



Construction 5.0 - the need of the hour – Conference overview

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- University of Wyoming
- Nelson Mandela University
- University of Free State
- Cape Peninsula University of Technology
- CIB Program Director (part-time)
- July 15, 2024

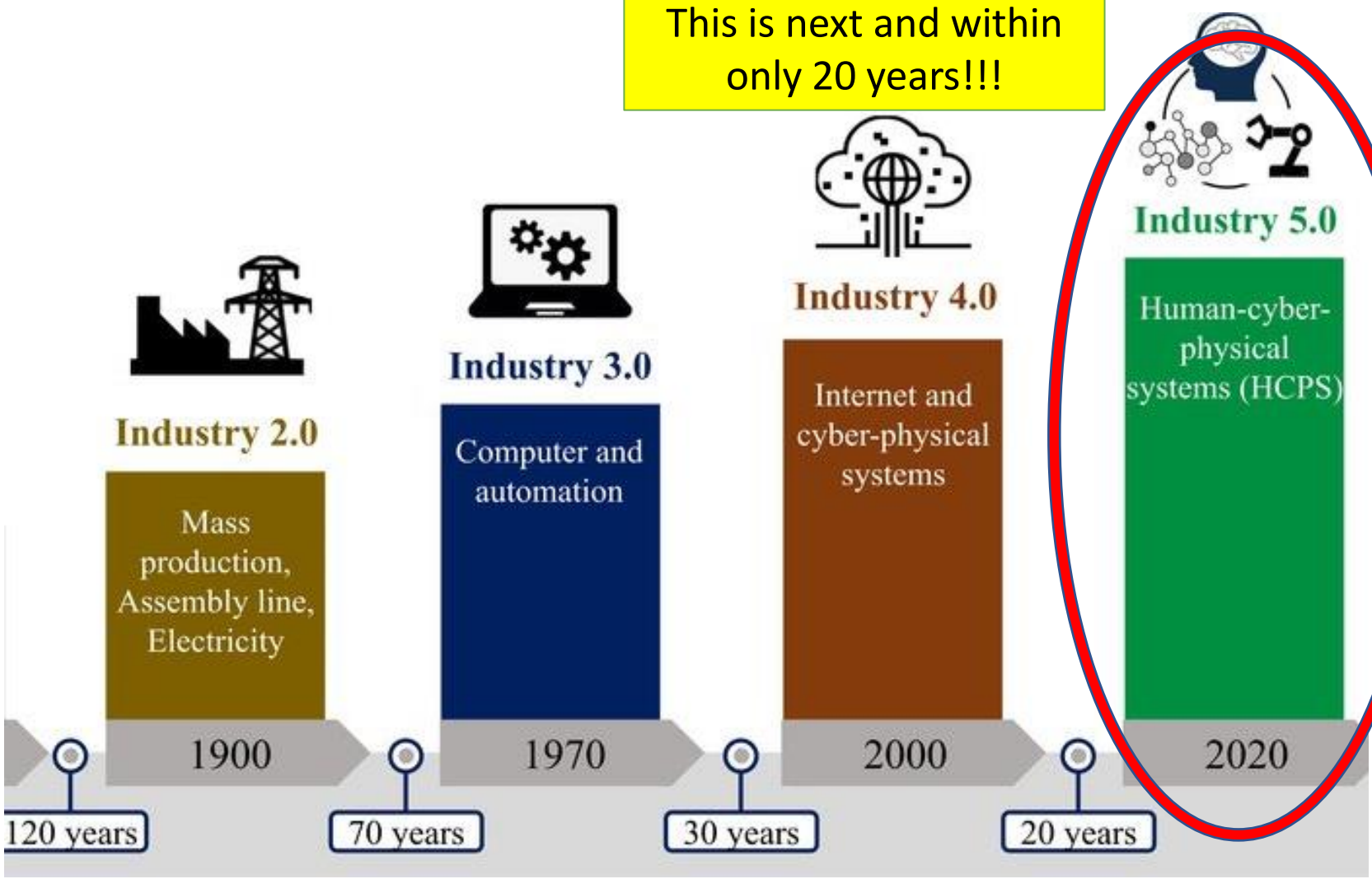


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We shape our
buildings and,
afterwards our
buildings shape
us

Winston Churchill, 1944

This is next and within only 20 years!!!



