

TRANSACT Plan - Results – Perspective

Prof. Marcus Specht



Trans-Sector knowledge sharing in
the Building Sector, NWO Human
Capital: Learning in Learning
communities, 055.19.002



01

The Plan

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KROPMAN
INSTALLATIETECHNIEK

CALEFFI
Hydronic Solutions

Halmos Adviseurs

avans+

 **Wij Techniek**
samen werken aan jouw ontwikkeling



TVVL

ISSO

THE HAGUE
UNIVERSITY OF
APPLIED SCIENCES

Centre for Education
and Learning



TU Delft Centre



TU/e Technische Universiteit
Eindhoven
University of Technology


TU Delft
EEMCS- CS


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BK Bouwkunde

Our core Team



Prof. Marcus Specht
& Ali Soleymani



Prof. Laure Itard
& Dr. Paula van den Brom



Prof Wim Zeiler
& Samir Ahmed



Prof. Ellen Sjoer
& Maaïke Konings



Model and theory

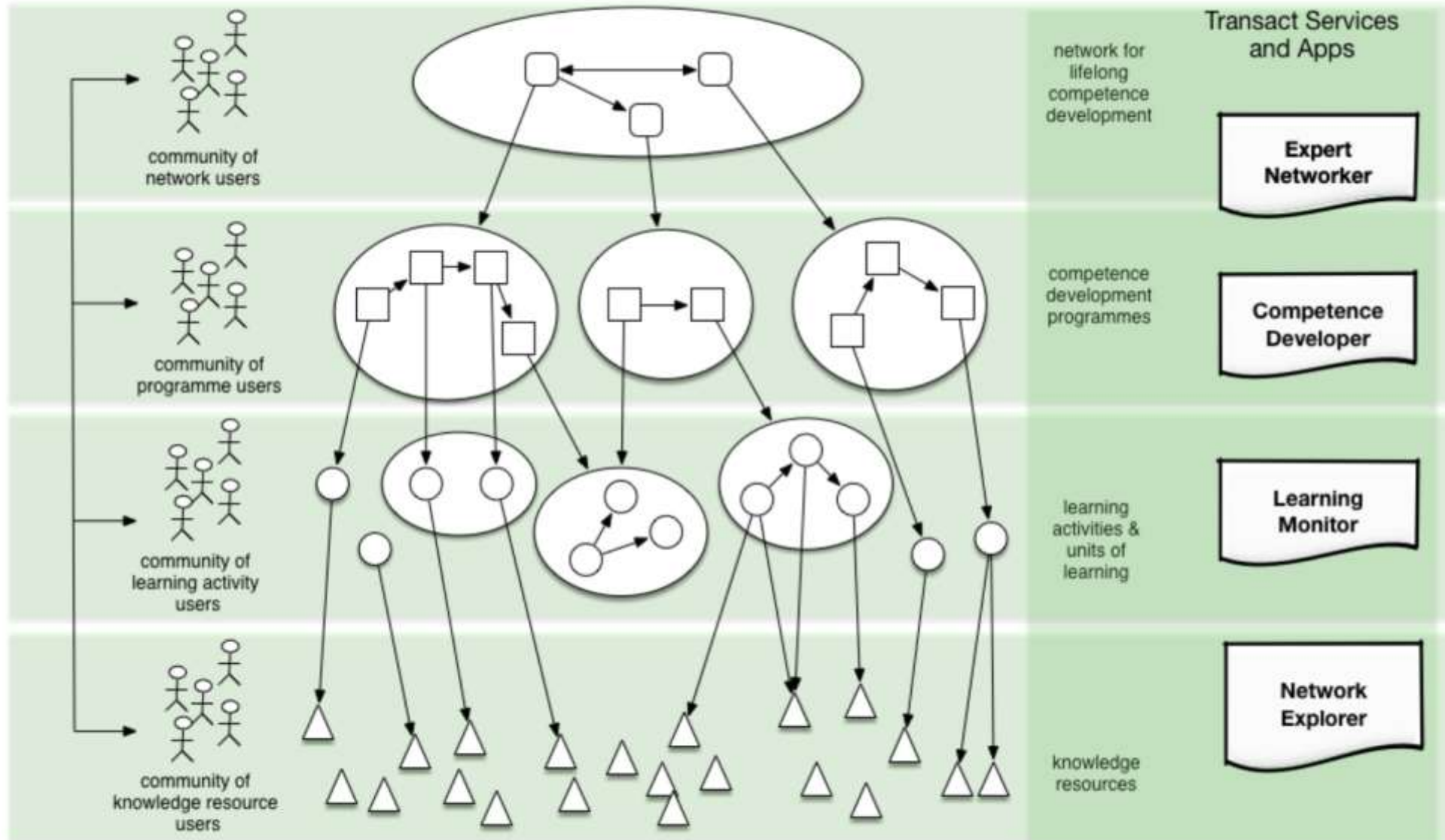
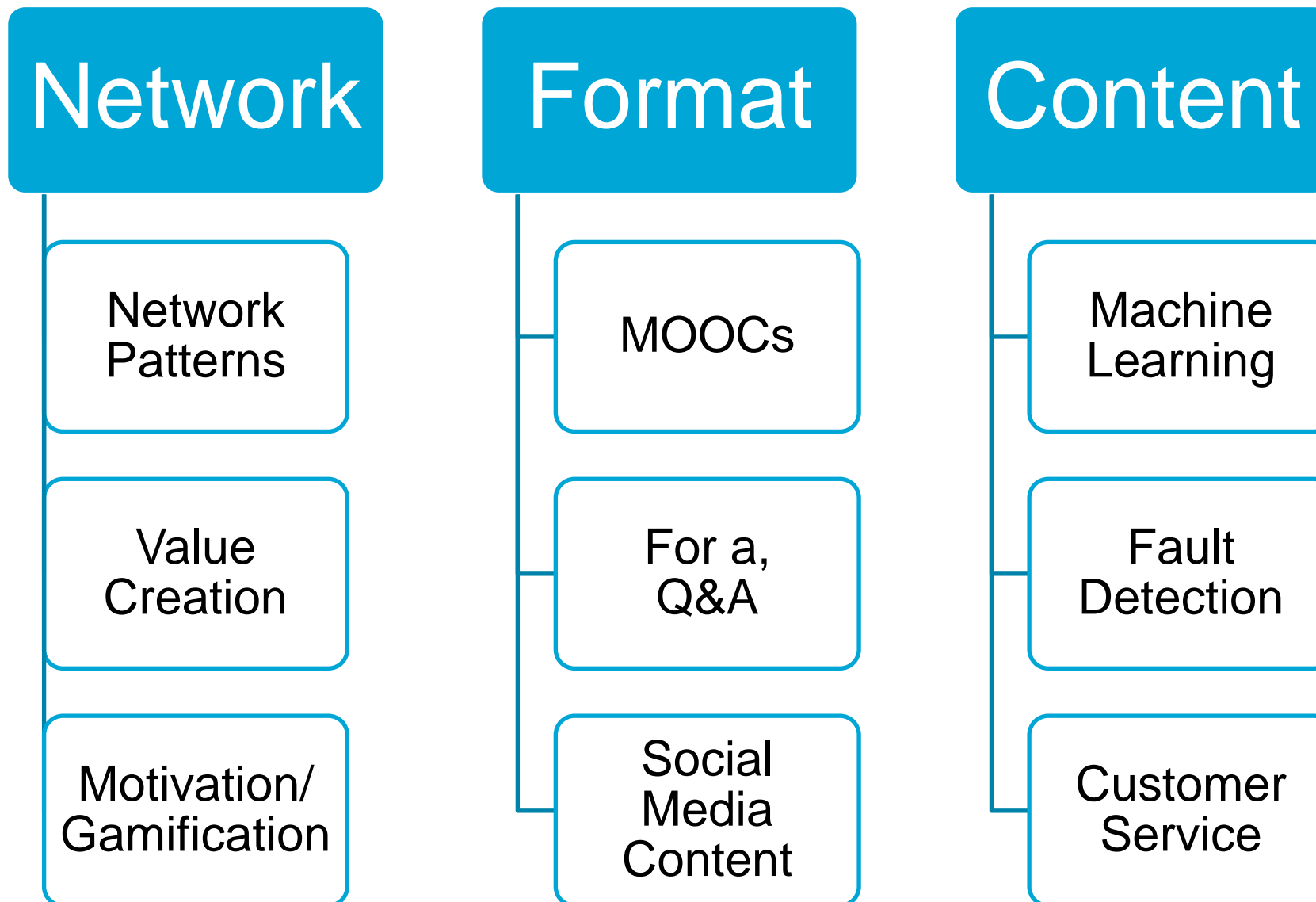


