



Málaga, September 2012

Executive Summary

TITLE: **D4.2.1: Generated quality metrics and feature report on our software tests**

PAPERS RELATED:

- Ben-Romdhane, H., Alba, E., and Krichen, S. (2013). **Best practices in measuring algorithm performance for dynamic optimization problems**. *Soft Computing*, 17(6), 1005-1017.

ABSTRACT:

Dynamic optimization problems (DOPs) have attracted considerable attention due to the wide range of problems they can be applied to. Lots of efforts have been expended in modelling dynamic situations, proposing algorithms, and analyzing the results (too often in a visual way). Numeric performance measurements and their statistical validation have been however barely used in the literature. Most of works in DOPs report only the best-of-generation fitness, due to its simplicity of computation. Although this measure indicates the best algorithm in terms of fitness, it does not provide any details about the actual strength and weakness of each algorithm. In this deliverable, we conduct a comparative study among algorithms of different search modes via several performance measures to demonstrate their relative advantages. We discuss the role of using different performance measures in drawing balanced conclusions about algorithms for DOPs.

GOALS:

1. Review existing metrics for DOPs.
2. Perform an experimental analysis and study the meaning of each metric.
3. Perform a clear comparative analysis of well-known algorithms for DOP.

CONCLUSIONS:

1. We have observed different conclusions according to the metric used.
2. Our study evokes the importance of using several types of metrics (fitness and behavioral measures) together to get meaningful conclusions.
3. Our work shows that the scalability is of an important consideration when comparing DOPs.

RELATION WITH PAST

DELIVERABLES:

PRE: none

POST: D4.2.2 (advisable reading)