

Research Memorandum

103 • June 2017

**The Mälardalen University Visiting Professorship in
Systemic Innovation:**

A Report to the Swedish Knowledge Foundation

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Executive Summary

Over a period of a year (1.4.16 to 31.3.17), the Swedish Knowledge Foundation funded a Visiting Professorship in Systemic Innovation based at Mälardalen University (MDH), Eskilstuna, Sweden. The position was taken by Gerald Midgley, who maintained his employment at the University of Hull (UK) while working for 60% of the time with MDH. Five visits were made to Sweden across the year, and some of the work (especially the writing of academic papers) was also undertaken in Hull.

Twenty academic papers (published, in press or submitted to journals) were co-authored by Gerald Midgley with colleagues at MDH and people from other institutions internationally. Measured in purely quantitative terms, this was a very productive Visiting Professorship. However, the more meaningful test of the significance of the research is the nature of its central ideas and the interest shown in them by both industry and academia.

Gerald's research has explored how the term 'systemic innovation' has been used to date, mostly to indicate that a set of complementary innovations are occurring in the context of an innovation system (which might be industry-only, or could include government agencies and policy initiatives, and may or may not take account of the wider effects of innovation on social inclusion and environmental sustainability). Gerald has argued that the emphasis needs to shift from the functioning of innovation systems to *thinking systemically within innovation practice*. Once this shift in emphasis is made, all the various systems thinking methodologies and methods that have been developed from the 1950s to the present day become relevant to enhancing innovations. In a key paper, joint-authored by Gerald Midgley and Erik Lindhult (MDH), the authors lay out a framework for enabling systems thinking about innovation. In particular, emphases are placed on exploring the boundaries of multi-stakeholder participation in innovation initiatives; the values and ethics that are relevant (including concerns about social inclusion and sustainability); the different forms of value (both financial and non-financial) that can be generated for all of the stakeholders; how to address processes of conflict and marginalization to meet a broad range of stakeholder needs and desires; and how to draw pragmatically on the many systems thinking resources already out there to enhance innovation in and beyond industrial companies.

In the course of the year, Gerald Midgley discussed these and other ideas about systemic innovation with a range of industry contacts, many of whom were already partnering with MDH in co-produced research. He facilitated workshops with industry using systems approaches; ran several training sessions in the use of specific systems methods; and joined meetings with MDH and industry when they were co-producing research proposals, supporting them in developing

their ideas. Positive feedback was received from all these industry engagements. Most notably, Gerald's work on systemic innovation has influenced several co-produced research proposals currently being evaluated by the Swedish Knowledge Foundation.

Also, exciting opportunities have been identified for further research and development. One such idea especially worthy of note is a nascent collaboration with CapGemini, which was started towards the end of the year: the CapGemini CTO has identified the potential to develop an innovation consultancy package, incorporating MDH thinking on systemic innovation, to support industries in transition from one product or service life cycle to the next. If further funding can be obtained, the opportunity is to undertake systemic action research with all of CapGemini's clients working in their innovation labs, thus massively amplifying the impact of the research on Swedish industry. A linked opportunity is for MDH to work with CapGemini to place graduates from MDH degrees into employment in industries needing Innovation Managers.

This work has contributed to developing the MDH research environment in several ways: through joint publications; integration of the systemic innovation research agenda into the ongoing research portfolio at MDH; and input to several research proposals to the Swedish Knowledge Foundation that, if funded, will ensure the sustainability of Gerald's contribution to the institution. Beyond the theme of systemic innovation, the many seminars and discussions that Gerald held with staff and PhD students on systems thinking and co-production have influenced a range of people as they have forged their own research agendas. Finally, a Memorandum of Understanding has been signed between MDH and the University of Hull to continue and expand the research collaboration between these institutions.

In addition to the above research, over the year of the Visiting Professorship, Gerald Midgley ran a course for PhD students from both MDH and other universities entitled *Systemic Problems, Systemic Solutions*. This was strongly participative. Not only did Gerald present a range of work on systems thinking, but every PhD workshop supported students in looking at the relevance of the ideas for their own projects. The course ended with a 'PhD clinic', where students could discuss any issues they wanted to, with support from the facilitators and other students. In addition, Gerald contributed in a guest lecturer capacity to a range of other Undergraduate and Masters-level courses, and was also involved in discussions on future course design.

This teaching has contributed to development of the educational environment through exposing students to new ideas; producing a short film about the potential synergies between systems thinking and design thinking, which will shortly be available as an educational resource; and launching a new Masters module on Systemic Innovation, which staff from the University of Hull will guest lecture on from September 2017. One initiative that did not proceed as planned was a proposed link between the Innovation and Entrepreneurship Masters degrees at MDH and the

University of Hull respectively, with a student exchange built in. Unfortunately, financial considerations at Hull resulted in suspension of their Masters degree.