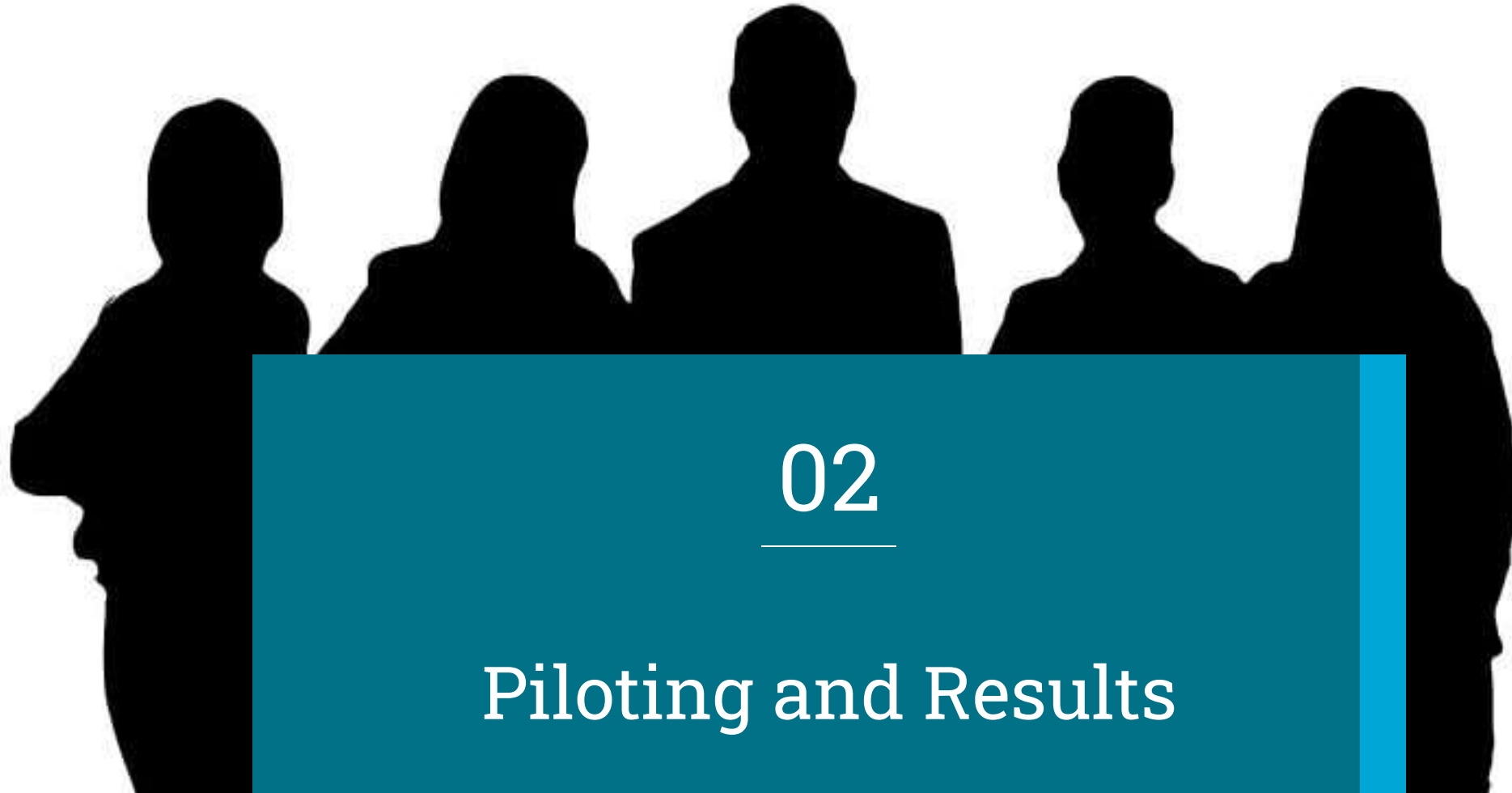
Figure 1: Learning Networks combining communities on different levels from the creation and management of knowledge resources to lifelong learning and competence development, adapted from Koper and Specht (2009).