What is Construction 5.0?

- Latest evolutionary leap in the construction industry
- Harmonious blend of advanced technologies and human-centric approaches
- More than just an upgrade in tools and techniques
- Rethinking of how construction projects are conceived, executed, and delivered
- Equal emphasis on sustainability, worker well-being, and societal impact
- Artificial intelligence (AI), the Internet of Things (IoT), advanced robotics, and 3D printing integrated seamlessly into construction processes, enhancing precision and efficiency
- Emphasises the need for skilled human oversight, ethical considerations, and development of sustainable, user-centric designs



Construction 5.0 ...



Benefits of Construction 5.0



REDUCED COST
due to resource
efficiency

Improved
SAFETY and
WELL-BEING

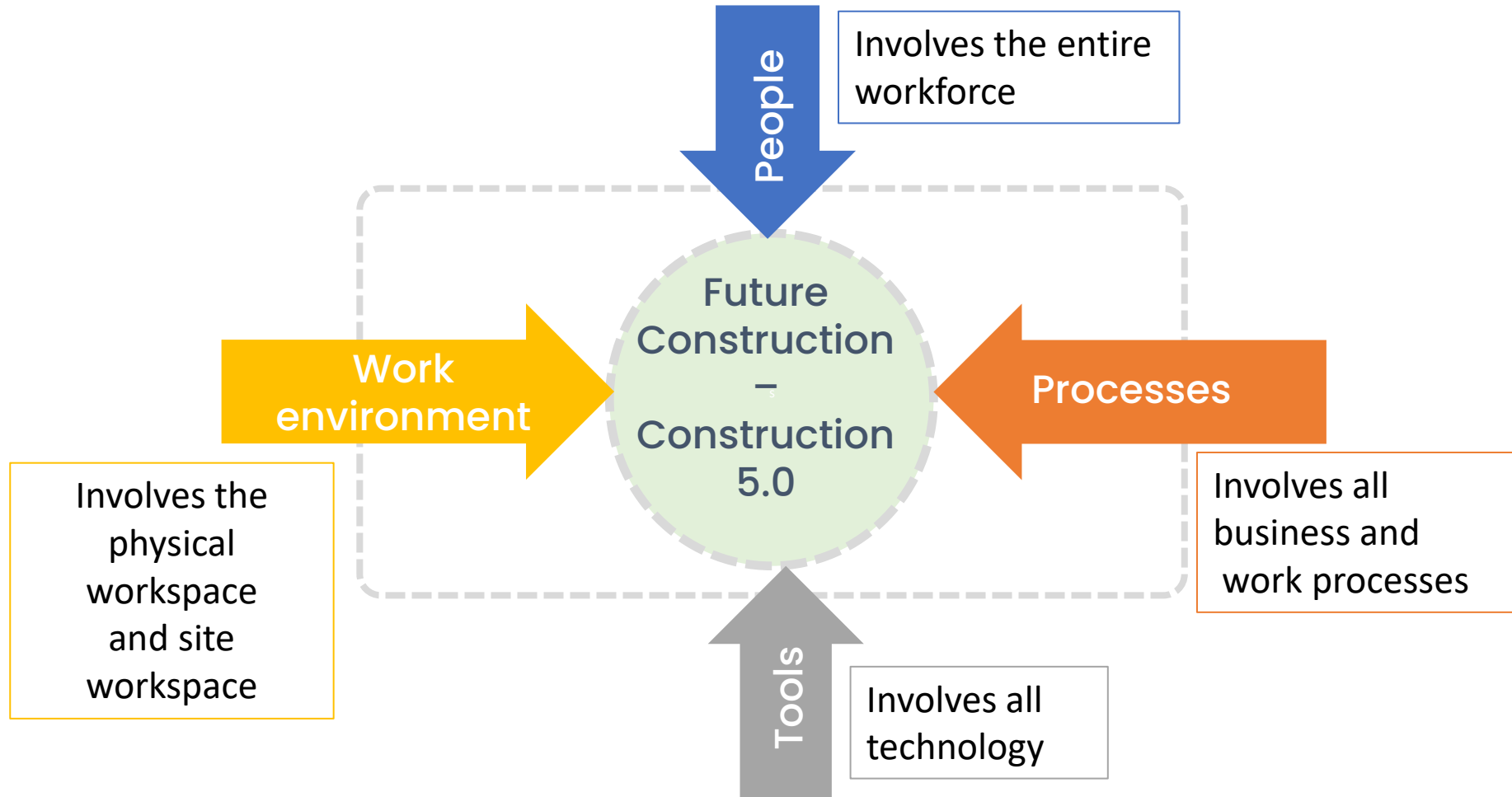
**EMPOWERED
WORKERS**
remaining in
control

