



Innovation in Digital Technologies

M Ahsan Mahboob

Head of DigiMine

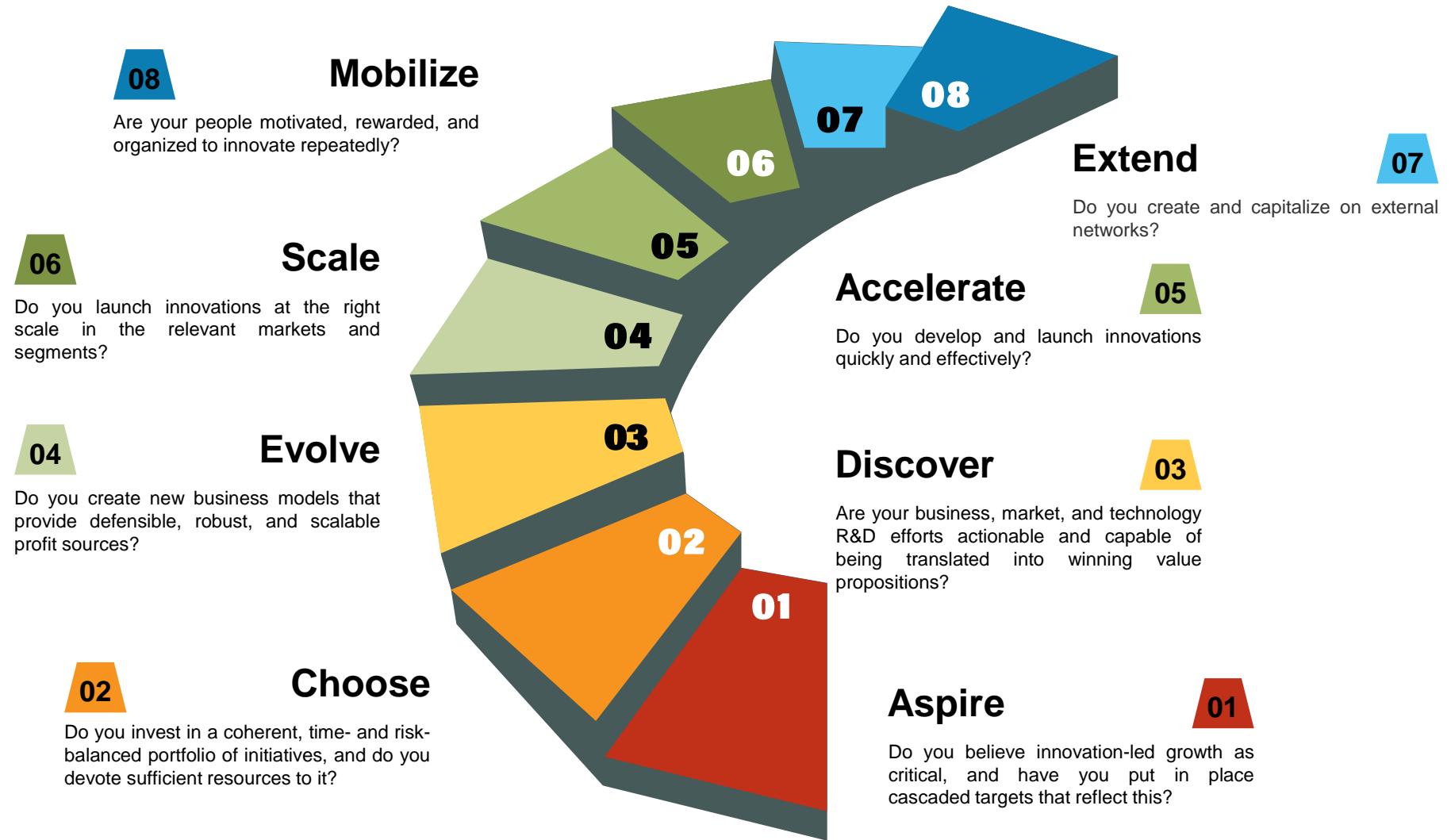
Thursday, 25 May 2023



INNOVATION

- In a business context, *innovation is the ability to **conceive**, **develop**, **deliver**, and **scale** new digital **technologies**, **services**, **processes**, and **business models** for customers.*
- The “Who”, “What” and “How” factors of Innovation
 - An unmet customer need (the ‘**who**’): Who is the customer and what problem do they need to solve?
 - A solution (the ‘**what**’): Is the solution compelling and can it be executed?
 - A business model that allows for the solution to be monetized (the ‘**how**’): How will the solution create value? What is the business model?

