



Addressing challenges of an uncertain world: A CyberSystemic approach

Festschrift for professor Raúl Espejo

Alfonso Reyes

Igor Perko

Editors

Universidad de Ibagué

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Igor Perko
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©Alfonso Reyes, Allenna Leonard, Amna
Potocnik, Ana María Guerra, Ángela
Espinosa, Camilo Serna, Carlos Senna,
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ediciones@unibague.edu.co

Universidad de Ibagüé

Carrera 22, calle 67. Barrio Ambalá

Teléfono: +57 (8) 2760010

Ibagüé, Tolima, Colombia.

www.unibague.edu.co

Design

Juan Pablo Santana

Style correction

María Paula Méndez Penagos

Nathalie Barrientos

Laura Rodríguez

Printer

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“To Be and not To Be, that Is the System”: The First Hybrid Syntegration

By: Markus Schwaninger¹

Foreplay

Raúl and I, we share many things, e.g., a penchant for social and ecological commitment, a bias towards reflection, as well as a sense for the ethical and esthetical. And we have a very similar kind of humor—our weapon in dealing with the world. One day I had Raúl on the phone. I opened the conversation: “Raúl, how is life?”. Answer: “Well, here it is!” A very profound answer.

In a certain sense we are brothers. We come from the same philosophical roots –I call them “P to P” (Plato to Popper), cybernetics is our trade, and Stafford Beer is our mentor. It is worth noting that Raúl is the man who cooperated with Stafford Beer longer than anyone else (1972/3 to 2002).

Raúl and I have a long story of collaboration, discourse and both agreements and disagreements. We taught at each other’s universities.

¹ Institute of Management and Strategy, University of St. Gallen, Switzerland

We also enjoyed leisure times together, walking in the Austrian alps. We have discussed and argued with each other forever.

Raúl and I have been steadfast colleagues since the 1980s,—for close to 40 years. What lasts is that we have realized exciting projects together, some of them quite big, and all of them demanding. Most of them with enduring results. We have written and edited books and articles together, including *Organisational Fitness. Corporate Effectiveness through Management Cybernetics* (Espejo & Schwaninger, 1993); *Organizational Transformation and Learning (with Schuhmann W. & Bilello U.)* (Espejo et al., 1996), and *To Be and Not To Be, that Is the System. Festschrift for Stafford Beer* (Espejo & Schwaninger, 1997). Additionally, we participated in consulting projects, in Europe and Latin America.

I always admired and enjoyed Raúl's huge intellectual horizon, his depth of thinking, his analytical acumen, and his absolute reliability. These qualities are paired with charm, wit, and stunning communication skills.

Introduction

The purpose of this chapter is to review and reflect upon our most demanding joint undertaking: The first 'hybrid syntegegration', in 1995/96. Some have referred to it as 'electronic syntegegration'. In fact, it was a syntegegration of humans with electronic assistance.

Society, producers, and consumers have reaped great benefits from digital technologies. They have also paid a price for the dysfunctions of these technologies. The balance for analogue is better. Ethical and humane leadership is, in principle, beneficial in almost every regard and is not dysfunctional in any way. However, humans need technical support to be efficient and effective. Digital means *insufficient*. Analog means *in need of completion*. We have identified solutions to this dilemma in pioneering ventures such as the one I am drawing on here.

The Team Syntegrity project, as presented here, highlights a large group communication venture which embraced multiple dimensions, including the social, ecological, esthetic, and spiritual. The syntegration in focus represented a vanguard venture. It was one of the earliest syntegration events ever, and it was largely reliant on electronic communication. It involved a sophisticated process, which Raúl Espejo (at the time a professor at Lincoln Business School, University of Lincolnshire and Humberside, England) and I (at the time a professor at the University of St. Gallen, Switzerland) directed from its initial stages through to its conclusion. We were an ideal team, working together creatively, and complementing each other perfectly. The relationship was founded upon mutual respect and esteem.