Structure



Network patterns and facilitating social learning

- [How Networked learning can facilitate professional development?](https://www.networkedlearning.aau.dk/digitalAssets/1159/1159071_nlc2022_contribution_56.pdf) : Soleymani, A., de Laat, M., Itard, L., & Specht, M. (2022, May). How networked learning can facilitate professional development? *The Thirteenth International Conference on Networked Learning 2022*.
https://www.networkedlearning.aau.dk/digitalAssets/1159/1159071_nlc2022_contribution_56.pdf
- [Using Social Network Analysis to explore Learning networks in MOOCs discussion forums](https://doi.org/10.34641/clima.2022.300) : Soleymani, A., Itard, L., de Laat, M., Valle Torre, M., & Specht, M. (2022). Using Social Network Analysis to explore Learning networks in MOOCs discussion forums. *CLIMA 2022 Conference*. <https://doi.org/10.34641/clima.2022.300>
- [Learning and Knowledge Transfer of Professionals within the Building Services Sector](https://doi.org/10.34641/clima.2022.142) : Ahmed, M. S., van der Velden, J., Soleymani, A., van den Brom, P., Konings, M., Itard, L., Specht, M., Sjoer, E., & Zeiler, W. (2022). Learning and Knowledge Transfer of Professionals within the Building Services Sector. *CLIMA 2022 Conference*. <https://doi.org/10.34641/clima.2022.142>
- [A structured approach to online education of future HVAC and energy professionals](https://doi.org/10.34641/clima.2022.401) : Itard, L., Bluysen, P., & van den Brom, P. (2022). A structured approach to online education of future HVAC and energy professionals. *CLIMA 2022 Conference*. <https://doi.org/10.34641/clima.2022.401>



02

Piloting and Results

Knowledge Transfer of Data Analytics & Machine Learning Applications: applied to a dashboard for Remote Building Services