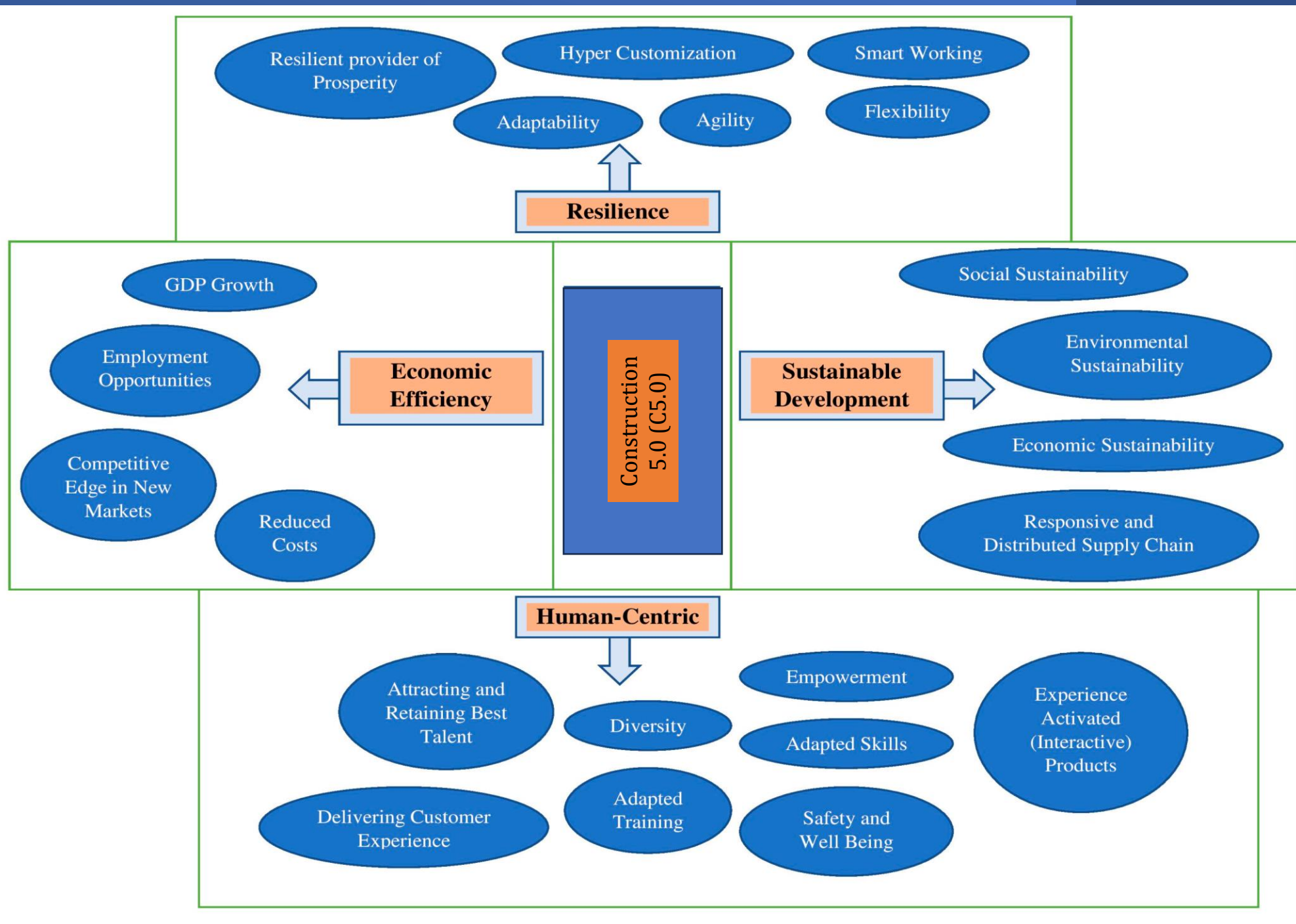
**COMPETITIVE
EDGE** in new
markets

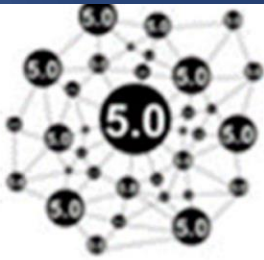
Adapted
TRAINING
FOR **EVOLVING
SKILLS**

