

Appendix

Scientific Background & Product Overview

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1. Overview: A New Era in Leadership Development

The combined use of gamified simulation and AI-driven coaching offers a complete learning and implementation loop that accelerates leadership development.

This system allows leaders to:

- Simulate and practice decision-making under realistic pressure
- Learn and unlearn leadership behaviors based on outcomes
- Apply insights to their real teams using digital twin technology
- Measure results in real-time (QWL, risk, ROI)
- Improve continuously with evidence-based feedback

The innovation is based on over a decade of research and tested in organizational pilots. On average, participating companies have experienced a profit increase of EUR 2,000–4,000 per employee per year, alongside improvements in quality of work life and leadership behavior.

2. Scientific Validation

This innovation is supported by peer-reviewed research:

Kesti, M. (2024). *Integrating Game Theory and AI in Management Training: A Revolutionary Approach to Enhancing Leadership and Managerial Decision-Making Skills*. Open Journal of Business and Management, 12, 1216–1237.

<https://www.scirp.org/journal/paperinformation?paperid=133851>

The study validates that the system helps managers internalize practical leadership competence-equivalent to 10 years of experience-while enabling real-time implementation supported by AI.

3. Leadership Learning Loop (Kirkpatrick-Hamblin-Aligned)

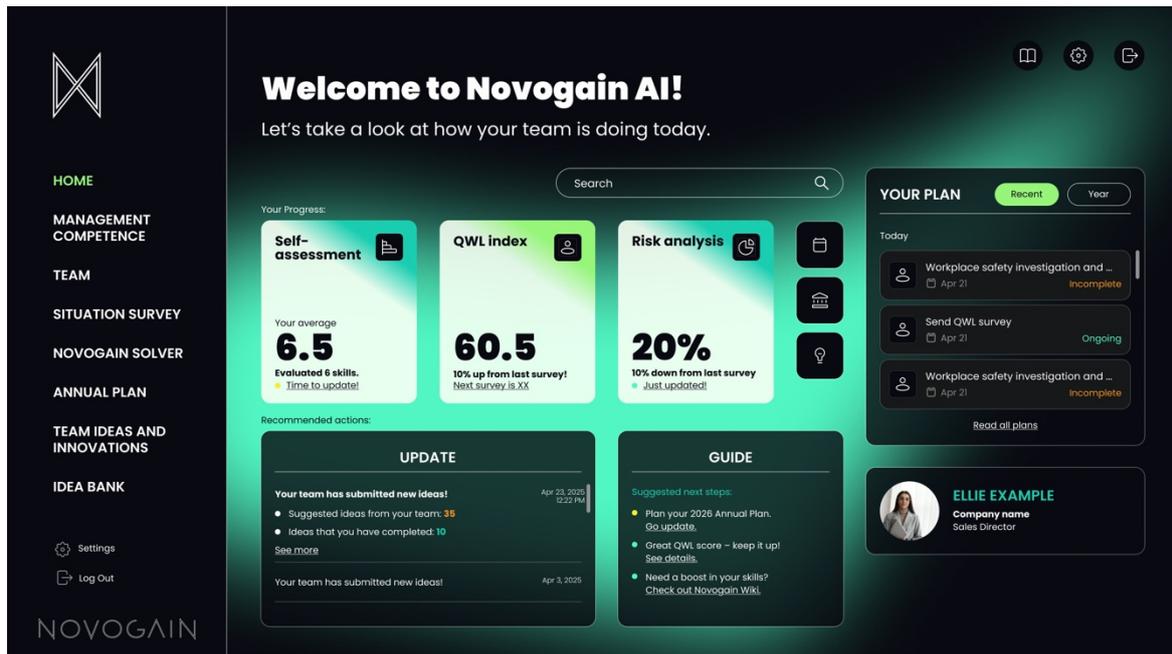
The methodology supports all five levels of leadership development impact:



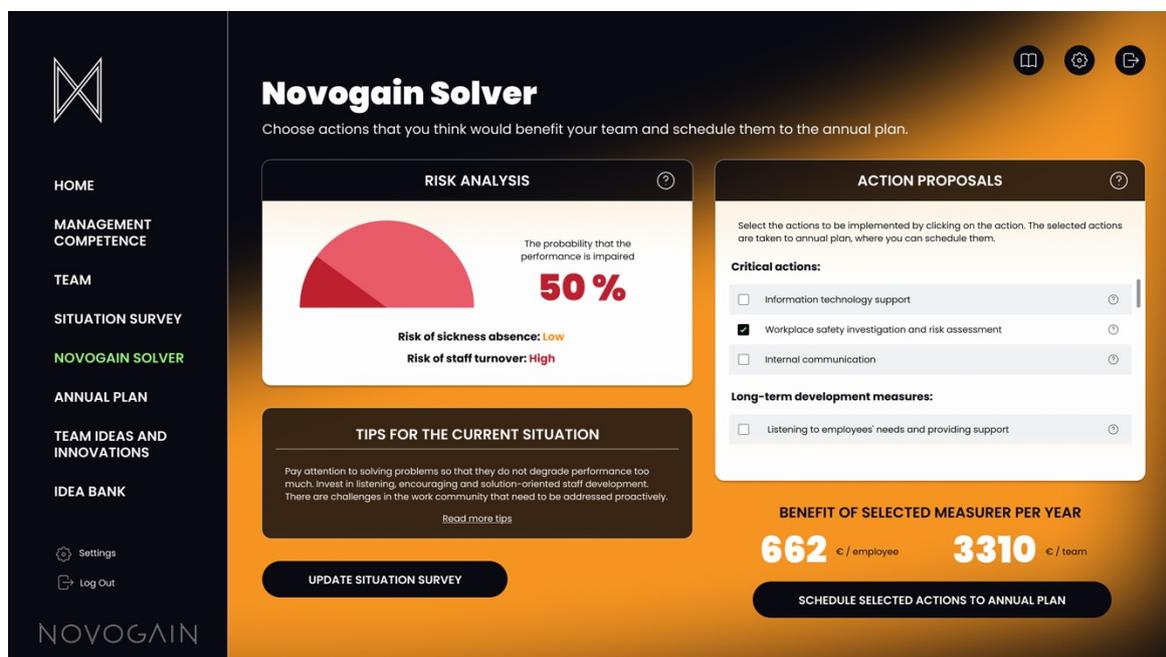
Each phase corresponds with a level of the Kirkpatrick-Hamblin model, from immediate user experience to measurable financial returns.

4. Product Screenshots and Functionality

Figure 1: Novogain AI Main Dashboard



Novogain AI interface showing team QWL index, risk level, and recommended actions.

Figure 2: Novogain Solver with Risk Analytics and Action Proposals

AI-guided solver proposes risk-reducing actions with estimated monetary impact.

5. Academic Collaboration

This innovation was developed in collaboration with the University of Lapland, where Dr. Marko Kesti holds the title of Docent in Organizational Development. The development is also supported by Finnish research on QWL (Quality of Work Life) and human capital productivity.