strong step

Innovation in software quality

SEIPartner

Organization and teams efficiency: new tendencies

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Innovation in Software Quality

Presentation

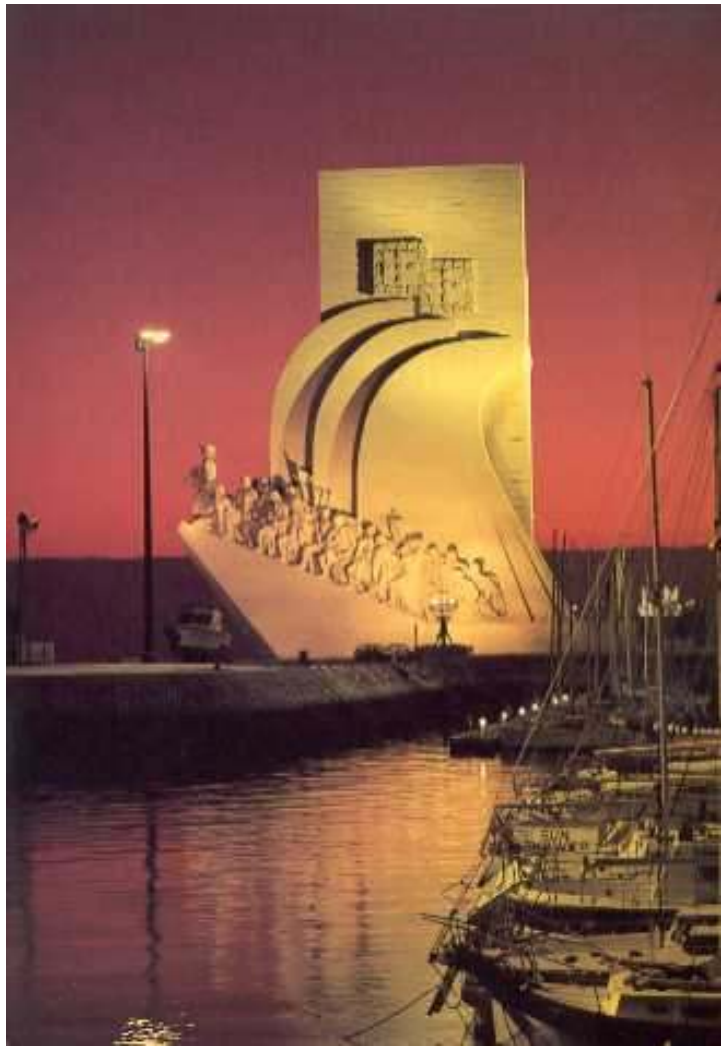
- **Luís Amaral**

- **Director and Senior Consultant of Strongstep. Experience in managing, directing and implementing process improvement and certification projects in Software Engineering.**

- **Over 10 years of international experience (8 living abroad) as a consultant in the telecommunications business. Responsible for program management and quality department creation and management in multi-country projects**

Context

Another turning point



We're looking for…

- **Results**
- **Performance**
- **Sustainability**

How do we get there?

- **Agility**
  - The world is fast changing
  - We need to quickly adapt and deliver
  - We must provide iterations and get regular customer feedback

How do we get there?

- **Lean**

  - Our processes should be simple and add value
  - Eliminate waste and inventory (defects, rework)
  - We must continually search for excellence

How do we get there?

- **Innovation**
  - Those who adapt survive
  - We need to foster innovation
    - Externally to differentiate
    - Internally to produce with optimized quality