EIGHT ESSENTIALS OF INNOVATION

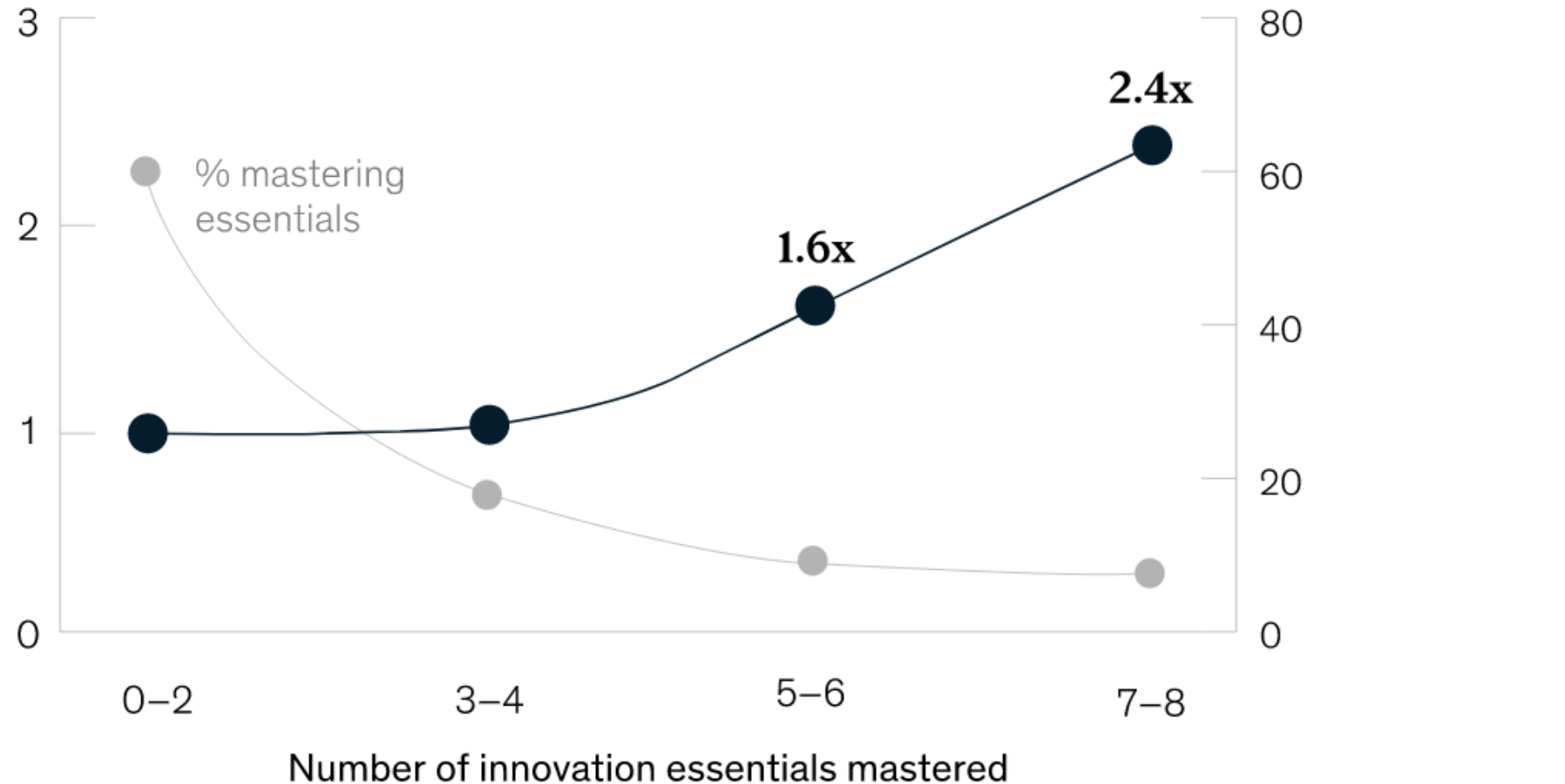


MASTERY OF INNOVATION ESSENTIALS

Index of economic profit generated by mastery of innovation essentials

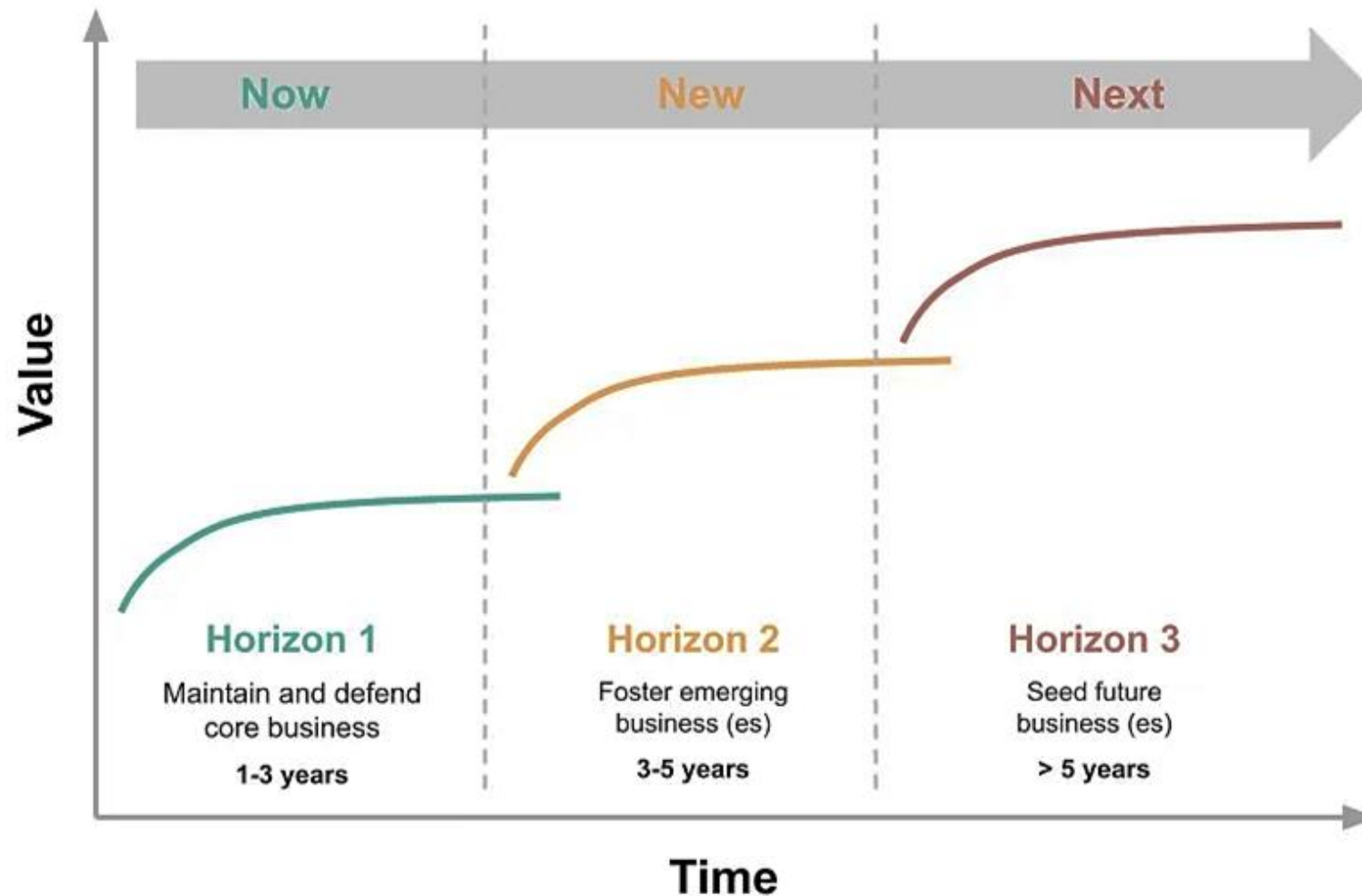
Economic-profit index

% of respondents



