

Data sharing to improve food supply chain management

INTRODUCTION

The agrifood sector is a very complex system and owns many responsibilities. A food product should have nutritional and sensorial quality, should be safe, authentic, sustainably and ethically produced, as well as traceable all along the supply chain. Nowadays, there are still many issues worldwide in all those aspects, indicating that the Food Supply Chain Management (FSCM) approaches used can be improved.

It is fundamental to deeply understand how food supply chain is structured, operates, performs and is managed, in order to increase its competitiveness and sustainability, identifying suitable management tools and indicators along with the main influencing factors.

CHALLENGES

Improve data sharing

Avoid knowledge fragmentation among actors, promoting integration

Avoid duplication of efforts and time and money waste

Improve technology transfer

STRATEGIES

Data sharing should integrate:

Big data analytics - a method with the capability of managing data that can help to make graphical decisions with more accurate data input by excavating hidden and invaluable information or knowledge.

Blockchain technology - it ensures data authenticity, saves transaction time, removes overheads and intermediary costs, reduces risk of tampering, fraud and cybercrime.

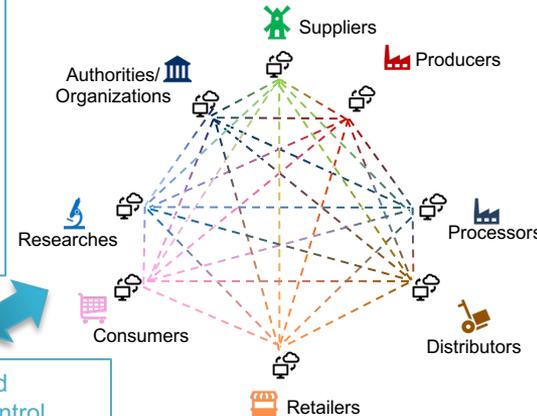
Following:

FAIR principles

Findable 
Accessible 
Interoperable 
Reusable  (1)

NACCP (Nutrient hazard Analysis and Critical Control Points) - to evaluate and guarantee total quality management in the maintenance of high nutritional levels (2)

PROPOSED MODEL - An integrated network to share integrated and interoperable data (e.g. analytical data on quality, safety and authenticity; data on production and movement of goods; technologies; regulations; etc.) among all the interested stakeholders, and integrate academic knowledge with FSCM, by combining different technologies and models.



PARAMETERS TO BE MONITORED & LOADED IN THE NETWORK

- ✓ Quality
- ✓ Safety
- ✓ Authenticity
- ✓ Traceability
- ✓ Production yield & technology
- ✓ Movement of goods
- ✓ Regulations, SOPs and good practices
- ✓



Final purpose: to create an integrated system of interoperable data allowing FSCM to make more informed decisions that will lead to improvements such as higher yields, greater nutritional value of products, decreased production costs and losses, higher traceability

References

- (1) M. D. Wilkinson *et al.*, «The FAIR Guiding Principles for scientific data management and stewardship», *Sci Data*, vol. 3, n. 1, pag. 160018, dic. 2016, doi: [10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18).
- (2) L. Di Renzo *et al.*, «Food safety and nutritional quality for the prevention of non communicable diseases: the Nutrient, hazard Analysis and Critical Control Point process (NACCP)», *J Transl Med*, vol. 13, n. 1, pag. 128, dic. 2015, doi: [10.1186/s12967-015-0484-2](https://doi.org/10.1186/s12967-015-0484-2).