The following sections will provide a concise introduction to Team Syntegrity, addressing readers, for whom the topic is new. Thereafter, the Stafford Beer Festschrift Syntegration Project will be presented from a methodological stance. The case will be analyzed in two sections: first, the initiation and design phase; second, the realization of the venture. Finally, conclusions will be drawn.

The team syntegrity model: an overview

For those readers who are not familiar with Team Syntegrity, a short introduction will be given. It is an advanced approach to the design of democratic management in the sense of the heterarchical-participative type of organization (Schwaninger, 2009). It is a model stemming from Stafford Beer (1994), a holographic model for organizing processes of communication, such as the (self-) management of social systems, in a nonhierarchical fashion.

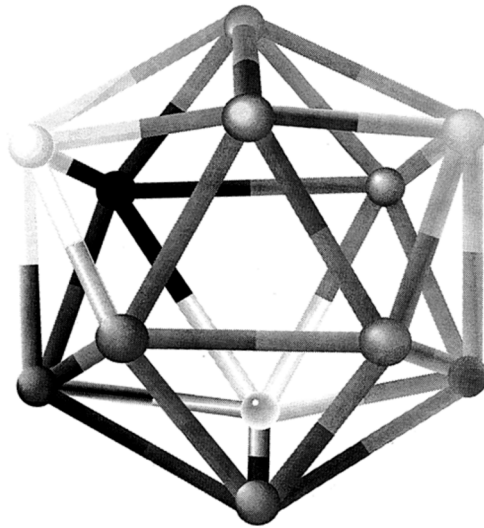
The term ‘Team Syntegrity’ is a composite of ‘synergy’ and ‘tensegrity’. The former stands for the results of a group working together being greater than those achieved by a single individual working on its

own. The latter term expresses the notion of tensile integrity, which can be defined as the cohesiveness of a load-bearing structure that stabilizes itself through pressure and tension. The architect Buckminster Fuller created such tensile structures.

Team Syntegrity applies these principles to the organizational domain. It is based on the *structure of polyhedra* (e.g., cube, octahedron, icosahedron). Therefore, it is particularly suitable for the formation of team-oriented structures as well as for fostering organizational cognition, —processes of planning, knowledge generation and innovation in turbulent environments. The process of a syntegration also has a strong emotional component, which interacts with the cognitive dimension. In the following, the architecture of the model will be illustrated by using the structure of an *icosahedron*, as an example.

An infoset of any size can organize itself according to the structure of a polyhedron. For a group of about 30 persons, the icosahedron, the most complex of the regular, convex polyhedra, is the ideal form (Figure 1). For different numbers of people, solutions can be achieved through the utilization of alternative polyhedra (see Truss et al, 2000). Each member of the infoset is represented by a single edge of the icosahedron. Each vertex is associated to a team, with twelve such vertices in the case of the icosahedron. These are usually marked by different colors, as illustrated here in shades of gray. Each vertex is connected to five edges; therefore, there are five members to each team (as players). Thus, each participant as a player belongs to two different teams, —those connected by the edge that represents him or her. Mrs. Red-Yellow, for instance, belongs to the teams Red and Yellow. At the same time, she is acting as a critic to two other teams (for example Black and Silver, which are next neighbors). Hence, each team consists of 5 players and 5 critics. Each one of the 30 participants has four different roles. Altogether, they fulfil 120 roles.

Figure 1. Icosahedral structure of an Infoset with 30 members



Source: Truss *et al* (2000)

This structure dissolves the paradox of peripherality versus centrality of actors in an organization (as formalized by Bavelas, 1952). While peripherality (in the sense of marginality) leads to communication pathologies, alienation and low morale, centrality (in the sense of key position) is needed for effective action. However, as a group grows, centrality can only be ‘bought’ at the cost of increasing peripherality (Leonard, 1995). Team Syntegrity enables an infoset to acquire ‘centrality’ via a reverberative process, although the peripherality of each one of its members equals zero, i.e., there is no peripherality at all.