There are several initiatives to follow up on now that the Visiting Professorship has concluded: further joint-authored publications; editing a special issue of *Systemic Practice and Action Research* on systemic innovation; looking for future funding opportunities to support the extension of the research on systemic innovation into further work with industries (especially CapGemini); creation of Youtube 'sound bites' on systems thinking and design thinking for publicity purposes; participation of Gerald Midgley in an advisory role on the two projects that are currently being considered for funding by the Swedish Knowledge Foundation (if successful); guest lecturing on Systemic Innovation at Masters level in MDH; revisiting the idea of a student exchange when Hull's Masters in Entrepreneurship is revived; and generally expanding the collaboration between MDH and Hull beyond the current participants.

Responding to Questions from the Swedish Knowledge Foundation

This more detailed section of the report will answer, in turn, each of the questions for final evaluation asked by the Swedish Knowledge Foundation:

1. Assess the degree of project fulfillment on a scale of 1-5. The value 5 indicates that the project fully followed the project plan, staffing, budget and schedule.

4/5.

2. Report any deviations from the project plan (including the budget) and what caused them.

There were only two deviations, although neither has substantially affected the anticipated outcomes, which is why we have said 4/5 for delivery:

First, the original proposal said that the intellectual contribution (a new methodology of systemic innovation) would be written up as the theoretical section of a book to be joint-authored by Erik Lindult and Gerald Midgley. Instead of writing this as a section of a book, the authors decided instead to format this contribution as journal papers, the text of which could later be reused in a book. Writing up this material for journals has the advantage of enabling earlier publication and will allow the ideas to circulate in the international research community. A later book can build on this.

The second deviation from the plan relates to another project, INVOKE, that the School of Innovation, Design and Engineering, Mälardalen University (MDH), submitted to the Swedish Knowledge Foundation at more or less the same time as the Visiting Professorship proposal. Gerald Midgley was to have 5% of his time in INVOKE, and the 60% Visiting Professorship was to add value to INVOKE through capacity building for systemic action research and systemic innovation in MDH and with the five participating industries. INVOKE was not funded by the Swedish Knowledge Foundation, so those particular five industrial partnerships did not continue as originally intended. Nevertheless, the 60% Visiting Professorship still contributed as planned to capacity building in MDH, including in workshops with industry representatives engaged in other research and development co-productions with MDH staff.

3. The financial outcome in relation to the agreement, reported according to the same model as the budget for the project, in excel form.

The financial information has been provided to the Swedish Knowledge Foundation, but is not reproduced here.

4. Enter the following information:

a) *Name of the holder of the employment:* Professor Gerald Midgley

b) *Accounting period:* 1.4.16 to 31.3.17.

c) *Percent of full time that the person worked at the university during the accounting period of the project:* 60%.

d) *The periods during the accounting period when the employee was physically located at the university and worked on the project:* 3-9 April 2016; 22-28 May 2016; 18-24 September 2016; 27 November - 3 December 2016; 5-13 February 2017. It should be noted that these were intensive periods of capacity building with MDH staff, PhD students and industry. The remaining time, making up the rest of the 60%, was spent away from Sweden, and involved writing papers; planning the activities for the visits with staff in MDH by Skype, phone and email; presenting at conferences; and consulting with MDH staff by email and Skype when they wanted to discuss their projects.

5. Enter the number of scientifically reviewed publications generated in the project.

These are listed in a table below, with ‘type of publication’ down the side and ‘core/related’ across the top. ‘Core’ means specifically on the topic of systemic innovation, with the production of these papers being central to the delivery of the intellectual contribution of the project. ‘Related’ means that the papers discussed a management or systems thinking topic where there were opportunities to explore synergies with systemic innovation ideas (all such papers except one were co-authored by Gerald Midgley with a range of international collaborators).

	Core	Related
Scientific Journals	2 (1 submitted, 1 at 2 nd draft)	7 (2 published, 5 submitted)
Conference Contributions	0	3 (all published)
Other (Research Memoranda)	2 (1 published, 1 at 2 nd draft)	6 (all published)

6. List of the scientifically reviewed publications that the project resulted in.

Those with a star (*) in front of them below are in the 'core' column above, and the rest are 'related'. All have the Mälardalen University affiliation listed.

a) Scientific journals

* Midgley G and Lindhult E (2017, forthcoming). What is Systemic Innovation? *Systems Research and Behavioral Science*, submitted.