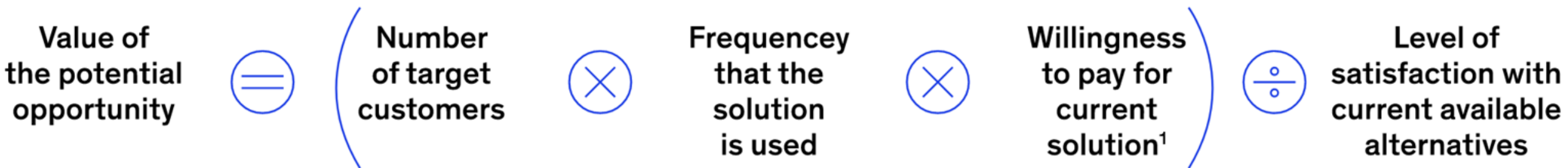
THREE HORIZON MODEL

Manage innovation – **Now**, **New** and **Next**



AN EFFECTIVE INOVATION

Equation to use with valuable problems to solve

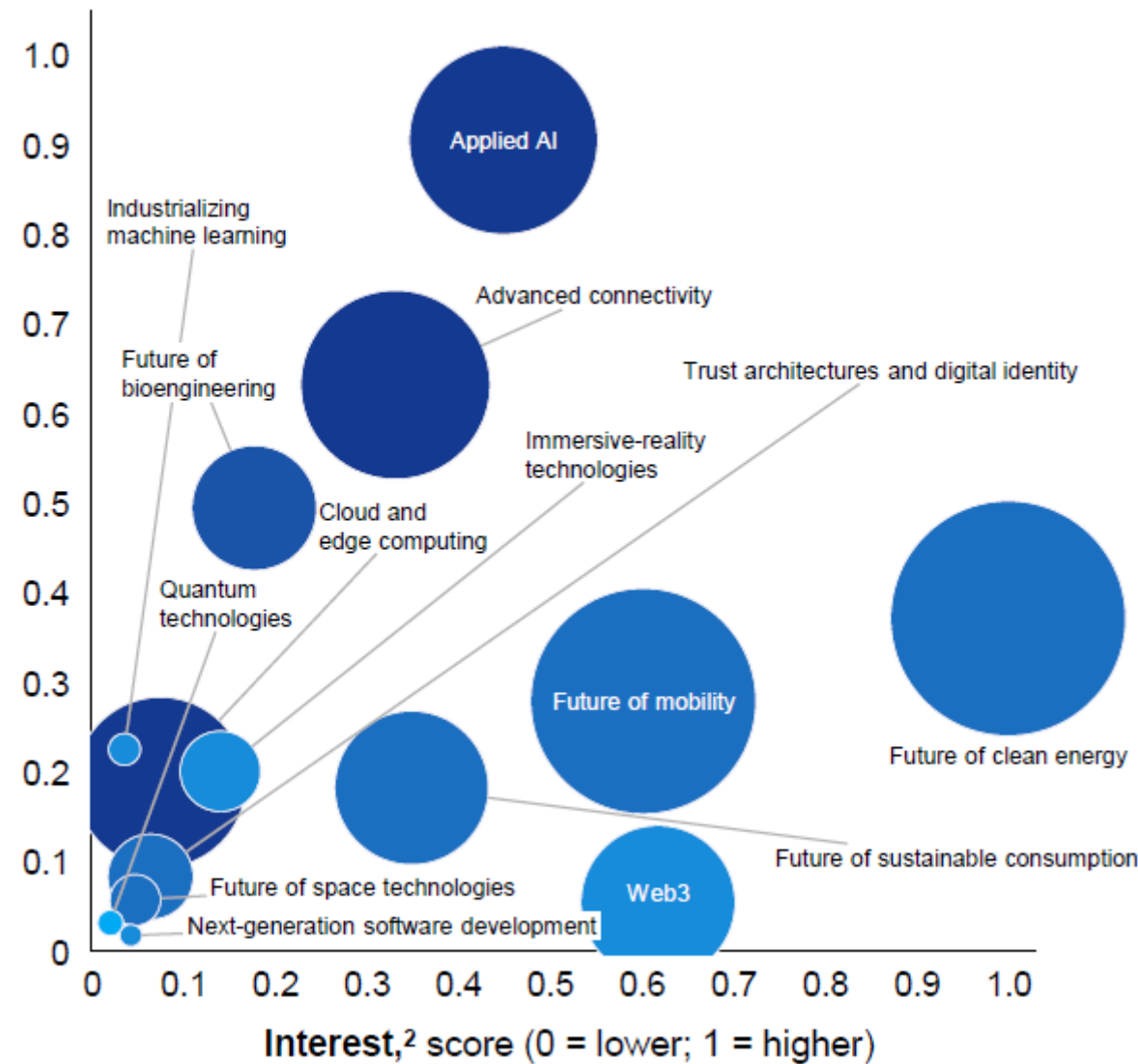


INNOVATION IN DIGITAL TECHNOLOGIES

- Technology continues to be a primary catalyst for change in the world.
- Technology advances give businesses, governments, and social-sector institutions more possibilities to lift their productivity, invent and reinvent offerings, and contribute to humanity's well-being.
 - Silicon Age
 - Engineering Tomorrow

