



Scaglia Indeva SpA

Vision, industrial and social impact

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Vision

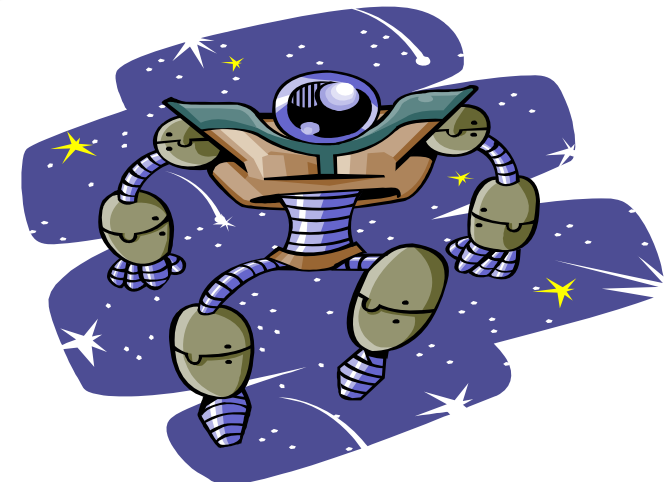
Increase MANUFACTURING EFFICIENCY

- *Productivity,*
- *efficiency,*
- *better quality*

Increase WORKER WELLNESS

- *Safety,*
- *ergonomics*
- *health*

- We help to overcome the typical human limitations (strength, resistance, gripping capabilities...)
- We combine the advantages of a man (flexible intelligence, capability to adapt to unforeseen situations...) to the advantages of a robot (force, resistance, endurance, work capability,...)
- We can make your employees superhuman





Evidences of Achievement



To verify and demonstrate the achievements of our objectives, several studies have been performed. Lifting devices and technologies available on the market have been compared using different methodologies, tools and with emphasis on various aspects.

Here we mention 2 studies:



1. University of Brescia, Dipartimento Ingegneria Meccanica e Industriale

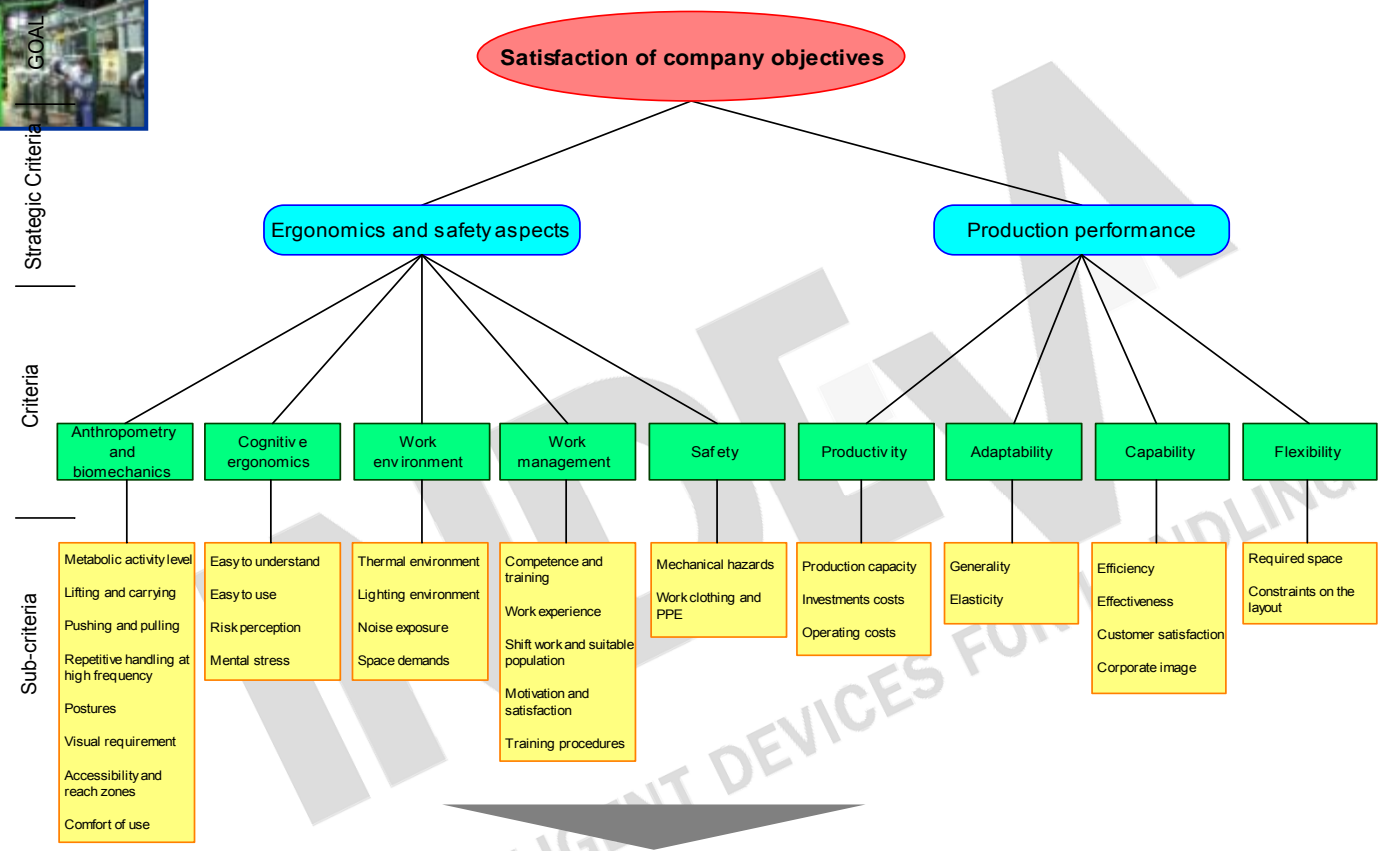


2. EPM – Ergonomia della Postura e del Movimento (research unit activated by: Università degli Studi di Milano, Ospedale Policlinico Milano, Fondazione Don Gnocchi Milano)