M.S. (Samir) Ahmed

Building Services, Smart Buildings and Cities

Onderzoeksoutput: Scriptie › EngD Thesis



204
Downloads
(Pure)

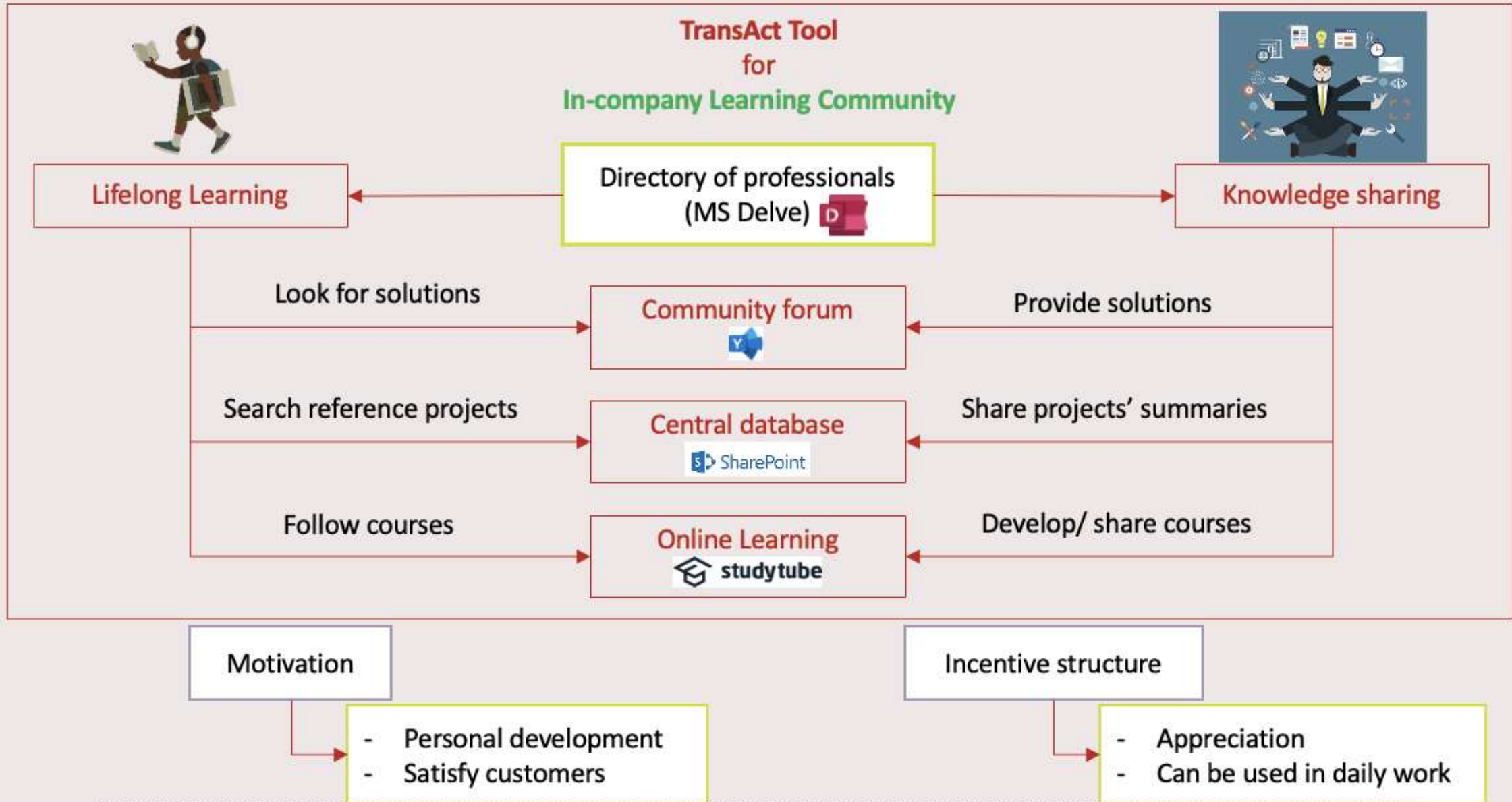
 **Overzicht**

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Begeleider(s)/adviseur
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Preliminary recommendations

- A central database for summaries of all projects
- Managers take the lead in team motivation to have activities on the **discussion forum**
- **Learning targets** can be assigned and monitored by the project leaders
- **Knowledge sharing** can be in forms of presentation, online courses, short stand-up meeting notes, project summaries, webinars, short videos
- **Standardization** of documentation is crucial to find information when needed



Analysing the community development in MOOCS



Eye on
2030

Towards digitalized, healthy,
circular and energy efficient HVAC

REHVA 14th HVAC World Congress
22nd – 25th May, Rotterdam, The Netherlands

Using Social Network Analysis to explore Learning networks in MOOCs discussion forums

Ali Soleymani ^a, Laure Itard ^b, Maarten de Laat ^c, Manuel Valle Torre ^d, Marcus Specht ^e

^a Center of Education and Learning, Delft University of Technology, Delft, the Netherlands, A.Soleymani@tudelft.nl.

^b Department of Management in the Built Environment, Faculty of Architecture and the Built Environment, Delft University of Technology, Delft, the Netherlands, L.C.M.Itard@tudelft.nl.