Competitive
industry by
**ATTRACTING
BEST TALENT**

Predictions for future collaborative and people-centered *construction*







Potential areas of research

Potential areas of research

Construction 5.0

Theory



Technology and Innovation



Sublation

Cognition



Human-machine Collaboration



Evolution

Performance



Human-Centricity



Sustainability



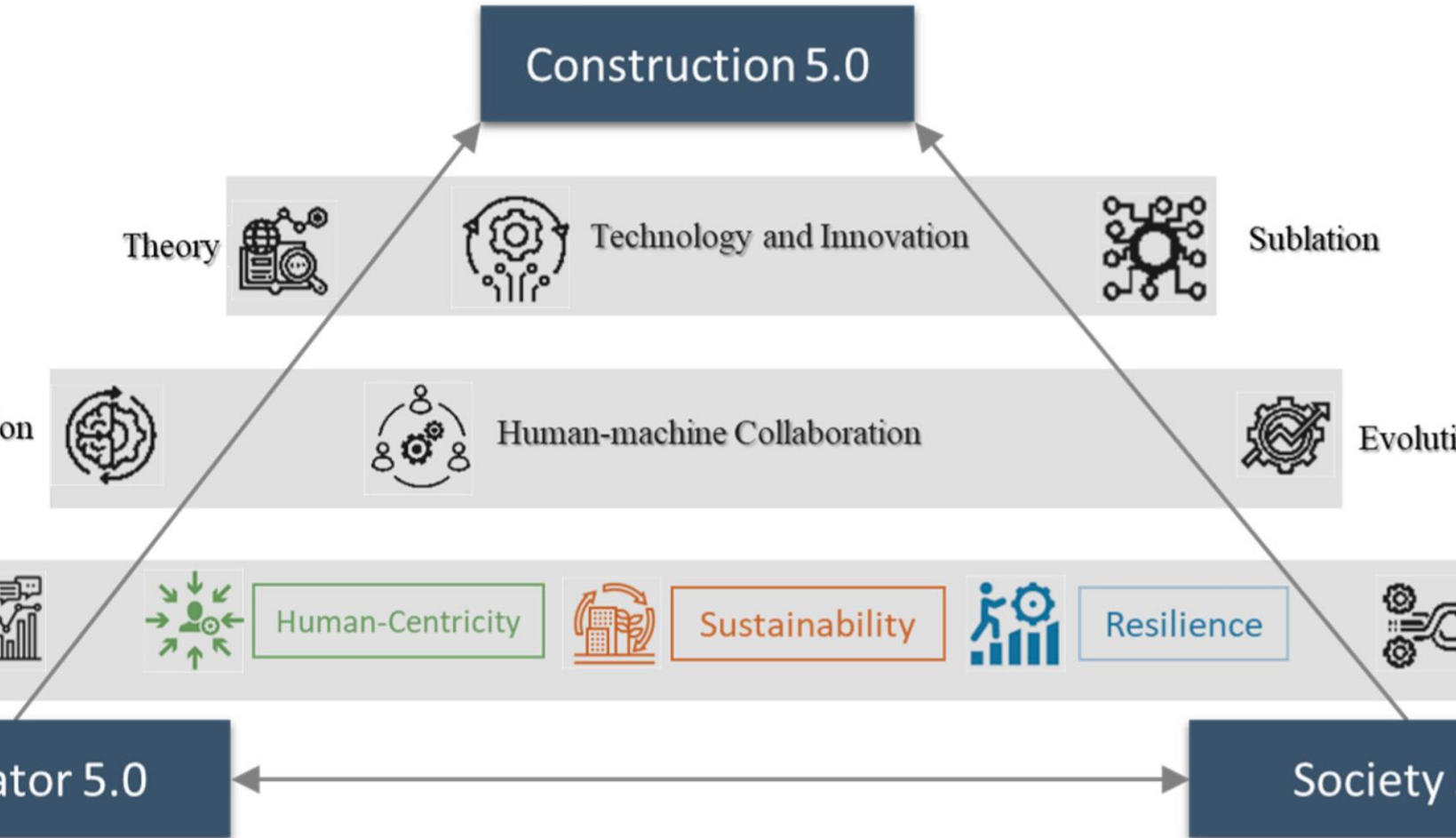
Resilience




Transformation

Operator 5.0

Society 5.0



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Construction 5.0: Towards a collaborative and people- centered industry

13 keynote speakers and presentations

1 virtual and 12 in-person

2 from the USA and 1 from UK

6 females and 7 males

38 final papers (65.5% of papers submitted) – 2 sets of 3 parallel sessions

Modena best paper awards

Lifetime Achievement Awards Gala Dinner

Industry roundtable

Published peer-reviewed proceedings

Published peer-reviewed Scopus indexed post-conference publication

Accepted Papers Allocation

No.	Name of Institutions	No. of Author	Co-Authors	Total No. Authors	% By Institution
1	Nelson Mandela University (RSA)	9	17	26	26%
2	University of Wyoming (USA)	3	7	10	10%
3	University of Pretoria (RSA)	2	2	4	4%
4	Mangosuthu University of Technology (RSA)	1	0	1	1%
