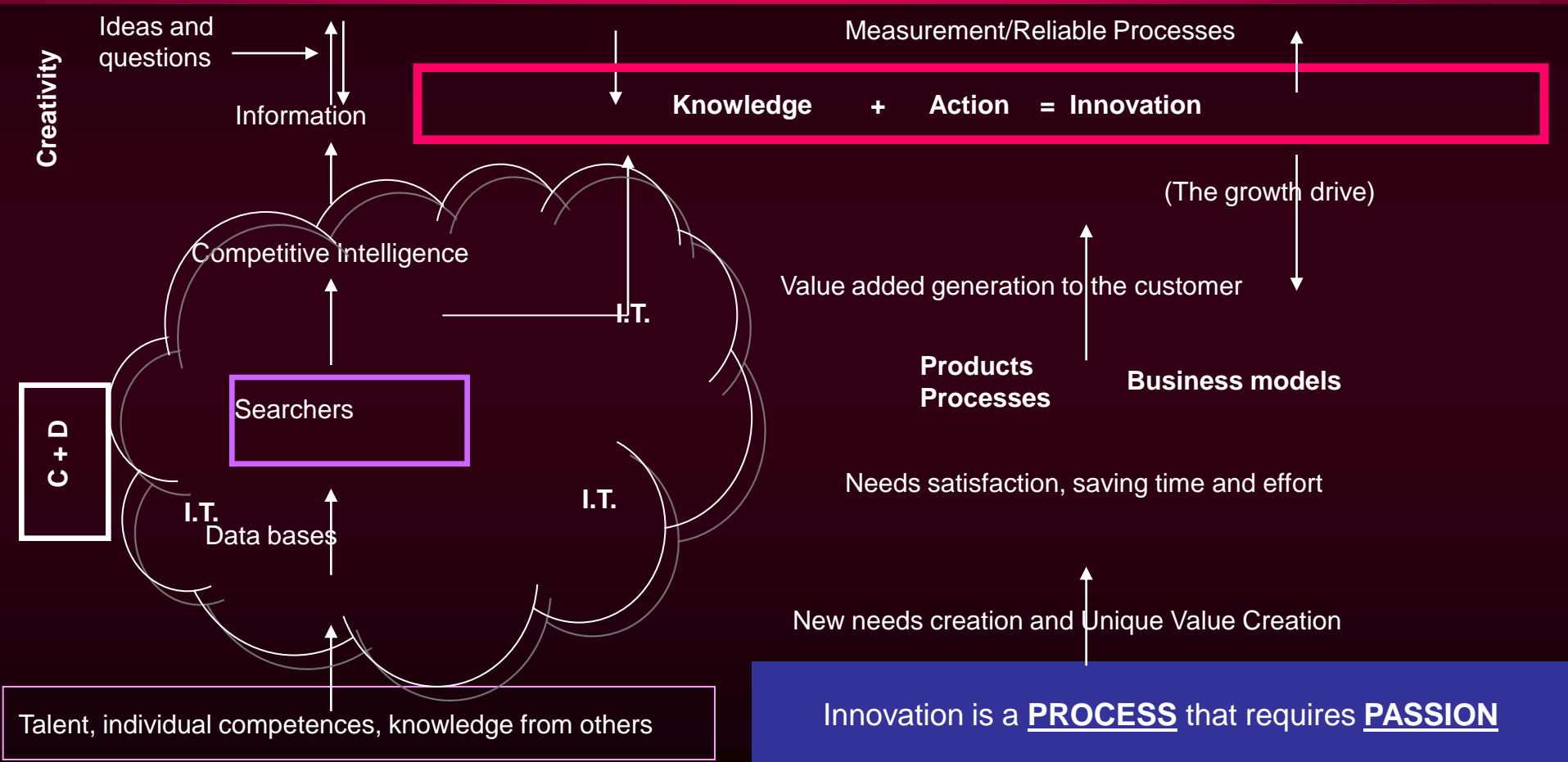


Continuous Improvement contributes with resources for Innovation

Value Creation Proposals



The Innovation Process



Management Key Factors

- Innovation must be considered as a strategic factor...
- Implementation of planning and control processes (measurement)...
- Implementation of control procedures to eliminate process variations..
- Systematic tools application for process simplification and optimization...
- Strong market orientation with emphasis on customer satisfaction...
- Directive style based on leadership, motivation and commitment...
- Knowledge search as a source of differentiation...
- Promotion of organizational flexibility as the foundation of culture change...
- Risk acceptance, as long as it can be measured...

Innovation as a Process

- As a process, Innovation follows the same methodology used for Continuous Improvement, it requires the same *discipline*, it uses the same *basic tools*, but it demands *special motivation and follow up* with a stronger approach towards *customer satisfaction* and a greater respect for *executing time criteria*.

BDD Consulting

- BDD Consulting provides solutions for achieving a better operational efficiency supported by a proper strategic planning and the use of proven modern tools with demonstrated performance in world class companies.
- BDD Consulting is associated to Air Academy Associates, a leading company of the United States, which promotes the LSS (Lean Six Sigma) methodology in the five continents. www.airacad.com
- Dr. Daniel Butruille, founder and president of BDD Consulting, has directed recognized companies in different industrial sectors of Mexico and South America. He was creator and director of the continuous improvement program at the IMSA group from 2002 to 2005. By using these methodologies, the IMSA group has developed important operational improvements which have reflected in savings of several million dollars in facilities of Mexico, United States, Central America, South America and Europe.