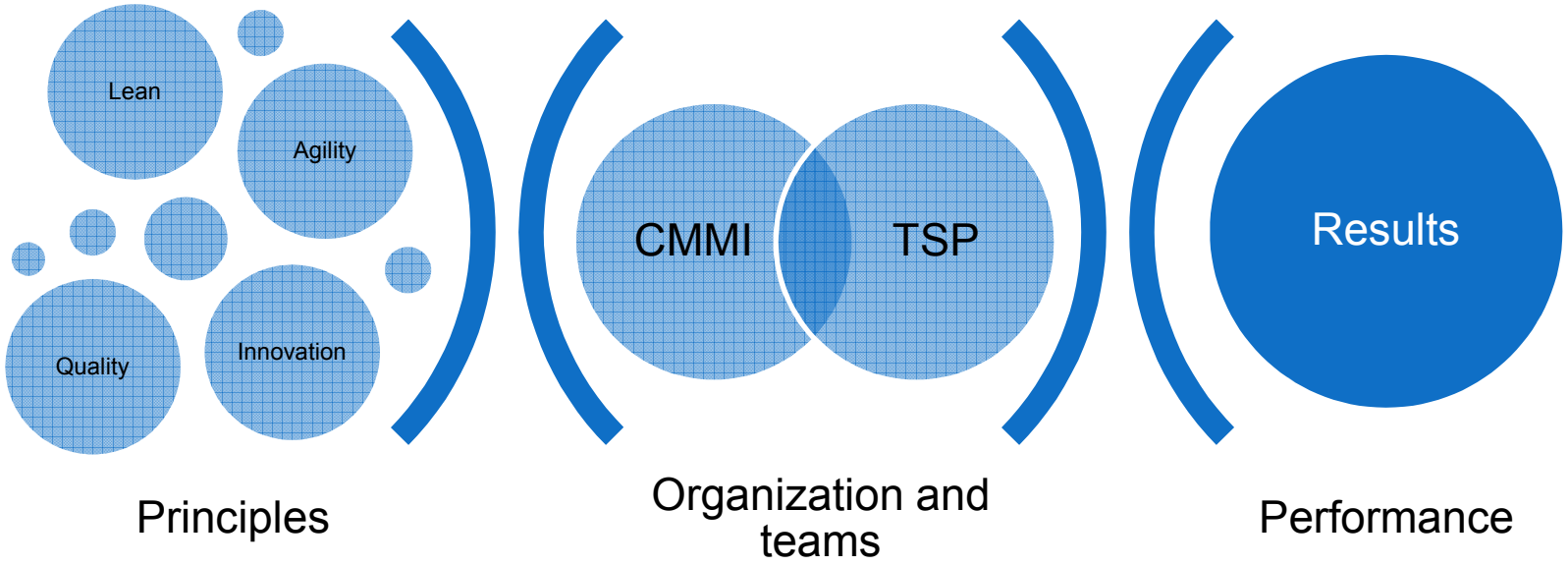
How do we get there?

- **Quality**
  - Delivering with quality allows
    - Less rework
    - More profitbility
    - Preventing losses in our business
    - Increasing relationships with customers

How do we get there?

- **Tools**
  - Technology is increasingly impressive
  - We must use it in our favor
  - To accelerate