INNOVATION IN DIGITAL TECHNOLOGIES

Innovation,¹ score (0 = lower; 1 = higher)



Color = adoption rate score
(0 = none; 5 = mainstream)

Size = investment, \$ billion

250 150 75 20

Sibanye-Stillwater Digital Mining Laboratory (DigiMine)

- DigiMine is equipped with digital systems that enable research into “**the mine of the future**”; Its research agenda is focused on transferring surface digital technologies into underground environments, **enabling mines** to automatically observe, evaluate and take action.
- To conduct and lead the **applied research** and training in Engineering, Science, Social, Health and Commerce to address the world's most pressing issues, specifically those connected to the applications of digital technologies in **Mining, Energy** and the **Environment**.
- DigiMine has established a **multi-disciplinary research group** that accommodates students from all faculties at Wits University — resulting in an excellent facility working on some world-first projects.



DigiMine at WMI is an exciting project where the Chamber of Mines building on West Campus was converted into a 'mine', complete with surface (using the flat roof of the building), vertical shaft (using a stairwell in the fourth quadrant of the building) and mock mine with control room in the basement. The mock mine has a life-size tunnel, stope, lamp room and other features.

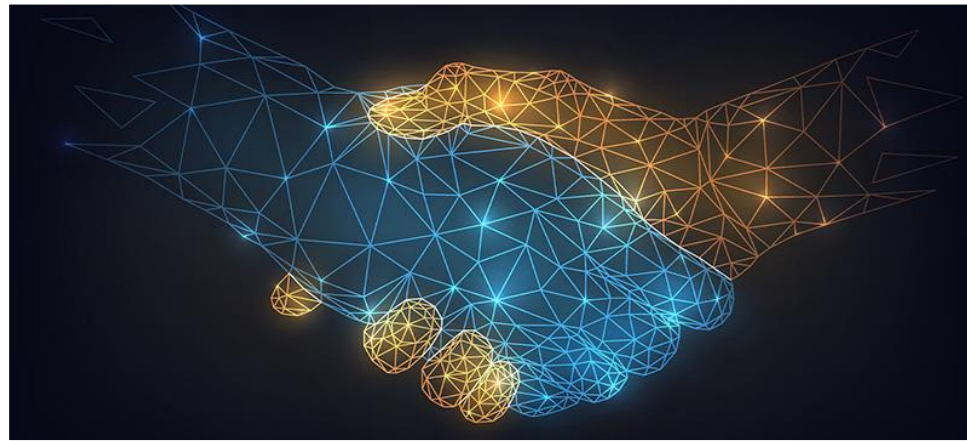
The Mock Mine is equipped with the digital systems that will enable research for the mine of the future. Today, it is a one-of-a-kind laboratory with a significant research agenda to transfer surface digital technologies into the underground environment – the enabler for a mine that can (automatically) observe, evaluate and take action. The ultimate objective is to use technology to put distance between mine workers and the typical risks they are exposed to on a daily basis.

At DigiMine we have a team of multidisciplinary students and experts who are doing some really exciting and ground breaking research in the field of Mining 4.0. DigiMine team has students from Mining, Geotechnical, Mechanical, Chemical, Medical, GIS, Computers, Data Sciences and other applied disciplines.

"I – TEAM" : Innovation – Teamwork – Excellence – Accountability – Mastery



Innovation is **Complex and Risky**, but
Collaboration with Right Partners through
Trust, Openness, and Transparency,
Breakthroughs can be Achieved
Together.



FUNDING PARTNERS



Co-funded by
the European Union



GOLD FIELDS



OTHER PARTNERS



BBE GROUP



DIGGER



New Concept Mining
Powered by Epiroc



SCHAUENBURG
Systems



YOUNGBLOOD



LET'S INNOVATE TOGETHER

Contact Us:

M Ahsan Mahboob

Head of DigiMine

mahsan.mahboob@wits.ac.za

+27 (0) 11 717 4728

www.wits.ac.za/wmi/

Thank You

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



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