

5.0 SUMMARY

This research work has been about the optimization of production practices using risk analysis as the method of choice. Finding innovative ways to reduce cost, gain profit, break-even, increase the safety of the work environment, and optimize time usage. Also, exploring potential opportunities and growth areas by critically analyzing existing production and engineering best practices. This has paved the way for technological advances and industrial revolutions in the past, and this is undoubtedly revealing application potentials for industry 4.0 intervention.

The most apparent way to reduce risks is to remove them entirely either by avoiding them or by eliminating their sources. But this research delves into other not so radical ways of dealing with risks, taking advantage of them in the decision making. As it has become more apparent these days that creativity is not about avoiding dangers, but about navigating through dangers in a productive manner. And innovation is not about avoiding risks but about informed decision making in the management of risks. Of course, to promote the business goal, all these must be viewed with profit-making, environmental sustainability, and customer satisfaction in mind.

The metal production line that was the case study can easily be substituted with some other kind of enterprise, as this risk assessment tool is quite generic and easy to follow. The results obtained from this research pointed out the reason why less and less human intervention is need in industries. Aside from the limited work capabilities of humans, as in optimal working hours, strength capacity, and brain tenacity, humans present a high risk majorly because of the unpredictability of people. This unpredictability exponentially raises the likelihood of safety hazards and human error. More interesting is the point that even machine errors are dependent on human errors. Human errors either in decision making or in programming/calculations.

The strategies employed to manage the risks and control them are quite intuitive, given the recent technological advances, they show proof of concept both for the tool and the industry 4.0 solution proposed. The fact that the researcher was able to propose a management strategy based on recent advancements in technology shows that this tool is versatile enough to be used in the future even where new and more advanced technologies come into play. It also validates the proposed technological solution by showing how it could be used and what opportunities could be exploited with such a solution.