Putting all together

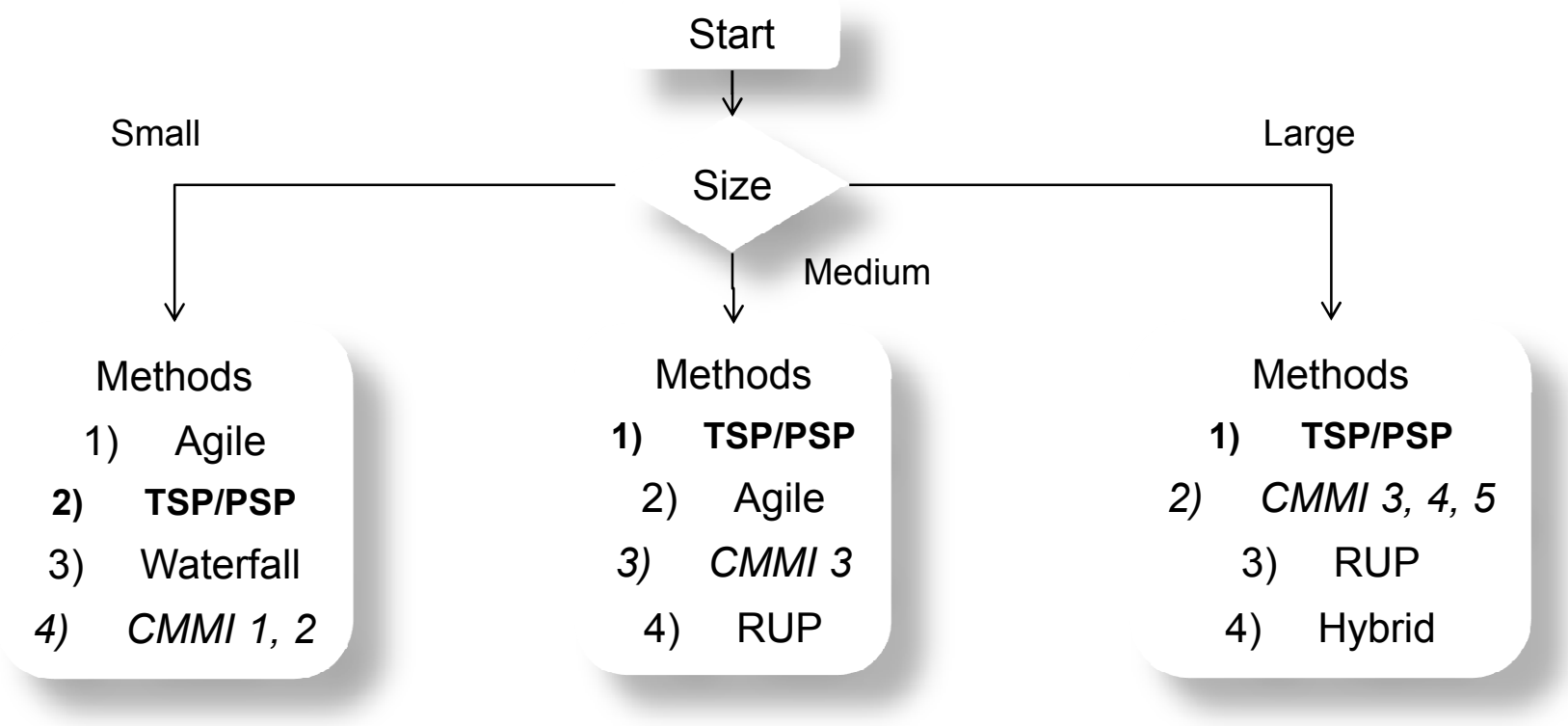


Team Software Process (TSP)

- **TSP is a process that is specifically designed for software teams.**

- **It's purpose is to help teams**
  - plan and manage their work
  - meet planned cost and schedule commitments
  - produce quality products in less time
  - achieve their best performance