* Lindhult E, Hazy JK, Midgley G and Chirumalla K (2017, forthcoming). *Towards a Theory of Value-Driven Innovation: A Systems and Complexity Approach*. At second draft stage prior to submission.

Johnson MP, Midgley G and Chichirau G (2017, forthcoming). Emerging Trends and New Frontiers in Community Operational Research. *European Journal of Operational Research*, submitted.

Midgley G, Johnson MP and Chichirau G (2017, forthcoming). What is Community Operational Research? *European Journal of Operational Research*, accepted subject to minor amendments.

Footo J, Ahuriri-Driscoll A, Hepi M, Midgley G and Earl-Goulet J (2017, forthcoming). Systemic Evaluation of a Community Environmental Management Programme. *European Journal of Operational Research*, submitted.

Bammer G, O'Rourke MO, O'Connell DO, Neuhauser L, Midgley G, Thompson Klein J, Grigg NJ, Gadlin H, Elsum IR, Bursztyn M, Fulton EA, Pohl C, Vilsmaier U, Bergmann M, Jaeger J, Merckx F, Vienni B, Burgman MA, Smithson M, Walker DH, Young J, Bradbury H, Crawford L, Haryanto B, Pachanee C, Polk M and Richardson GP (2017, forthcoming). Improving Research and Action on Complex Social and Environmental Problems by Developing a Knowledge Bank of Research Integration and Implementation Practices. *Research Policy*, submitted.

Ufua D, Papadopoulos T and Midgley G (2017, forthcoming). Systemic Lean Intervention: Enhancing Lean with Community Operational Research. *European Journal of Operational Research*, accepted subject to minor amendments.

Midgley G, Nicholson J and Brennan R (2017). Dealing with Challenges to Methodological Pluralism: The Paradigm Problem, Psychological Resistance and Cultural Barriers. *Industrial Marketing Management*, 62, 150-159.

Midgley G (2016). Four Domains of Complexity. *Emergence: Complexity and Organization*, 18(2), 137-150.

b) Conference contributions

Lowe D, Oliver P, Midgley G and Yearworth M (2017). Evaluating how Internal Health Assessment Can Trigger Anticipatory Intervention as Part of a Resilient System. *Proceedings of the 15th Annual Conference on Systems Engineering Research (CSER)*, Los Angeles, USA, 23-25 March 2017.

Midgley G (2016). Moving Beyond Value Conflicts: Systemic Problem Structuring in Action. *OR58 Annual Conference – Keynote Papers and Extended Abstracts*, Portsmouth, UK, 6-8 September 2016.

Waddell S, Midgley G and Reynolds M (2016). Creating a Multi-Scale Evaluation and Development System with Impact Hubs. *Proceedings of the 7th International Sustainability Transitions Conference*, Wuppertal, Germany, 6-9 September 2016.

c) Other

* Midgley G and Lindhult E (2017). *What is Systemic Innovation?* Research Memorandum No.99, Business School, University of Hull.

* Lindhult E, Hazy JK, Midgley G and Chirumalla K (2017, forthcoming). *Towards a Theory of Value-Driven Innovation: A Systems and Complexity Approach*. Research Memorandum No.103, Business School, University of Hull – at second draft stage, prior to publication.

Lowe D, Oliver P, Midgley G and Yearworth M (2017). *Evaluating how Internal Health Assessment Can Trigger Anticipatory Intervention as Part of a Resilient System*. Research Memorandum No.102, Business School, University of Hull.

Johnson M, Midgley G and Chichirau G (2017). *Emerging Trends and New Frontiers in Community Operational Research*. Research Memorandum No.101, Business School, University of Hull.

Midgley G, Johnson M and Chichirau G (2017). *What is Community Operational Research?* Research Memorandum No.100, Business School, University of Hull.

Ufua D, Papadopoulos T and Midgley G (2016). *Systemic Lean Intervention: Enhancing Lean with Community Operational Research*. Research Memorandum No.98, Business School, University of Hull.

Foote J, Ahuriri-Driscoll A, Hepi M, Midgley G and Earl-Goulet J (2016). *Systemic Evaluation of a Community Environmental Management Programme*. Research Memorandum No.97, Business School, University of Hull.

Midgley G (2016). *Moving Beyond Value Conflicts: Systemic Problem Structuring in Action*.

7. Results regarding education at advanced or research level. Report, for example, Courses developed or PhD students dealt with.

