**A Method for Creating Product Social Impact Models of Engineered Products**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study ID** | **indicators** | **methods** | **scale** | **practices** |
| 3 | Categories (11):  Health and Safety Impact (Living conditions, mortality)  Paid Work Impact (Employment rates,  industrial diversification)  Stratification Impact )Inequality, social status)  Civil Rights Impact (Minority and Human rights)  Education Impact (Education, skills)  Family Impact (Change in family roles  and structure)  Gender Impact (Gender roles and equality)  Population Change (Transiency of the  population, age structure)  Conflict and Crime Impact (Crime, civil and domestic conflict)  Social Networks and  Communication Impact (Personal relationships, social capital)  Cultural Identity/Heritage Impact (Values, personality traits Values, personality traits)  Indicators World Bank (hundreds) or Oxford Poverty and Human Development Initiative’sWorking Papers | See figure 1 (Identify categories (Table 3 questions), select categories, select indicators per category (minimum two).)  Combines the value of the indicators | numeric | U.S. Mexico BorderWall |

Use the categories defined in:

Rainock, M., Everett, D., Pack, A., Dahlin, E. C., and Mattson, C. A., 2018. “The social impacts of products: a review”. *Impact Assessment and Project Appraisal*, pp. 1–12.

They use a table from (Ottosson, H. J., Mattson, C. A., and Dahlin, E. C. "Analysis of Perceived Social Impacts of Existing Products, with Implications for New Product Development". In Press Journal of Mechanical Design.) which indicates, given a category of social impact, the likelihood that other categories of social impact are associated with that category.

Another method of identifying which of the 11 social impact categories are pertinent, involves asking a series of questions about the product. These questions are provided in Table 3.

Once impact categories are identified, indicators need to be chosen. There are multiple data banks with hundreds of social impact indicators. The World Bank has compiled a databank that includes hundreds of indicators for tracking the progress of countries.

The World Bank (Khandker, S. R., Koolwal, G. B., and Samad, H. A., 2010. Handbook on impact evaluation: quantitative methods and practices. World Bank Publications) and the Oxford Poverty and Human Development Initiative’s Working Papers ([18]Diprose, R., 2007. “Physical safety and security: A proposal for internationally comparable indicators of violence”. Oxford Development Studies, 35(4), pp. 431–458. [19] Samman, E., 2007. “Psychological and subjective well-being: A proposal for internationally comparable indicators”. Oxford Development Studies, 35(4), pp. 459–486. [20] Ana Lugo, M., 2007. “Employment: A Proposal for internationally comparable indicators”. Oxford Development Studies, 35(4), pp. 361–378. [21] Ibrahim, S., and Alkire, S., 2007. “Agency and empowerment: A proposal for internationally comparable indicators”. Oxford development studies, 35(4), pp. 379–403. [22] Zavaleta Reyles, D., 2007. “The Ability to go About without Shame: A proposal for internationally comparable indicators of shame and humiliation”. Oxford Development Studies, 35(4), pp. 405–430.

[23] Zavaleta, D., Samuel, K., and Mills, C., 2014. “Social Isolation: A Conceptual and Measurement Proposal”. OPHI Working Paper 67(January), pp. 1–62.) include hundreds of indicators, but do not give guidance on how to select them to measure a product’s social impact. We recommend that when selecting social impact indicators the following approach is used, see Figure 1.