TSP – a Software Engineering Best Practice

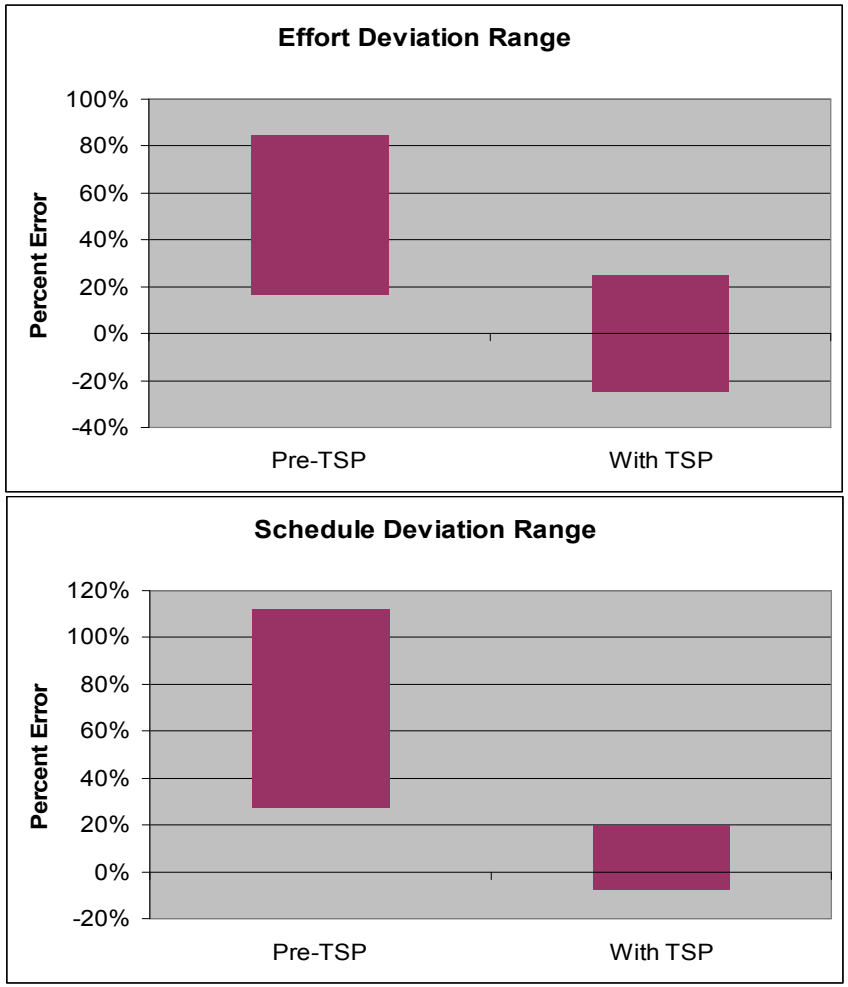


Development practices by size of application[1]

1. Software Engineering Best Practices, C. Jones, 2010

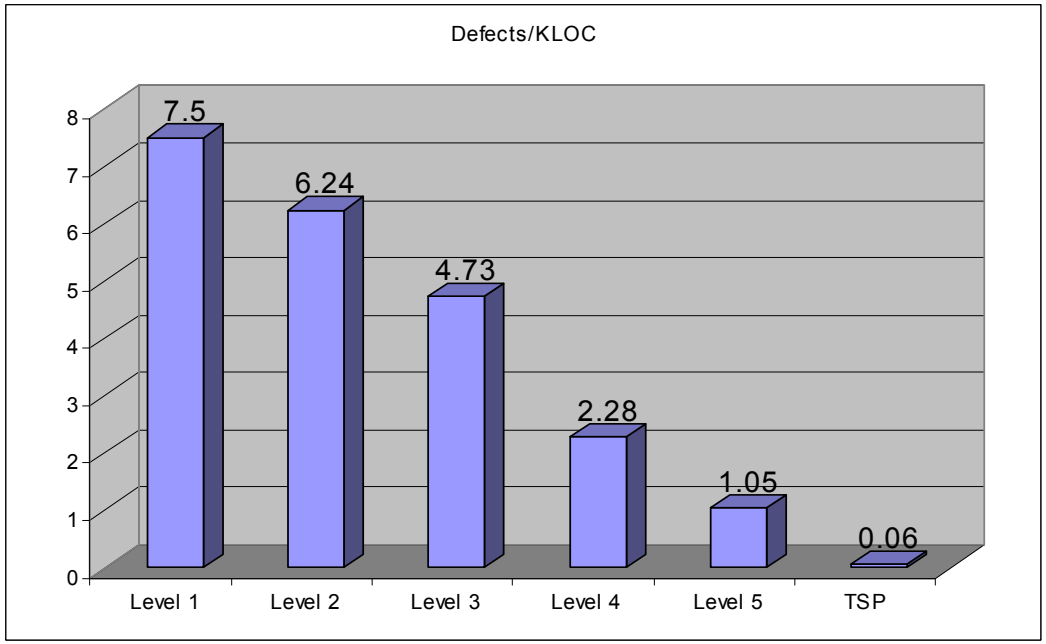
Improve Estimation Accuracy

- **Project cost and schedule predictability improvements are dramatic.**
- **Most software projects have cost and schedule deviation of 20% to +100%.**
- **With TSP cost and schedule variance is typically less than +/-20%**



Sources: CMU/SEI-TR-2000-015; CMU/SEI-TR-2003-014

Improve Quality and Productivity



Product Quality Improvement

Delivered product quality is among the best in the industry.

Average post-release defects on 20 projects in 13 organizations was 60 per million lines of new and modified code. [2]

One-third of the products from this study were defect free for at least the first six months. [2]

Productivity Improvement

Intuit, Northrop Grumman, Allied Signal, Teradyne, Hill AFB, Boeing, Microsoft, NAVOCEANO, Oracle, and many other organizations improved productivity, cycle time, or functionality shipped per release.

Increases in the range of 25% to 40% are common.

