

UNECE WP on Regulatory Cooperation and Standardisation Policies

Completing the Market Surveillance Model and more

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1. Introduction

- ✓ MS Model developed since 2007 within the UNECE MARS group (1)
- ✓ The Model has been inspiring MS entities including industry initiatives worldwide and its contents are still prominent
- ✓ Effectiveness of MS actions has always been the leading target of the Model

(1): v3 can be downloaded here:

https://www.unece.org/fileadmin/DAM/trade/wp6/documents/2009/wp6_09_GMS_012E.pdf

1. Introduction

✓ More elements of the Model have been developed since 2007 but due to low resources these have never been integrated into the Model.

However we now note a need to develop further the model:

✓ Major industry groupings in Europe and worldwide want a better market surveillance system.

✓ MSAs have been working more and more together, apparently this is a good idea but .. is it enough?

2. Why to complete the Model?

- ✓ Regulatory frameworks do not clearly define outcomes of MS actions, i.e. what is the need on human and financial resources to get an effective MS system
- ✓ We even do not know exactly what is “an effective MS system”
- ✓ This situation leaves freedom to MSAs to implement a performing or a less (badly) performing MS system

3. More specific MS requirements

Setting objectives in MS actions are key

✓ From recent research (see Pendrill¹ paper), it is suggested to develop optimized sampling uncertainty methodologies which include economic assessments of the costs of doing testing/sampling together with the costs of incorrect decision making.

✓ This approach can be applied to market surveillance actions as well so that it will become clear if resources for MS are sufficient.

1: L. R. Pendrill, “Using measurement uncertainty in decision-making and conformity assessment,” *Metrologia*, vol. 51, no. 4, pp. 206–218, 2014.

4. Dynamic simulations of MS actions

Based on UNECE work i.e. the GSM, a dynamic MS model that can be used for simulations and as a tool for creating new or improving the existing market surveillance models or policies, was developed²;

The model may be used for simulating NCR's settings and calculating resources needs (= define costs of MS systems).

2. Presentation provided at IEEE product safety seminar in Anaheim USA May 2016 see:

<http://ieeexplore.ieee.org/document/7492846/?reload=true&arnumber=7492846>

4. Dynamic simulations of MS actions

It simulates the dynamic interaction between the three main actors (entities) within the market surveillance (MS) system:

- the MS authority;

- the consumers/users of the products; and

- the economic operators (EOs).

When creating the model of a MS system the assumption was taken that through time, each of the three actors perform action(s) depending whether or not they are satisfied with the current situation.

4. Dynamic simulations of MS actions

Satisfactory indices are aiming to follow the natural correspondence between the level of satisfaction of an actor in the MS system and the basic parameters that influence its satisfaction:

	Factors that influence the satisfactory index
MS authority	<ul style="list-style-type: none">• fraction conforming• budget• error of the inspection
Consumers	<ul style="list-style-type: none">• fraction conforming• error of the inspection
Economic operator	<ul style="list-style-type: none">• products pass/do not pass the inspection

4. Dynamic simulations of MS actions

Action rules: each of the actors performs certain action(s) if their satisfactory index is below or above the corresponding limit value.

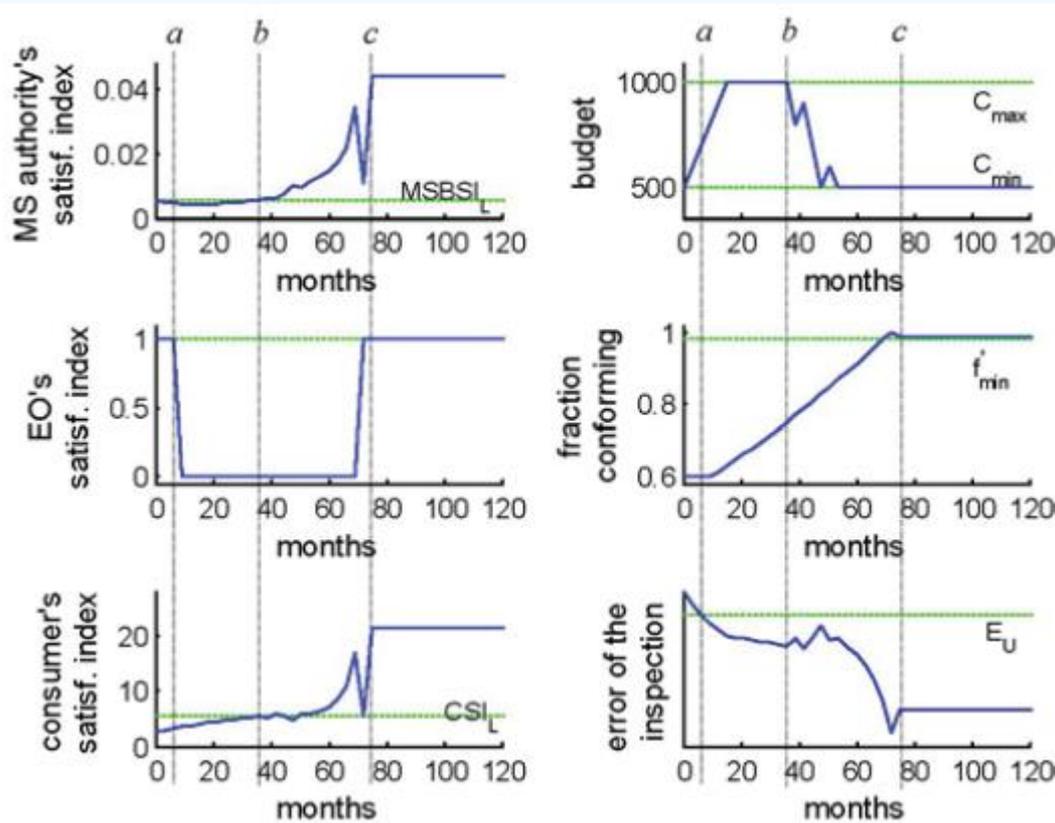
The model sticks to the basic (natural) actions:

- increase/decrease of the MS budget

- improvement/deterioration of the production

4. Dynamic simulations of MS actions

Practical case: a MATLAB based software was developed that runs the model.



