

How ergonomics can maximize its contribution to the society ? - A recent trend of international standardization

Yushi Fujita (a)

(a) Keio Graduate School of Management, yushi1130@gmail.com

Abstract:

Ergonomists often complaint that stakeholders do not pay enough attention to ergonomics. With a limited resource, an ergonomics practice tends to be regarded as a cost factor, and is likely to be less attended. There are many examples in which ergonomics play critical roles thereby contributing to making more profit or to reducing cost. However, whether or not they are accomplished depends largely on the understanding of stakeholders. Recently, ISO/TC159 drafted ISO27500, which specifies recommendations for stakeholders. It is expected that this standard will provide a new arena for implementing good ergonomics.

1. Introduction

We are under ever changing environments both externally and internally. Technologies change over time. People's mind changes over time; hence social norms and demands change over time. Therefore, ergonomics must change itself in order to stay useful for people, especially in proactive ways.

In the past, performance and wellbeing were often considered to be in a trade-off relationship. Investment into higher performance is considered a profit factor if appropriately conceived, whereas investment into higher wellbeing is considered necessary, but a cost factor. Nowadays, few people believe it is true. Professional ergonomists are convinced that better wellbeing contributes to more profit rather than cost reduction alone. In fact, the Group of Eight (G8) recognizes wellbeing as an important economic measure. It is considered as a complement to traditional measures such as gross national product. Corporate organizations are judged on broader issues, not just on return on investment alone. They are judged on how well they fulfill their responsibility to society, and how they impact the environment.

Good human wellbeing contributes to a better economy in many ways. For instance, it reduces the social healthcare cost by making people healthier. There is lot of evidence that reports significant healthcare cost reduction. It enhances productivity by making people more confident and motivated.

Recently, ISO/TC159/SC1/WG5 (Ergonomics Process Standard) has drafted ISO27500 (Human-centred Organization). It specifies recommendations for stakeholders so that they pay enough attention

to ergonomics. It is expected that the standard will provide a new arena for implementing good ergonomics. (Note, as of October 2015, ISO27500 is in the FDIS stage).

This paper emphasizes that wellbeing is an important economic measure. It means that good ergonomics, and resultant good wellbeing will give us economic benefit. It is also emphasized that professional ergonomists are encouraged to tell this to stakeholders; especially to higher-level stakeholders. Furthermore, professional ergonomists are encouraged to propose stakeholders to work with us so that they can know how to implement relevant International Standards.¹

2. International standard

There are some international standards, which specify high-level guidelines for organizations to fulfill their responsibility. These include:

- ISO 26000 (Guidance on social responsibility) [1];
- ISO 31000 (Risk Management) [2]; and
- ISO/IEC 38500 (Governance of IT for the organization) [3].

ISO 26800 describes the general ergonomics approach and specifies basic ergonomics principles and concepts applicable to the design and evaluation of tasks, jobs, products, tools, equipment, systems, organizations, services, facilities and environments.

Recently, ISO/TC159/SC1/WG5 has drafted ISO 27500 (The human-centred Organization) [4]. It explains to company executive board members the values and beliefs that make an organization human-centred, and specifies policies they need to put in place to achieve the human-centeredness. It is being circulated as a Final Draft International Standard, and expected to become an ISO standard in the near future.

3. ISO 27500

3.1. ISO/TC159

ISO/TC159 (Ergonomics) is one of many technical committees within International Organization for Standardization (ISO). Currently, TC159 consists of the followings:

- ISO/TC 159/CAG: Chairman Advisory Group;
- ISO/TC 159/WG2: Ergonomics for people with special requirements;
- ISO/TC 159/SC1: General ergonomics principles;
- ISO/TC 159/SC3: Anthropometry and biomechanics;
- ISO/TC 159/SC4: Ergonomics of human-system

¹ Explanations about ISO 27500 given in this paper are based largely on the contents of the final draft standard (FDIS) [4].

interaction; and

- ISO/TC 159/SC5: Ergonomics of the physical environment

To date, more than one hundred twenty international standards have been published by TC159. According to the latest information available on their website 28 participating countries and 30 observing countries are registered-

http://www.iso.org/iso/iso_technical_committee.html%3Fcommid%3D53348.

Recently, a new working group was founded in SC1 that is WG5, entitled 'ergonomics process standards.' International Ergonomics Association (IEA) originally conceived the foundation of this working group based on their accomplishment 'Ergonomics Quality in Design (EQUID).' EQUID is a framework standard, or process standard, which specifies a general process for designing ergonomics products and services in large.