Gerald Midgley offered a course, entitled *Systemic Problems, Systemic Solutions*, which ran from September 2016 to February 2017. This was made available to PhD students in MDH and was also advertised across Sweden to all other universities via the Swedish Participatory Action Research Community (SPARC). Students were able to count these workshops towards their PhD research training. Four workshops were run in total, with the following themes:

- *Introduction to the Workshop Series.* On the morning of 19 September 2016, the first session was held to introduce PhD students to the course. Gerald Midgley presented a 90 minute overview of the main developments in systems thinking from the 1950s to the present day. In keeping with its participatory and co-productive ethos, students were asked to discuss their PhD projects and any issues they were encountering, so support could be given by the other students and the course leaders (Gerald Midgley and Erik Lindhult).
- *Systemic Intervention in Practice.* On the afternoon of 19 September 2016, Gerald Midgley gave a 90 minute introduction to his own Systemic Intervention philosophy, methodology and practice, which included an in-depth discussion of a project he led to design new services for homeless children living on the streets of Manchester, UK. This project was chosen as a focus because it illustrated the many twists and turns that an action research project can take, and the challenges that Systemic Intervention practice can pose (including the need to deal with highly emotional issues, inter-agency power relations and user involvement in a situation where access to users is very difficult). Following the presentation, students were encouraged to think about the implications for co-productive research, and for doing systemic action research as part of a PhD.
- *How to Choose the Right Systemic Methods, and How to Evaluate Methods as Part of Your Research.* This was a full-day session run on 28 November 2016. In the morning, the focus was choosing methods for systemic action research. Following a presentation comparing and contrasting the two most commonly used frameworks for understanding the purposes, strengths and weaknesses of different methods, students were asked to consider their own PhD projects and how the different methodologies and methods discussed in the presentation might be relevant to their research. In the afternoon, the emphasis shifted to evaluating systemic methods. A 90 minute presentation was delivered

on the importance of evaluation to PhD projects, given the evidence that student reflection on practice is an unreliable source of evidence for success or failure: reflection needs to be supplemented with feedback from stakeholders. The two main paradigms of evaluation (use of generic measures of success versus designing a bespoke evaluation to meet the needs of each individual project) were introduced to the students, along with Gerald Midgley's framework that transcends and integrates both approaches. Students were then encouraged to think about the implications for evaluating their own PhD action research projects.

- *Systemic Innovation Theory and Practice*. This was a full-day session run on 8 February 2017. In the morning, the focus was the new theory and methodology for systemic innovation that was developed by Gerald Midgley and Erik Lindhult through the research enabled by the Visiting Professorship. Students were introduced to how the term 'systemic innovation' has been used to date, mostly to indicate that a set of complementary innovations are occurring in the context of an innovation system. Gerald Midgley argued that the emphasis needs to shift from the existence of an innovation system to *thinking systemically within innovation practice*, and he then showed how the philosophy, methodology and methods of Systemic Intervention (presented in an earlier workshop) could be used to inform systemic innovation practice. Erik Lindhult then introduced the complementary concept of value-driven innovation, which explains how multiple stakeholders need to co-ordinate their different contributions to the innovation enterprise according to the different forms of value they may derive from it. Following these presentations, students were encouraged to think about how the theories of systemic and value-driven innovation are relevant to their PhD projects. In the afternoon, the final session of the course was dedicated to a 'PhD Clinic', where students could discuss any problems in their PhD studies they wanted advice on.

In addition to the above, the following educational contributions were also made:

- On 4 April 2016, Gerald Midgley discussed systemic methods for stakeholder analysis with a team of academics from MDH who wanted to use them as the starting point for designing new educational programs in partnership with industry.
- On 4 April 2016, Gerald Midgley participated in a departmental meeting to discuss the educational programs in Engineering, Design and Innovation at MDH. Gerald was asked to reflect on the differences between what was happening in Hull and MDH, and how MDH might innovate in their educational initiatives. As Gerald had been PhD Director of one of the largest PhD programs in the UK (over 200 students), he volunteered to discuss the learning from this in subsequent meetings with MDH staff.