^c Center for Change and Complexity in Learning, University of South Australia, Australia, Maarten.DeLaat@unisa.edu.au.

^d Center of Education and Learning, Delft University of Technology, Delft, the Netherlands, M.ValleTorre@tudelft.nl.

^e Center of Education and Learning, Delft University of Technology, Delft, the Netherlands, [M.M. Specht@tudelft.nl](mailto:M.M.Specht@tudelft.nl).

Curriculum and content development for professionals



Eye on
2030

Towards digitalized, healthy,
circular and energy efficient HVAC

REHVA 14th HVAC World Congress
22nd – 25th May, Rotterdam, The Netherlands

A structured approach to online education of future HVAC and energy professionals

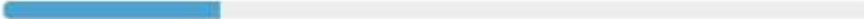
Laure Itard^a, Philomena Bluysen^a, Paula van den Brom^a

^a Faculty of Architecture and the Built Environment, Delft University of Technology, Delft, the Netherlands, L.C.M.Itard@tudelft.nl; P.M.Bluysen@tudelft.nl; P.I.vandenBrom@tudelft.nl

Abstract. The HVAC sector is essential to realize the energy transition and is facing numerous challenges like educating enough HVAC engineers to carry out the task and being able to integrate knowledge from the construction, energy, IT and health sectors and to cope with rapid technological changes. The availability of structured and easy-to-follow courses on HVAC and energy systems for buildings at higher education level could help to motivate (future) engineers to contribute to the HVAC sector, and to understand how challenging and high-tech it is. Such a course program would ideally also bring a basic understanding of the field to architects and building engineers, in such a way that a better common ground is created for collaboration and integrated design. It would also be useful to Machine Learning and Artificial Intelligence experts joining the HVAC sector. Last but not least, it could help bridging the gap between engineering and policy making, by here too, offering common views on primary energy, resource depletion and CO₂ emissions relating to HVAC systems. The paper describes the structure and content of such an on-line course program. It was developed based on years of teaching experience with international master students of Mechanical Engineering, Civil Engineering, Architecture, Technical Management and Policy, Electrical Engineering and with professionals from housing

OpenEdX as platform for a Learning Network

Data and Machine Learning for HVAC Systems

 25% complete

- > How and why to build a Learning Network on this topic
- > Optimization of HVAC systems operation
- > Data preprocessing
- > Fault Detection and Diagnosis methods for HVAC systems
- > Building Operation Monitoring and Services
- > Other interesting projects
- > News and Events

Course Tools
[Bookmarks](#)

Important Course Dates
Today is Sep 8, 2022 08:00
Course End
in 1 year - Aug 31, 2023
After this date, course content will be archived.

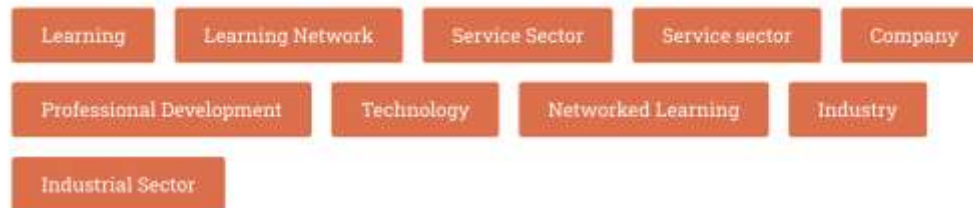
PhD thesis on learning networks and gamification



A. (Ali) Soleymani



Expertise



Electrical Engineering,
Mathematics and Computer
Science

Software Technology

Web Information Systems

Full research profile

Contact

A.Soleymani@tudelft.nl

+31 15 27 87498



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The Perspective

Learning Networks Perspective

- **Design:** Learning can be facilitated in social networks and creates value on different levels, design can follow maturity levels of networks
- **Assessment:** Value creation makes impact and return on investment tangible
- **Motivation:** Gamification works for motivation enhancement in specific parts of the learning process, social context is essential
- **Content:** Dedicated content is essential and the perspective is GenAI plus social content

Thank you

Marcus Specht