Improved Quality of Work Life[2]

"A more disciplined process allowed me to do a better job, and allowed me to balance my job with other aspects of my life."

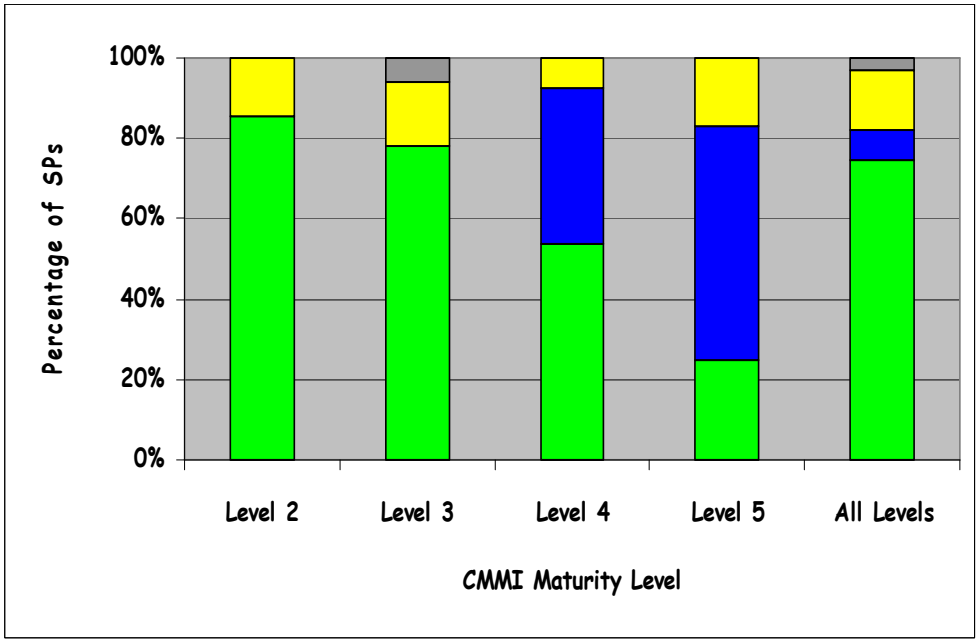
"I liked the level of detail that went into initial plan, and the constant awareness of the schedule. [This] allowed us to make adjustments as the project went on, instead of waiting for a major milestone."

1. CMU/SEI-TR-2000-015
2. CMU/SEI-TR-2003-014

TSP Implements CMMI

- **An organization using TSP has directly addressed or implemented most specific practices (SP).**
  - 85% of SPs at ML2
  - 78% of SPs at ML3
  - 54% of SPs at ML4
  - 25% of SPs at ML5
  - 80% of ML2 and ML3 SPs
  - 75% of SPs through ML5