For further detailed information about Team Syntegrity, see Beer (1994); Leonard (1996); Espinosa & Harnden (2017).

The stafford beer festschrift project — initiation and design phase

Raúl and I used to visit each other now and then to pursue joint research projects. On such a visit in St. Gallen, Switzerland, in June 1995, we went for a walk, near the University. Suddenly, I raised an issue: “Stafford is going to be 70, next year!” Raúl’s answer: “No!” After a short discussion, we agreed that Stafford Beer would be 70 years old in September 1996; therefore, we decided on the spot to produce a festschrift. As we discussed, we converged towards a consensus: This would be a commemorative volume, but we wanted to avoid the limitations of a book. It would be a CD. And we would hand it over to Stafford —I remembered the date— on September 26, 1996. Raúl: “We will hand over a CD, no matter what’s on it.”

Raúl went back to England but called me soon thereafter. He had the idea that instead of producing a sequence of chapters, which were written by one or a few authors each, we should base the concept of production on the latest theoretical achievement by Stafford, the “Team Syntegrity protocol.” That proposal was a stroke of genius. We met at the University of Humberside, England, in September 1995 and worked out a detailed plan for the project, with purpose, project description, schedule, etc. We realized at an early stage that the project would have to start immediately if we wanted to complete it on time. I am attaching the project schedule in Appendix A to illustrate this, without getting into the details.

After our two days of planning at Raúl’s office, we started to gain the support of the people who were going to participate and then to gather their first inputs. The aim of the project was to create a substantial contribution to the body of knowledge of cybernetics, which we wanted to dedicate to Stafford Beer, as a festschrift² for his seventieth

² The term ‘festschrift’ stands for a commemorative volume.

birthday. A report and reflections on this project can be found in Espejo & Schwaninger (1997) and Schwaninger (1997). For us, the leaders of the project, this was also a venture of applied research which involved careful design, development, documentation, and reflection.

In principle, at the core of such a collective writing effort is the generation of a knowledge product. However, the publications of this type often represent mere collections of articles that show little integration. Worldwide there was a reasonable number of people doing research in managerial cybernetics, and who probably would be willing to contribute. How was it possible to canalize this high potential into a coherent, integrated effort that would lead to a genuine knowledge product? To reach the demanding objective the project was aiming for, a new approach was required. We decided to apply the *Team Syntegrity Model* as a basis for organizing the process of creating the opus. That model appeared to be especially suitable for carrying out the ambitious endeavor of working on the complex domain of knowledge embodied in managerial cybernetics, in a cooperative venture uniting co-authors from all over the world.

This was one of the earliest syntegration projects altogether, and it relied on electronic communication to a great extent. It was carried out as a hybrid syntegration with two integral parts of similar weight. One was the first electronic syntegration ever held, of an infoset distributed worldwide. The second was a local syntegration with all the rich personal inter-relations involved that can arise in such an event. Almost everything about this venture was completely new. We built on the syntegration model, which was a novelty, but the electronic version, which we combined with the local one, was a communication system hitherto unheard of. The combination of distant and local communication was highly complex and posed a major challenge in terms of management and recording. The envisioned product, a CD with audiovisual content and multidimensional navigation features, was different from conventional

festschrift publications. We were about to fathoming a completely unorthodox approach to creating a publication by the way of a novel concept of communication.

The project should be concluded with a special event at John Moores University, Liverpool. We would present the result, a new CD-ROM on cybernetics in organization and society³ (Espejo & Schwaninger, 1997).

Realization of the project

We entered the project with great vigor, which lasted until the end. To keep our feet on the ground, Raúl and I, beyond our directive function, also participated in the Infoset as players in two teams and as critics in two other teams. Accordingly, each of us also co-authored four chapters of the final report (For details see Appendix B⁴).