- On 7 April 2016, Gerald Midgley ran a three hour session on systemic innovation for students on the MDH Masters in Innovation Management. The first 90 minutes took the form of a presentation, and the second 90 minutes was a discussion with students on the implications for innovation practice.
- On 24 May 2016, staff from MDH met with Gerald Midgley to discuss possibilities for a student exchange program between MDH and Hull University Business School.
- On 19 September 2016, Gerald Midgley ran a three hour session to introduce systems thinking to students on the MDH Masters module in Innovation and Design. Again, this session was 50/50 presentation and discussion.
- On 23 September 2016, an interactive discussion was filmed between Ulrika Florin (design lecturer at MDH) and Gerald Midgley on the similarities and differences between design thinking and systems thinking, and the possibilities for their synergistic use. This will be used as an educational resource for the future.
- On 29 November 2016, Gerald Midgley ran a session within a Bachelor course on the Philosophy of Knowledge looking at systems thinking, how and why an interventionary approach can be considered scientific, and the implications of a systems approach for the philosophy of science.
- On 7 February 2017, Gerald Midgley participated in a meeting with MDH academics and senior managers from CapGemini to discuss (amongst other things) how MDH and CapGemini could co-produce curricula to enable graduates to fill areas of critical skill shortage in innovation management. The idea was that CapGemini would offer a student placement service to their industrial clients.

8. In what activities has business participated?

Gerald Midgley worked directly with business organizations during his visits, and also participated in co-production research discussions (including both industry and academics), as follows:

- On 6 April 2016, Gerald Midgley participated in a meeting between MDH academics and industry representatives from Automation Region (an industry body facilitating innovation across automation industries) when they were discussing how to present their co-produced research proposal, INOPLEX, to the Swedish Knowledge Foundation. He gave advice based on his own extensive previous experience of co-produced research projects.

- On 7 April 2016, Gerald Midgley ran a session on Critical Backcasting (a systems approach to service design) for innovation managers in local government organizations across Sweden (approximately 25 participants). Critical Backcasting was chosen as the focus because (i) the theory, methodology, methods and practice are quite self-contained and can be presented in 45 minutes; (ii) it is directly relevant to innovation in local government because it offers a generic methodology for designing services in partnership with existing and potential users; and (iii) it structures dialogue between users and local government in a way that frees up creativity and also guides discussion on the ethics of service design. The following blog gives more details of the approach: <https://i2insights.org/2017/02/09/critical-back-casting/>. The participants were highly engaged in exploring the practical implications, and they co-designed a template for use in their own organizations.
- On 8 April 2016, Gerald Midgley participated in a meeting of the Management Committee of the Swedish Participative Action Research Community (SPARC), to introduce what he was doing in Sweden. The majority of those he met were consultants working with industry and government, and discussions on action research practice ensued.
- On 24 May 2016, Gerald Midgley participated with MDH staff in the design of a workshop using a systems approach to explore innovation issues with Automation Region. Then on the morning of 27 May, he led the facilitation of the actual workshop (with Christer Nygren and Erik Lindhult). Feedback from the Automation Region representatives suggested that they found the workshop very useful in terms of moving from exploring the problems they were experiencing (which had been done in a previous workshop) to identifying and characterizing potential ways forward.
- On 27 May 2016, Gerald Midgley supported Christer Nygren in facilitating a workshop with approximately 20 industry representatives (from a range of companies) who wanted to learn more about innovation from a service-dominant logic perspective.
- On 30 November 2016, Gerald Midgley participated in a meeting between a range of industry representatives (e.g. ABB, Scania) and MDH academics in which their task was the co-production of a major bid for funding to the Swedish Knowledge Foundation for a large program of research spanning many industry innovation challenges and several MDH research groups. Gerald gave feedback on the draft application that had already been produced, contributed to the co-production discussions, and also presented an idea for a component of the research that came out of the findings from previous discussions with Ericsson, ABB and Automation Region.

- On 30 November, Gerald gave a public lecture on systemic innovation in a half-day conference organized to showcase the work of four Innovation and Product Realization Visiting Professors. Attendees were both academics and industry collaborators.
- Across January 2017, Gerald Midgley worked with Erik Lindhult and colleagues at MDH, plus a number of industry representatives (5 from ABB; 2 from Sandvik; 2 from WSP Sweden; 2 from CAG; 2 from Addiva; 1 from Motion Control; 1 from Prevas; 1 from Sweria; and 1 from Automation Region), on the co-production of a bid for research funding to the Swedish Knowledge Foundation. This involved many Skype meetings and emails between the academic and industry partners, plus written input to the bid. If funded, this bid will provide resources for Gerald to continue to work with MDH and industry in an advisory capacity for a further 3 years.
- On 7 February 2017, Gerald Midgley, Erik Lindhult and Christer Nygren met with Steve Brown (CTO) and Johan Hallberg (Innovation Lab Manager) of CapGemini to discuss future collaboration on research and education. This formal meeting followed on from previous, less formal, one-to-one discussions in November 2016 between Gerald and Steve Brown on systemic innovation and the contribution that could be made to CapGemini's innovation labs with Swedish industry. An agenda for future research was discussed, and CapGemini also showed strong interest in working with MDH on the co-production of their curricula to enable graduates to fill areas of critical skill shortage in innovation management across Swedish industry.
- On 9 February 2017, Gerald Midgley and MDH colleagues met with a senior manager from Sandvik Heating Technology to discuss the future co-production of research that would benefit their industry.