5	University of Johannesburg (RSA)	11	22	33	33%
6	Walter Sisulu Uni (RSA)	0	1	1	1%
7	Ladoke Akintola University of Technology Ogbomoso (Nigeria)	0	1	1	1%
8	University of South Africa (RSA)	1	0	1	1%
9	University of the Free State (RSA)	2	2	4	4%

No.	Name of Institutions	No. of Author	Co-Authors	Total No. Authors	% By Institution
10	Durban University of Technology (RSA)	2	4	6	6%
11	The Federal University of Technology, Akure (Nigeria)	0	1	1	1%
12	Auburn University (Nigeria)	1	0	1	1%
13	Kwame Nkrumah University of Science and Technology (Ghana)	0	1	1	1%
14	Cape Peninsula University of Technology (RSA)	1	2	3	3%
15	Central University of Technology (RSA)	1	1	2	2%
16	University of the Witwatersrand WITS (RSA)	1	0	1	1%
17	University of Kwa-Zulu Natal (RSA)	2	1	3	3%
Total		38	61	99	100%

Observations

- Probably one of the only conference in the world on this emerging theme
- To date only less than 50 papers globally have been published on C5.0
- Opportunity to lead on the topic and encourage researchers to explore it
- Proceedings and post conference publication will make huge contribution
- Possibility for a CIB TG with this focus
- Conference blurb was very clear about the conference theme of Construction 5.0 providing clear explanation of the scope and focus