3.2. ISO/FDIS 27500

After three years since its foundation, WG5 has almost completed the drafting of a new standard ISO 27500. It successfully passed the stage of Draft International Standard, and is ready for voting for Final Draft International Standard (FDIS).

It is the first of a three-volume family series standard under the title of Human-centred Organization:

- ISO 27500: This standard specifies high-level recommendations for company executive board members. It is in the FDIS stage;
- ISO 27501: This standard specifies recommendations and requirements for senior managers who are responsible for ergonomics projects but not necessarily knowledgeable of ergonomics. It is in the Working Draft (WD) stage; and
- ISO 27502: This standard specifies recommendations and requirements for frontline managers such as project leaders who are directly involved in ergonomics projects. It is still under preparation for initiation.

There are a number of standards on ergonomics. These standards are designed for people who are directly involved in subject matters, and are not normally the concern of company executives. Unlike these standards, ISO 27500 is tailored to company executives, and presents the general principles of human-centeredness in a concise form.

ISO 27500 identifies seven principles, which characterize a human-centred organization. In other words, a human-centred organization refers to an organization, which are administered in accordance with these seven principles:

- Take individual differences as an organizational strength;
- Make usability and accessibility strategic business objectives;
- Adopt a total system approach;

- Ensure health, safety and wellbeing are business priorities;
- Value employees and create a meaningful work environment;
- Be open and trustworthy; and
- Act in socially responsible ways.

3.3. Benefits of being human-centred

Several business benefits are identified which organization can enjoy by being human-centred:

- Improved operational effectiveness and efficiency and increased likelihood of achieving business objectives in a timely manner;
 - Products and services that are easier to understand and to learn how to use, thus increasing uptake and reducing support costs;
 - Increased accessibility for staff and customers;
 - Reduced risk of poor product design and the associated financial consequences;
 - Greater responsiveness to customers and to the market; and
 - Enhanced health and safety as well as environmental protection
- The draft standard claims that these in turn can lead to:
- Enhanced customer confidence and trust with increased customer loyalty;
 - Increased owner, shareholder, and member confidence and trust, and enhanced reputation; and
 - Greater staff confidence and trust, which help to improve motivation and loyalty as well as reduced staff turnover.

These are believed to lead to better organizational performance, such as financial performance, customer experience, and service to the community.

The draft standard continues to claim that there is a growing international recognition that corporate success (and even national success) ought to be measured in terms what goes beyond profit and productivity. Organizations are being assessed not just on their return on the investment, but also on much broader issues, such as how well they fulfil their responsibility to society, and the impact they have on the environment.

3.4. Way of implementation

The draft standard specifies a general framework that is essentially robust to changes that may take over time. It refers to several companies, which the editor of the standard finds at least partially exemplifying good practices in terms of the seven principals for human-centeredness.

But, obviously, professional supports are necessary to identify what exactly needs to be implemented to a specific organization. It is desired that professional ergonomists help stakeholders in identifying what exactly needs to be implemented through collaboration. Neither ergonomists alone nor stakeholders alone can identify what exactly needs to be implemented. Professional ergonomists should tell stakeholders that wellbeing produces a variety of benefits, and more

importantly, propose collaborations.

4. Conclusions and recommendations

In the era of globalization, a trend that ISO 27500 intends to promote is not remote to industrially developing countries. It is not early for professional ergonomists and stakeholders in industrially developing countries to study what the standard will mean to them. It is important to understand that the standard pays attention not only to customers and end users but also to employees. Better wellbeing to employees will create a win-win situation.

In summary:

- Wellbeing is an important economic measure;
- Ergonomics (or human factors) makes economic benefit through enhancing wellbeing as well as improving system performance, efficiency, and safety;
- Professional ergonomists must tell this to stakeholders; especially to higher-level stakeholders such as corporate executives, regulators, and policy makers;
- ISO 27500 specifies recommendations to stakeholders in this regard; and
- Professional ergonomists must show to the stakeholders how this international standard can be applied in practice. To do this, professional ergonomists should propose to stakeholder collaboration for identifying what exactly needs to be done.

4. References

- [1] ISO 26000:2010 – Guidance on social responsibility.
- [2] ISO 31000:2009 – Risk management – Principles and guidelines.
- [3] ISO/IEC 38500:2015 – Information technology – Governance of IT for the organization.
- [4] ISO/FDIS 27500 – The human-centered organization – Rationale and General Principles. Note, this draft standard is being distributed for review and comment and is subject to change.