In addition to the above *direct* interactions with business, it should also be noted that the academics and PhD students at MDH are all strongly engaged with industry, so the capacity-building work that Gerald Midgley did with them across the year will have had an *indirect* effect on industry, in the sense that these staff and students now have additional capabilities to offer.

9. The contribution of the research effort to the development of the research environment.

Gerald Midgley's contribution to the research environment can be thought of in three ways: (i) the implications of his systemic innovation agenda for future research in MDH; (ii) the implications of his wider work on systems thinking for the research environment; and (iii) the support that he provided for academics and PhD students to develop their own research agendas. Each of these

will be tackled in turn.

A major focus of Gerald's research during the period of the Visiting Professorship was the development of a new theory and methodology of systemic innovation in partnership with Erik Lindhult (MDH). Also involved in discussions around this were Christer Nygren, Tomas Backström, Koteshwar Chirumalla, Jim Hazy, Gordana Godig-Crnkovic, Ulrika Florin, Anders Fundin, Peter Johansson, Carina Sjödin and Anette Strömberg (all academics and PhD students at MDH). The outcomes for the research environment include:

- Co-authorship of papers with leadership or substantial input from Gerald Midgley, thus contributing to the enhancement of the publication records of Erik Lindhult, Koteshwar Chirumalla and Jim Hazy.
- Integration of the systemic innovation research agenda into the ongoing portfolio of research at MDH. This is now a core concern of Erik Lindhult, as opposed to an 'added extra' supplementing his work on value-driven innovation, and Gerald and Erik have agreed to a continuing collaboration on theory development, application with industry and publication. Christer Nygren and Koteshwar Chirumalla have demonstrated a strong engagement in this research program (with others expressing interest too), and thus there is a group of capable academics to take the research agenda forward, with or without Gerald's participation (preferably with, although this partly depends on future funding applications – see the next bullet point).
- Gerald's research agenda has significantly influenced the co-production with industry of two research applications to the Swedish Knowledge Foundation (both submitted and under evaluation). If successful, the resulting projects will ensure the medium-term sustainability of the systemic innovation research agenda at MDH.

Gerald Midgley also presented at a variety of MDH events on his wider work in the area of systems thinking (in addition to the PhD student and other educational sessions mentioned earlier), and follow-up meetings with academics and PhD students were held to discuss the implications for their own research. The events were:

- On 5 April 2016, Gerald contributed to a seminar seeking to define the version of co-production to be used by MDH researchers.
- On 20 September 2016, Gerald contributed material on systemic innovation and systemic intervention to a half-day seminar series on Workplace Innovation and Quality Management held at MDH.

- On 21 September 2016, Gerald gave a presentation in a one-day conference held by the Mälardalen Industrial Technology Centre.
- On 23 September 2016, an interactive discussion was filmed between Ulrika Florin (design lecturer at MDH) and Gerald Midgley on the similarities and differences between design thinking and systems thinking, and the possibilities for their synergistic use. While this will be edited into an educational resource, the idea is also to cull sound bites from it to post on YouTube and the various systems thinking and design thinking internet groups, thus attracting attention to the MDH research of both participants. Ulrika and Gerald have also discussed the possibilities of funded projects and a research paper coming out of this interaction.
- On 30 November, Gerald participated in a meeting of all the Visiting Professors, Managers and Professors in the Innovation and Project Realization (IPR) group at MDH to share research ideas.
- On 30 November, Gerald gave a public lecture on systemic innovation in a half-day conference organized to showcase the work of the IPR Visiting Professors. Attendees were both academics and industry collaborators.
- On 6 February 2017, Gerald gave a seminar to the IPR group on thinking about co-production critically and systemically. This prompted reflections on the approach to co-production in MDH, with people acknowledging that often industry agendas are taken as given, and because the university has such good relationships with its industrial partners, the opportunity should be taken to deepen the co-production agenda through systemic explorations of what kinds of research could simultaneously benefit industry and wider society.

Finally, in many follow-up meetings with individual staff and PhD students, Gerald Midgley encouraged discussion of their own research ideas. Feedback from some of the people in these meetings suggests that his talks on systems thinking have fed into the research of several people – especially Erik Lindhult, Christer Nygren and Koteswar Chirumalla (on innovation), Gordana Godig-Crnkovic (on the philosophy of science used in information systems research), Ulrika Florin (on design thinking), Carina Sjödin (on futures methodology) and Anette Strömberg (on workplace adaptations for people with disabilities).