In the planning phase (see above) we had a tentative opening question: “What is the (actual and potential) contribution of cybernetics in general, and Stafford’s work, in particular, to organization and society?” In the process, as we went about to cope with the challenge confronting us, a colloquial version of that question came up as follows: “What can managerial cybernetics contribute to the future of mankind?”

Our priorities for the realization of the project were:

- **Winning the cooperation** of a circle (‘Infoset’) of experts in cybernetics (among others, from the Universities of Manchester, Toronto, Valladolid, Dublin, De Los Andes/Bogotá, Mannheim,

³ The event took place on September 25, 1996. The duration of the project was from the beginning of September 1995 to the aforementioned date.

⁴ The 12 chapters of the report deal with the topics listed in the “Title” column. Raúl was part of the teams “Silver: Communication and Information” as well as “Green: Adaptive Ecological Organizations” as a player. His engagements as a critic were in the teams “Red: Management Knowledge and Knowledge Management” as well as “Dark Blue: Recursive Organization”.

Humberside, John Moores/Liverpool, City University/London, St. Gallen, Bangor, Nanyang Institute of Technology/Singapore).

- **Interaction** based on the Team Syntegrity Model, as already outlined.
- **Combination of distant and local communication** between the persons involved, making use of the most advanced technological means.
- **Absolute secrecy about the project *vis-à-vis* Stafford.** This would be a non-trivial undertaking, as all members of the InfoSet knew him, and many were even quite close to him. Thankfully, Stafford's partner Allenna Leonard took over the coordination "with Stafford" to make sure he didn't find out.

Up to then, the Syntegrity Model had been applied in a number of strategy and organization projects, but always in workshops, i. e. via local communication. To enable a genuine process of knowledge generation, resulting in a tangible product (the envisioned CD-ROM and book), it was required to plan and control the project in a most circumspect fashion. To get a maximal result out of the project, the first electronic synte-gration ever realized was among the planned technological innovations, and it would be combined with a local version, to work on the topics under study, in a context of local interaction. Another innovation was the endeavor of thirty people writing a book together, mainly via the World Wide Web. It should be noted that this was roughly 30 years ago.

The project comprised the following phases:

1. Preparation: The opening question was clear to us from the beginning, when the idea to realize the venture emerged (see above). After a meticulous planning of the project, in early September 1995, we invited people knowledgeable in cybernetics and acquainted with Stafford to

participate in the project. Responses followed fast. Only a few addressees indicated that they were unable to attend. Three colleagues told us that they could not attend but offered to contribute a written or spoken presentation: Heinz von Foerster, Russell Ackoff and Fredmund Malik.

We installed a worldwide web site as a communication platform (using a server at City University London, England, which also gave the necessary technical support⁵). To have a certain financial reserve, we applied for a grant from the Foundation for the Promotion of Systems-oriented Management Education in St. Gallen (President: Prof. Peter Gomez). We were kindly awarded this support.

2. First Electronic Syntegration: A distant interaction was employed to generate the agenda for a local syntegration, which was scheduled to take place at the end of March in Britain. Over five months, an infoset of more than 40 cyberneticians from four continents and sixteen countries was interacting via the Web.

At the beginning, a multitude of ideas was generated, all the participants handling in multifarious issues viewed from the most different perspectives. 147 “Statements of Importance” (sis) were given in by the participants, i.e., statements considered important with respect to the opening question. A test if a statement was meaningful, was carried out, following the question: “Would the negation of this statement be an alternative that would make sense?” The incoming statements varied widely from propositions based on knowledge of cybernetics to provocative utterances. The following examples are illustrative: 1. “Recursive management: The key to organizational fitness.” 2. Scientific paradox: All social systems are potentially viable, but viable social systems

⁵ We are grateful to Prof. Clive Holtham and Mark d’Cruz for their precious support, which was crucial for the success of the project.

(by definition) contain non-viable social systems.” 3. “Economics is the arch enemy of cybernetics.”