1. University of Brescia

Abstract from *International Journal of Industrial Ergonomics*



INDEVA Liftronic Easy is the best alternative in case of handling a 20-kg box.....even in case of 5-kg box is still preferable for the satisfaction of company objectives.....the use of the IAD may permit handling in a greater percentile range of the worker population as well as for operators with physical limitations; in addition, the levelling of the handling frequency allows for a more constant production rate and additional benefits from the ergonomic point of view

Abstract from: A multi-criteria ergonomic and performance methodology for evaluating alternatives in "manuable" material handling - International Journal of Industrial Ergonomics 43(2013) 314-327



1. University of Brescia

Abstract from *International Journal of Industrial Ergonomics*



International Journal of Industrial Ergonomics 43 (2013) 314–327



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A multi-criteria ergonomic and performance methodology for evaluating alternatives in “manuable” material handling



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Fig. 2. Liftmatic® Easy 80 Indeva.

ABSTRACT

The objectives of this study were: 1) to develop an efficient multi-criteria approach for choosing the optimal alternative for “manuable” material handling, and 2) to apply the multi-criteria approach to a case study. In this paper, the authors use the single-word term “manuable” to refer to the definition “can be performed manually”. The case study results indicated that the use of the manipulator tested in this work may be preferable to manual material handling in situations in which the lifted weight is large (61% vs. 39%) as well as those situations in which the weight of the load could not apparently justify the investment necessary for a manipulator (53% vs. 47%). The case study also validated the selected approach. Furthermore, the applicability of the methodology was confirmed by the CEO of an Italian logistics and supply chain management company (Blu Pegaso S.r.l.).

Relevance to industry: This paper provides to the decision manager a structured approach regardless of industry and country for selection of the best alternative for manuable material handling that is able to satisfy the company objectives related to ergonomic criteria and production performance measures. The methodology also supports manufacturers of material handling devices in the optimisation of their products.



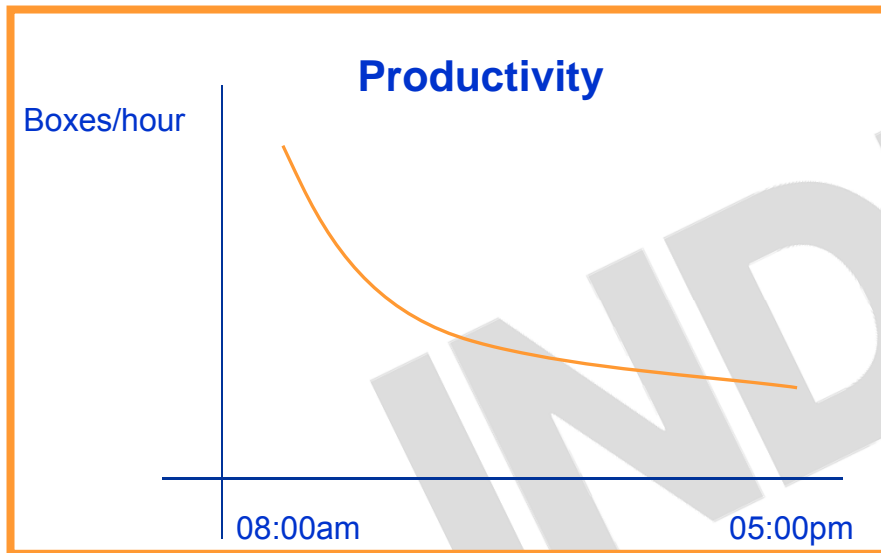
2. EPM Experimental setting



**Loading and unloading of 16kg boxes
on a floor pallet from one side only.
Work cycle: 1 shift 8 hours/day**



2. EPM Problems and issues



Decrease of productivity during the day



Compatible index NIOSH

Situation non acceptable because of the distance away the person is more than 63 cm (See norm ISO EN 1005-4)

Other related problems

Elbow: many bends and extensions

Wrist: forced deviation

Hand: forced deviation

Posture of the upper limb: wrist, elbow, hand for evaluation purposes according to the norms EN 1005-4



2. EPM

Use of lifting devices: comparison



Lifting Device	Cycle Time	Productivity	Technical Actions
Traditional rope lifting device	82 sec	-36%	8
Traditional rigid pneumatic manipulator	76 sec	-36%	8
INDEVA Liftronic Easy	48 sec	<---->	6
Manual (NIOSH=3,83)			

Not allowed

INDEVA Liftronic Easy is the best alternative for manual load handling

Application examples