The following specific initiatives have come out of these discussions:

- Carina Sjödin and Anette Strömberg shared their idea for a research funding bid to support disabled people in employment, and as Gerald Midgley had undertaken several

similar projects in the UK, he was able to give advice that has been incorporated into the research design.

- Erik Lindhult and Gerald Midgley have proposed to the Editor of *Systemic Practice and Action Research* a special issue on Systemic Innovation. Their proposal has been accepted, and publication is scheduled for 2019.
- A Memorandum of Understanding has been signed between the IPR group in MDH and the Business School at the University of Hull (UK) expressing the commitment of the two institutions to continue research collaborations with wider participation than the two people who first worked together (Erik Lindhult and Gerald Midgley).

10. The contribution of the teaching activities to the development of the educational environment.

Whenever a guest lecturer is used on a course, it is of benefit to students because they are exposed to ideas from outside their usual circles of influence. In this sense, all Gerald Midgley's contributions to teaching listed in Section 7 have contributed positively in the short-term to the education environment. In terms of longer-term developmental influences, the following are worthy of note:

- As mentioned previously (Sections 7 and 9), Ulrika Florin and Gerald Midgley filmed a discussion on the potential for synergies between design thinking and systems thinking. This is now a legacy resource for teaching.
- Gerald Midgley and Erik Lindhult discussed the development of a new Masters module on Systemic Innovation, which has been through the MDH approvals process and will be taught for the first time starting September 2017. This will be a lasting legacy of the Visiting Professorship, as it will be structured around the various systems methodologies that Gerald Midgley has introduced into MDH. The original intention was to invite Gerald to guest-lecture on this module sometime between September and November 2017, but this is a difficult time for him due to other commitments. Therefore he has recommended one of his highly experienced colleagues, Dr Amanda Gregory, who can cover the same material. MDH is looking forward to her participation.
- One initiative that did not go according to plan was the establishment of a close link between the new Innovation Masters at MDH and the new Entrepreneurship Masters degree at Hull, with student exchanges and the ability to transfer credits between the degree programs. Unfortunately, due to financial restrictions in Hull, the launch of their

Entrepreneurship Masters has been suspended. It will only go forward when the financial situation has improved (probably in two or three years time), so this idea for a student exchange has had to be put on hold.

11. Enterprise's benefit from participating.

Statements from two industrial collaborators who worked with Gerald Midgley while in Sweden are offered below.

From Christer Gerdman (VD, Motion Control i Västerås AB):

“Företagens nytta av gästprofessor Gerald Midgley vid MDH.

I egenskap av ordförande för Affärsutvecklingsgruppen hos Automation Region samt VD för Motion Control AB redovisar jag här den nytta som klustret Automation Region och dess medlemsföretag har haft av gästprofessor Gerald Midgley.

Bakgrund

Inom automationsbranschen i Sverige kläms idag många tjänsteföretag (såsom tekniska konsultföretag) mellan kundernas strävan att sänka kostnaderna och tydligare konkurrens från internationella företag från lågkostnadsländer samt bemanningsföretag. För tjänsteföretagen innebär det främst att kunderna önskar sänkta timtaxor, att det inte är samma tjänst eller kvalitet på tjänsten bortser man gärna ifrån då detta är mer svårbedömt och timtaxan är ett enkelt sätt, men felaktigt, sätt att jämföra två olika tjänster på. Man bortser även ifrån möjliga problem såsom det geografiska avståndet, kulturella och språkliga barriärer samt att kompetensnivåerna och kunskap om gällande lagar och regler skiljer sig åt.

Problem

Att kunderna väljer att jämföra äpplen med päron är ett problem då de vill ha hög kompetens, som kan leverera tjänster i tid och med hög kvalitet men till en låg kostnad. Detta beroende på att kunderna i många fall väljer att bortse från de parametrar som är svåra att bedöma och väljer då gärna att utgå från en parameter som är enkel att jämföra.

I många fall väljer man då att stirra sig blind på timtaxan och bortser då från kompetensnivå, kvalitet, leveransförmåga, leveranstider och annat som i slutändan påverkar leveranstiden och den totala kostnaden för projektet. Att det är låg timtaxa innebär ju inte att projektet blir billigt om det går åt många fler timmar, dessutom blir ju leveranstiden försenad vilket kan innebära risk för böter samt ett sämre kassaflöde

för företagen.