Later, priorities were set in a sequential manner. By means of election procedures (via Worldwide Web) and lateral discussions (that were partially also carried out by supplementary means of communication such as telephone, fax, e-mail etc.), the infoSET created, in self-organizing fashion, an agenda, namely the twelve topics for the various chapters of the festschrift. In this phase, the initial Statements of Importance were transformed, step by step, and following a complex protocol, into twelve consolidated statements of importance. This involved sophisticated techniques, such as underwriting and voting procedures via the Net.⁶ For example, in a first step, Statements of Importance were merged into Aggregated Statements of Importance (ASI).

One ASI (ASI No 6, 23 January 1996) based on four SIS was championed by Alan Pearson:

Title–Redesigning our personal and social lives:

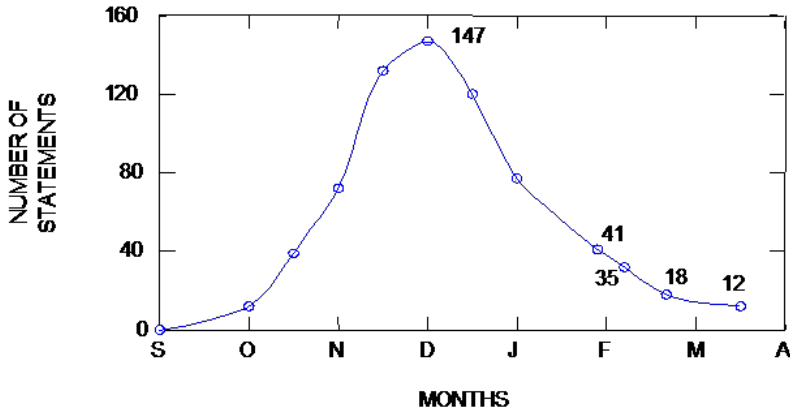
Stafford’s contributions go far beyond the purview of cybernetics. His insights into the nature of ‘reality’ combine the vision of the mystic, the sensibilities of the poet and painter, and the practical applications of the non-reductionistic scientist. His special combination of Catholicism, socialism, and mysticism, tempered by real-world empiricism, shows us how to design love-prone effective organizations. Let us think again about personal power and love, learning to manage our emotions and develop effective conversations, thus redesigning our personal and social lives more consciously, freely, and happily.”

To become a definite ASI, a proposed (‘provisional’) ASI had to be signed by five members of the infoSET. The evolution of the number

⁶ The details of this procedure are documented in Espejo and Schwaninger (1997).

of ‘officially counted’ Statements of Importance at different levels of condensation, from Initial (147) to Aggregated (41 provisional, 35 definite) to Elided (18) and Consolidated (12), is shown in Figure 2.

Figure 2. Evolution of the Statements of Importance



Source: Schwaninger (2003)

At last, each member of the infoSet could propose which topics he or she would prefer to contribute, i. e. which of the twelve teams he or she would join as a player in the following phase, namely, the work on the topics ('Outcome Resolve'). An optimization algorithm was employed to fulfill these desires in 97 percent of cases; the remaining players were allocated to topics in a random fashion.

3. Local Syntegration: Towards the end of March, the definitive infoset —30 cyberneticians⁷—met for a three-and-half-day workshop at Mickleton, located near Stratford-upon-Avon, England.⁸ The teams engaged in an intensive, and for all participants fascinating exchange of ideas. As a result of this, the content of the planned volume emerged. The twelve chapters were outlined. The discussion was organized according to the geometry of an icosahedron: Each of the thirty participants was a member of two teams as a player (represented by an edge connecting two vertices of the icosahedron), as well as a critic of two further teams. The names of the teams, labeled after the 12 Consolidated Statements of Importance are presented in Figure 3. The members of the Infoset and the individual teams are listed in Appendix B.

Each team met in three iterations. First, for a kind of brainstorming ('generating ideas'); at the second time, for a conceptualization ('modeling'); and finally, at the third time, for designing an action plan on how to proceed to produce the respective chapter within the team ('implementation'). All sessions were recorded on videotape. These recordings were then transcribed, to provide 'raw material' for the write-up of our joint work.