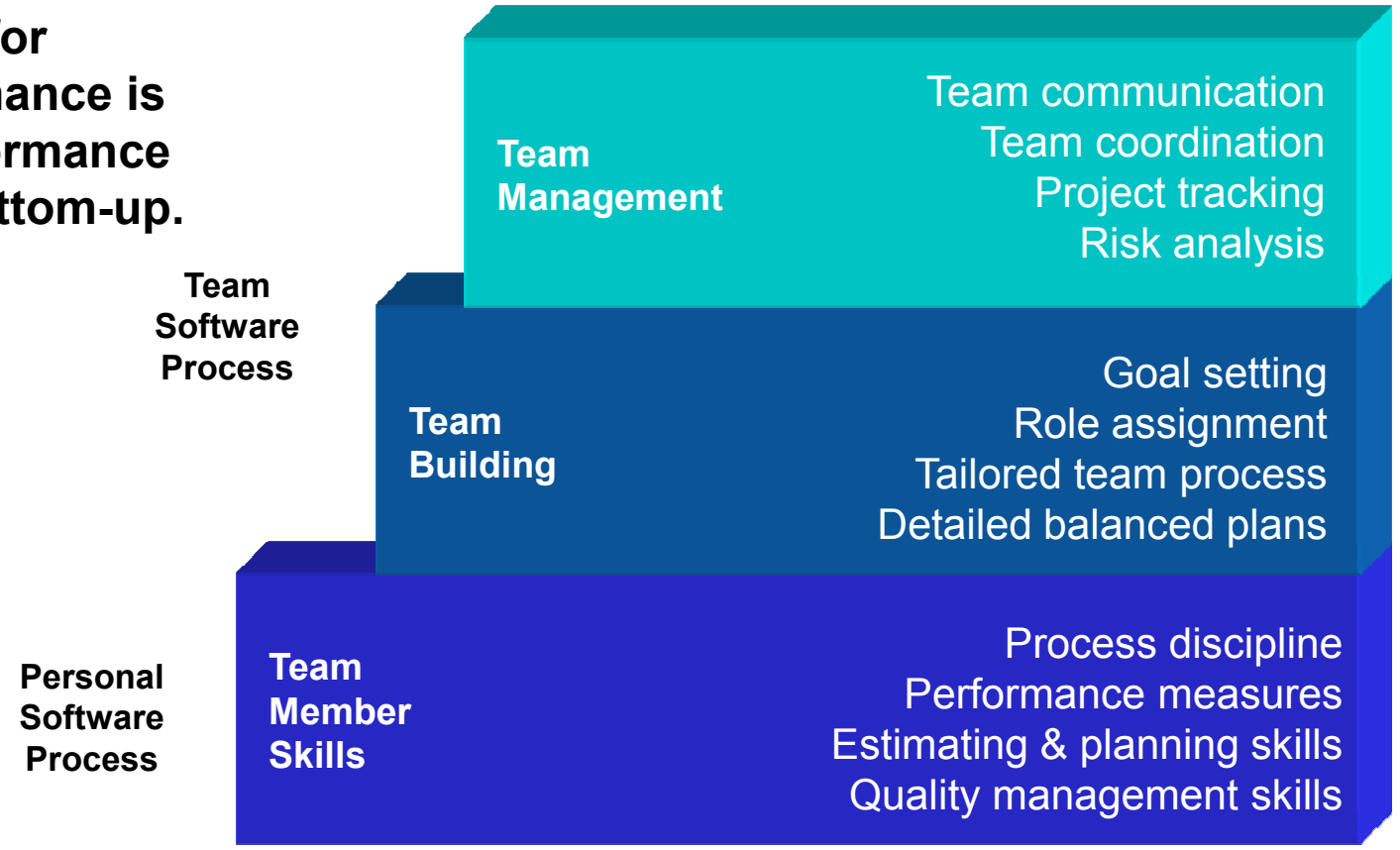
- **Most generic practices are also addressed.**



Based on a SCAMPI C of the latest version of TSP

Building High-Performance Teams

- **The TSP strategy for improving performance is to build high-performance teams from the bottom-up.**

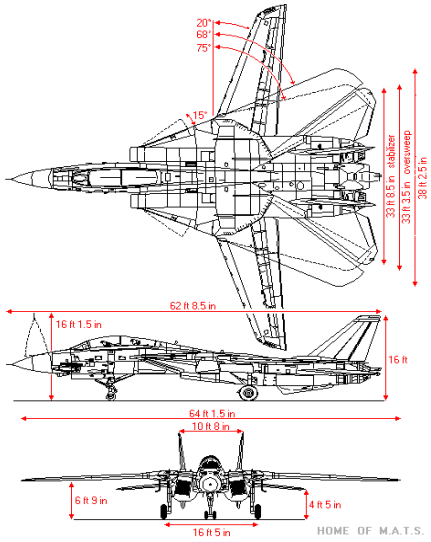


TSP Summary

- A development process for high maturity and high performance engineering teams
- Disciplined but agile method
- Scalable method: teams from 2 to 20 people; teams of teams
- Engineering full life cycle process from requirements to delivery
- Focus on the management process: project management, quality management, process management, risk management, configuration management
- Metrics framework: 4 base measures and several derived and combined ones

CMMI and TSP are Complimentary

- **CMMI is…**
  - a model of best practices
  - an improvement roadmap
  - a capability benchmark
  - the “what” not the “how-to”
- **TSP is…**
  - an instance of CMMI practices
  - a process improvement tool
  - a performance improvement tool
  - the “how-to” not the “what”



Systemic approach

CMMI

Capability Maturity Model Integration

Sustainability

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