- MSBSIL: lower limit of the MS authority satisfactory index
- CSIL: lower limit of the consumers' satisfactory index
- E_U: upper limit of the error of the inspection
- C_{min} - C_{max}: range of the MS budget
- f'_{min} : minimal acceptable fraction of conforming items on the market

4. Dynamic simulations of MS actions

NCR:
Non-Conformity Rate

Optimal investment

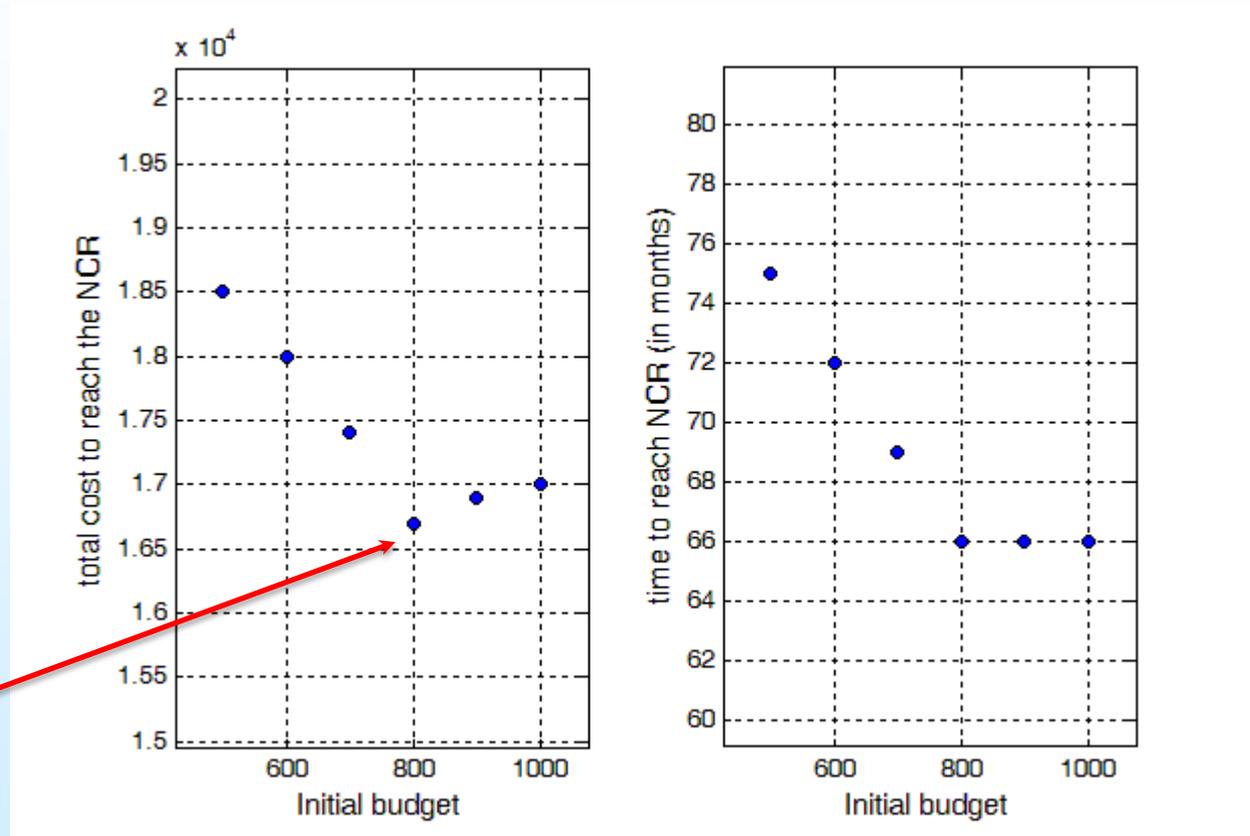


Fig. 2

4. Dynamic simulations of MS actions

Conclusions:

The model is general and can be used by different stakeholders.

Simple conclusions cannot be made (Fig.2: larger budget DOES NOT mean better MS system).

The model encompasses the interaction between the three parties and follows the directions given in recent MS legislation and the UNECE model.

In order to bring the model closer to the reality, the authors propose and are already experimenting with:

- delays in the decision process; use of stochastic parameters;
- application of stratified statistics in order to catch the non-homogeneity of the market.

5. Preliminary conclusions & way forward

Review of current MS activities reveals:

- Market surveillance shall perform better (fair playing field in particular)
- Existing regional co-operation initiatives among national MSAs are interesting but not enough
- There are a number of guides for MS actions out there, but... they are only guides...
- MS objectives shall be better defined so that:
 - *Consensus is achieved among all interested parties*

5. Preliminary conclusions & way forward

Way forward:

- Enter critical elements into the Model like: setting objectives (“SMART” based general MS strategy) , setting and reporting on compliance rates, entry conditions, verification testing (sampling, pre-compliance testing), elements of a QMS for MSAs and update to latest regulatory/standards developments
- Continued research on how resources play a role in an effective MS system
- Use the completed Model and research data to input it into regulatory and standards work.

Thank you