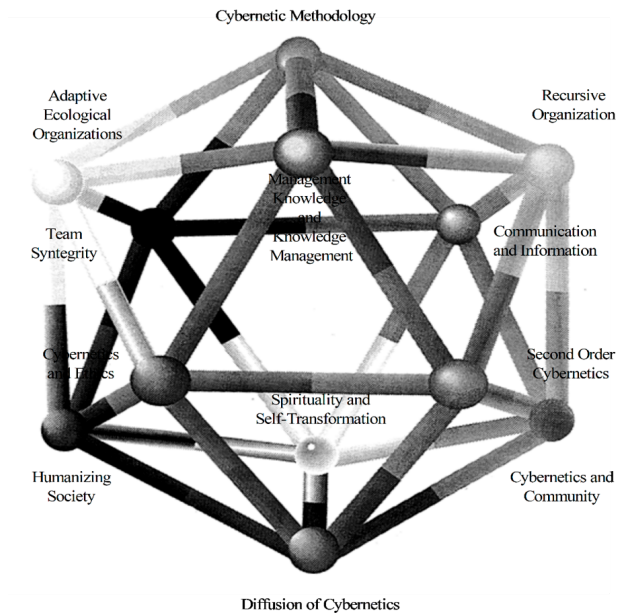
This local syntegration was hard work for all participants, but it was also fun. The conversations during the meals were animated. We also had a cultural event on an evening with José Pérez Ríos playing wonderful

⁷ The number of exactly 30 persons who participated in the local syntegration corresponds to the ideal shape of the icosahedron, which was a coincidental result. We had targeted a size around 30, but the set of participants of a syntegration in icosahedral space could in principle vary between 20 and 40 people. As noted above, the number of participants in the prior electronic syntegration was about 40.

⁸ The workshop was facilitated by a group from rsi-Team Syntegrity Inc., Toronto, Canada, under the direction of Joe Truss. The lead facilitator was Stephen Davies from rsi, who was supported by Nicola Kurk, Antonia Gill, Cornelius Crane. Karin Losscher and Garrick Filewood were the logisticians of the event. Roy Stringer and Roddy Gilliard were the cameramen.

Spanish tunes on his guitar. In the evening, the bar was frequented by several steadfast fellows. Out of one such session, came the title of the festschrift: “To Be and Not to Be, that Is the System.” I am not quite sure, but the author of that title could have been David Beattie.

Figure 3. The topics / names of the chapters



Source: Espejo and Schwaninger (1997)

Note. These are also related in Appendix B, with the names of the members per team, and in better readability.

4. Second Electronic Syntegration: Once more, the twelve chapters were written remotely, this time between March and the beginning of August. For this purpose, a further platform with a special groupware (‘First Class’ software) was installed on a server of the University of Bangor,

Wales.⁹ The chapters carried the names of the topics on which the teams had worked in the local syntegegration (Figure 3).

The ‘book’ was written in an atypical way. The authors of each chapter were defined as a set of five players and five critics, each one of them involved in four teams (see description of the Team Syntegegrity Model above). This structure of the same people working on the various topics in a network of different formations had a strong integrative effect. Each chapter reflects both a marked statement for the respective topic and an alignment with the other topics. It also has a view on the whole endeavor. An important input for this phase were the transcripts of the sessions in Mickleton.¹⁰ Finally, the editors consolidated the chapters and wrote one chapter reflecting on the process used.