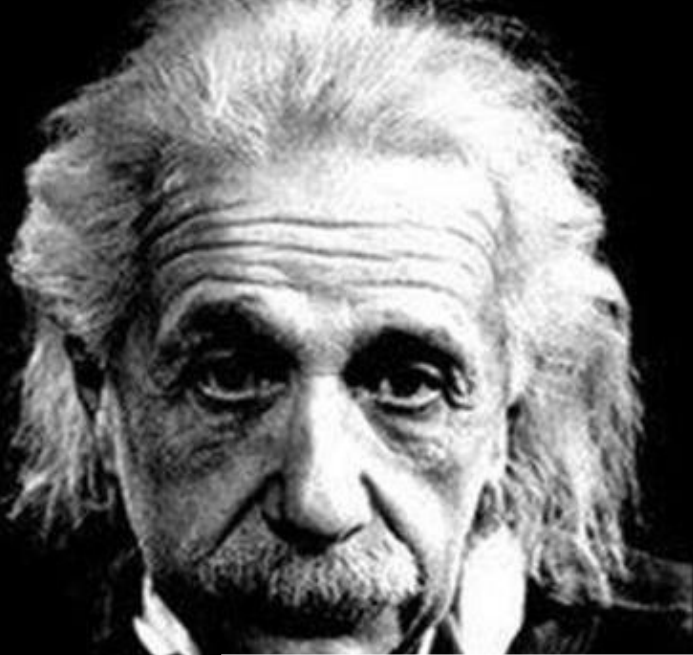


Observations

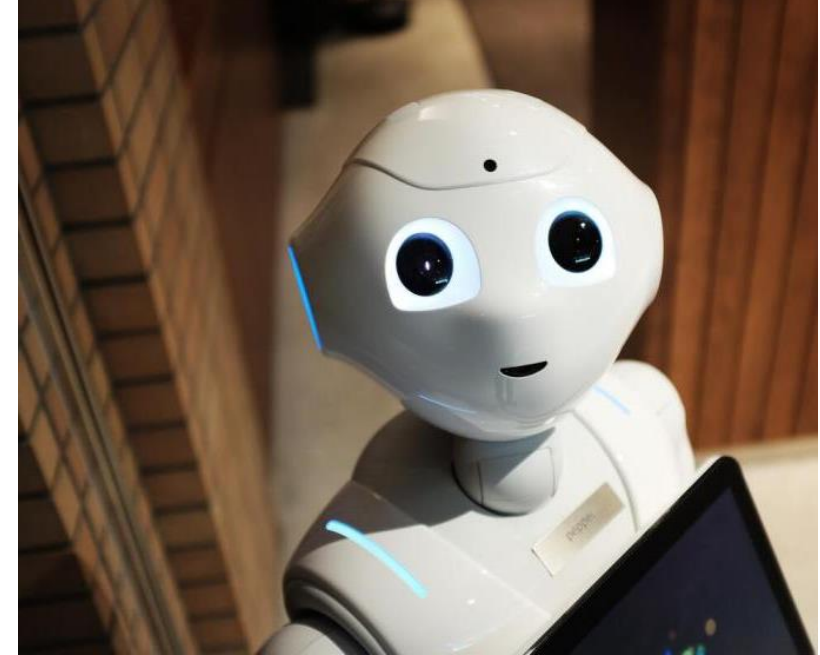
- Many papers were rejected because they did not align with the conference theme
- Authors were given opportunity to align their submissions to the conference theme
- Supervisors should ensure that their students read and understand the conference theme and scope
- Reviewers delayed to complete their reviews
- Authors of multiple papers refused to review other papers
- Rule of maximum of 2 papers per author violated
- Feedback to authors delayed reducing participation
- Inactive and uncommitted S&T Committee



we cannot solve
our problems with
the same thinking
we used when
we created them



~ Albert Einstein



An aerial photograph of a densely packed urban area, likely a city center. The buildings are multi-story and feature a variety of colors, including shades of blue, orange, yellow, and white. The architecture is modern and compact, with many windows visible. The overall scene is vibrant and bustling.

Welcome