Affärsutveckling

Som en lösning på detta problem har Automation Region, med dess medlemsföretag inom Affärsutvecklingsgruppen, anordnat aktiviteter rörande alternativa affärsmodeller. Mälardalens högskola varit inblandade i dessa aktiviteter och bidragit med föreläsningar, seminarier och workshops inom området nya och innovativa affärsmodeller. Bland annat under ledning av professor Erik Lindhult och gästprofessor Gerald Midgley. Dessa aktiviteter har pågått under hösten 2016 samt del av våren 2017.

Aktivitetserna har varit mycket uppskattade hos affärsutvecklingsgruppens medlemsföretag och företagen vill fortsätta med detta under hösten 2017. Aktiviteterna har varit överbokade så inte alla företag som velat vara med har kunnat vara det. Så det finns en önskan att fler företag och även andra typer av företag än tjänsteföretag ska kunna få vara med framöver.

Ut ur aktiviteterna har det kommit förslag på nya sätt att ta betalt för sina tjänster, nya former av samarbeten mellan företagen samt förslag på möjliga fortsättningar och vidareutveckling av konceptet”.

From Steve Brown (CTO, CapGemini):

“My name is Steve Brown, and I am Chief Technical Officer at CapGemini (Sweden). I initially met Gerald Midgley on a flight from the UK to Sweden, and we started talking about systemic innovation. I was excited to meet someone with such similar ideas to myself concerning the value of bringing stakeholders together in innovation labs to create synergistic thinking. I shared the problem that CapGemini has been having with its innovation lab practice: whether the lab works to generate innovations seems to be very unpredictable, so we can tell clients that a beneficial outcome is *possible*, but we cannot structure the participation of stakeholders in a way that gives more certainty. Gerald suggested that an action research program could be organized to reflect on the strengths and weaknesses of different innovation lab techniques, so that practice can be improved in a series of learning steps. I thought this was a good idea, so I invited Gerald and two of his colleagues at MDH to a meeting for further discussions. At that meeting, it emerged that we had many more interests in common. I have been developing a theory of organizational transitioning: what needs to happen for an organization to successfully move from one product or service life cycle to the next. This is not an easy process, because organizations often experience internal conflicts between advocates of the 'old' and the 'new'. It turns out that Gerald has also been working on systems theories of

conflict and marginalization that explain this problem, and both of us are pointing in the same direction for solutions. So there are really significant opportunities for learning to follow up on. My interest in this is partly commercial, as I can see the possibility of CapGemini offering services to support industries in transition. Developing a joint project would be worthwhile, and this research could be structured around the innovation work that CapGemini is doing with a range of industrial clients. This would benefit our own organization in terms of new service development, and would benefit Gerald as it would give him an avenue for his research to influence practice on a relatively large scale. In addition to these opportunities, I have also started discussions with Gerald's colleagues at MDH on having some input into curriculum development, as there is a significant shortage of high quality innovation managers in Sweden. I can see the possibility of CapGemini offering a service to industry where we place MDH graduates in jobs. I will be following up on this idea in the near future, when Capgemini implements one of its global Applied Innovation Exchanges in Stockholm”.

12. Proposals from the academic institution on next steps.

There are several initiatives to follow up on coming out of what has been reported above:

- Further joint-authored publications between Gerald Midgley, Erik Lindhult and colleagues on systemic innovation. These will lead towards the eventual writing of a book on this topic.
- Editing the special issue of *Systemic Practice and Action Research* on systemic innovation.
- Looking for future funding opportunities to support the extension of the research on systemic innovation into further work with industries. The potential collaboration with CapGemini looks particularly promising, as that organization is a gateway to working with all of its innovation clients.
- Creation of Youtube ‘sound bites’ on the intersection between systems thinking and design thinking, to publicise the research of Gerald Midgley and Ulrika Florin. They have also discussed the possibility of incorporating Gerald into one or more of Ulrika’s future funding bids, to enable a deeper analysis (including empirical testing) of the potential for integrating systems and design thinking.
- Participation of Gerald Midgley in an advisory role on the two projects that are currently being considered for funding by the Swedish Knowledge Foundation (if successful).

Likewise, his participation will also be possible in the proposal for research on supporting people with disabilities in the workplace.

- Deepen the work with systemic and action research approaches to co-production to strengthen the methodological competence at MDH as a leading actor in this area.
- Invitation of Dr Amanda Gregory to guest lecture on systems methodologies in MDH's new module on Systemic Innovation.
- Revisiting the idea of a student exchange when Hull's Masters in Entrepreneurship is revived.
- Generally, expanding the collaboration between MDH and Hull beyond the current participants.