5. Production of the CD-ROM: In the months of August and September, a CD-ROM was produced at AMAZE, a multimedia company in Liverpool, England, under the direction of Mr. Roy Stringer and Dr. Roger Harnden, two multimedia experts. This CD-ROM is a technological and educational masterpiece. It documents more than merely the results of the project. The user can navigate through a hyperspace in an interactive manner, to discover the process that led to this product. The contents of the twelve chapters will disclose him or her state-of-the-art applications of cybernetics to organization and society (see overview in Appendix B). These contributions were and remain topical. The chapters of the volume were attractively and wittily framed by the contributions of Heinz von Foerster (an original video with a magic piece), Russell Ackoff (with a

⁹ The technical assistance was kindly provided by Prof. Oleg Liber.

¹⁰ The transcriptions were carried out by Alfonso Reyes Alvarado and Andreas Krafft, at the time doctoral students with Espejo and Schwaninger. The transcripts are fully documented on the CD-ROM (Espejo & Schwaninger, 1997).

pointed and warm address), and Fredmund Malik (an essay titled “Fanfare for effective organization”).

6. Final presentation: The festschrift was finally presented, on September 26, 1996, at John Moores University, Liverpool, to Stafford Beer and an audience comprising most of the members of the syntegegration.¹¹ Several members of Stafford’s family attended as well, —his children, his partner Dr. Allenna Leonard, his brother Ian, former dean of Harrow School and his wife, as well as several members of the faculty of the university.

Raúl and I started the presentation with a personal note: “Stafford Beer is the founder of management cybernetics. His theories and models have influenced at least two generations of cyberneticians and many practitioners in organizations and society. We have the privilege of being his pupils and friends and we have collaborated with him for many years. His wisdom has nourished us, and his jokes have kept us alive. Therefore, as his 70th birthday approached, we wished to produce a festschrift —to use the English term, a *commemorative volume*.”

Hence, we introduced the whole story of our project early on. Stafford was totally surprised. He had not known anything of our intensive work, i.e., Allenna had done a great job of ‘coordinating,’ and everybody had kept tight. Stafford was greatly touched by our gift and showed utmost interest in our project. The CD fascinated him. He saw the moving parts, e.g., the navigation devices, summaries spoken and recorded in all teams, at the end of each iteration. He even wanted to see the recordings of heated discussions, but the capacity of the CD was too small for that at the time.

The presentation showed that this work was a world innovation. In a global, decentralized, cooperative research and publication project,

¹¹ The event was hosted by John Moores University, under the lead of Prof. Dennis Adams.

more than a CD and book,¹² with twelve highly integrated chapters, had been created. A distinctive feature of these final products lies in that they are the result of a collaborative global knowledge generation process, carried out mainly via electronic media, by 30 cyberneticians from sixteen countries and four continents. There was no central unit to coordinate the texts produced in the twelve teams. Coordination happened ‘automatically’, via self-organization in a reverberant process.

At the end, we realized that a most promising method had been found for the organization of distributed processes for the elaboration of knowledge-intensive products, by a completely new approach whose full potential remained to be actualized in the future.

In retrospect, the circumstances that led to these results made for a successful social process. The members of the Infoset showed a high level of commitment throughout. They were amazingly disciplined. At the same time, they also had fun and enjoyed themselves. If this syntegration turned out well, then this is the collective work of thirty participants to whom kudos and thanks are due.

Reflection

The aim of this project of applied research was examining the Team Syntegrity Model as to its aptitude for the design of virtuous self-organizing processes (not all self-organization is virtuous (see Allen, 1997), regarding the creation of knowledge. Given the fundamental property of organizational knowledge that it is embodied in actors, the Team Syntegrity Model has proven to be a framework for this purpose, which is more powerful than most of the traditional ones. It provides a process-oriented structure for these actors to become creative inter-actors.

¹² Printouts in book format were only produced for a small number of selected libraries and individuals.

Interaction with a shared purpose, enabled by an ideal structure, is what breeds the emergence of new knowledge.

Team Syntegrity has a specific characteristic, which distinguishes it from more conventional approaches to face-to-face teamwork. Not only is it focused primarily on the relationships rather than the elements in a system. It can even enable larger numbers of people than the face-to-face groups (e.g., 30, as in our case) to interact purposefully, in a non-hierarchical mode. A huge spectrum of views and insights can be brought to an intricate mode of synergetic cooperation. The process of reverberation leads to knowledge gains at three levels: individual, team and infoSet. As in the case outlined, entirely new levels of knowledge can be attained. Namely, the combination of electronic and local syntegration has opened new perspectives for the generation of knowledge and insight. In this vein, Team Syntegrity is a powerful device for improving management, e.g., in implementing the meta-systemic functions of managerial systems (Systems 3,4,5), as conceived by the Viable System Model (Schwaninger, 2009).

Team Syntegrity also provides powerful structural features that encourage self-reference in the sense of self-reflection. These ensure self-awareness, and forcefully inhibit all kinds of process pathologies, which a lack of creativity and insight, but also hybris, misguided mutual assurance or miscommunication can breed at any time. These self-referential features operate at four levels: individual, team, cross-team, and infoSet as a whole:

- a. The individual participant is confronted with distinct opinions or even paradigms. At the same time, he or she needs to express their standpoint as the discourse evolves. In addition, during the informal activities, they are confronted with more personal opinions, observations, and feedback. All of this can trigger self-reference in the sense of reflective processes.

- b. At the team level there are three devices. First, the interaction between players involves an error-correcting mechanism, known from group-dynamics. Second, the critics, who are permanently present in the sessions of the Outcome Resolve are explicitly in charge of bringing a meta-view into the discussion. They criticize, encourage, and embody the devil's advocate, from a content and a context as well as a process perspective. Third, the groups are usually moderated by process facilitators who are the guarantors of adherence to the rules of the game (e.g., goal-orientation, equality of group members, adequate participation of critics, etc.).
- c. At the cross-team level, the fact that each one of the team members is also a member of three other teams (one more as a player and two as a critic), instils self-reference into the discussion, in a natural way.
- d. At the level of the infocet, plenaries at the beginning, between the iterations, and at the end of the process, foster the emergence of a collective consciousness.

It is remarkable that these features were not only present in the local syntegeation, but equally in the electronic one. The latter gave the participants more time to take their decisions, than is usually given by the organizers of local syntegeations. In the present case, this turned out to be a benefit. In the age of digitalization, technology is often used in such a way that the acceleration of processes puts people under pressure. In the present project, this 'law' was overridden. Speed was not achieved by doing everything faster and faster, but by starting earlier in the first place.

The individual level of self-reference just mentioned is a topic to mirror some of Raúl Espejo's self-referential aspects in the context of this syntegeation project. Raúl engaged in four teams (See footnote 3), i.e., he collaborated in each one of the topics these teams worked on. One can observe that Raúl participated in teams dedicated to topics on

which he already had published before.¹³ The syntegegration event was a moment for reflecting those works.

Team Syntegrity also underpins that organizational cognition and consciousness are recursive phenomena (Beer, 1994), which in this case are present, distinctively, at the levels of the individual, the group and the infoset.

Not only the rational but as well the emotional dimensions are implicated. The intensive and varied communication in the syntegegration process sparks motivation and commitment to contribute to the common theme. Positive emotions prevail throughout, although negative feelings cannot be completely ruled out. This was particularly palpable in the *festschrift* syntegegration. The coherence of motivations despite different institutional and professional backgrounds, and the clear purpose of the project, attached to a model cybernetician venerated by everyone, bred emotional energies.

We have an important social invention here, which is badly needed. Our world faces regulatory crises at many levels. Many of these crises have to be attributed to outdated concepts of organization and management, where reductionism, autocracy, and the abuse of power as an instrument of domination are prevalent. There is an enormous potential for organizational innovation, to which this model can make a great contribution.

To conclude, it is worth mentioning that the Team Syntegrity Model has been explored further since the project outlined here took place. On the application side, methodological issues concerning the detailed procedures, have been explored further, by disciples of Stafford Beer and several consulting enterprises. On the theoretical

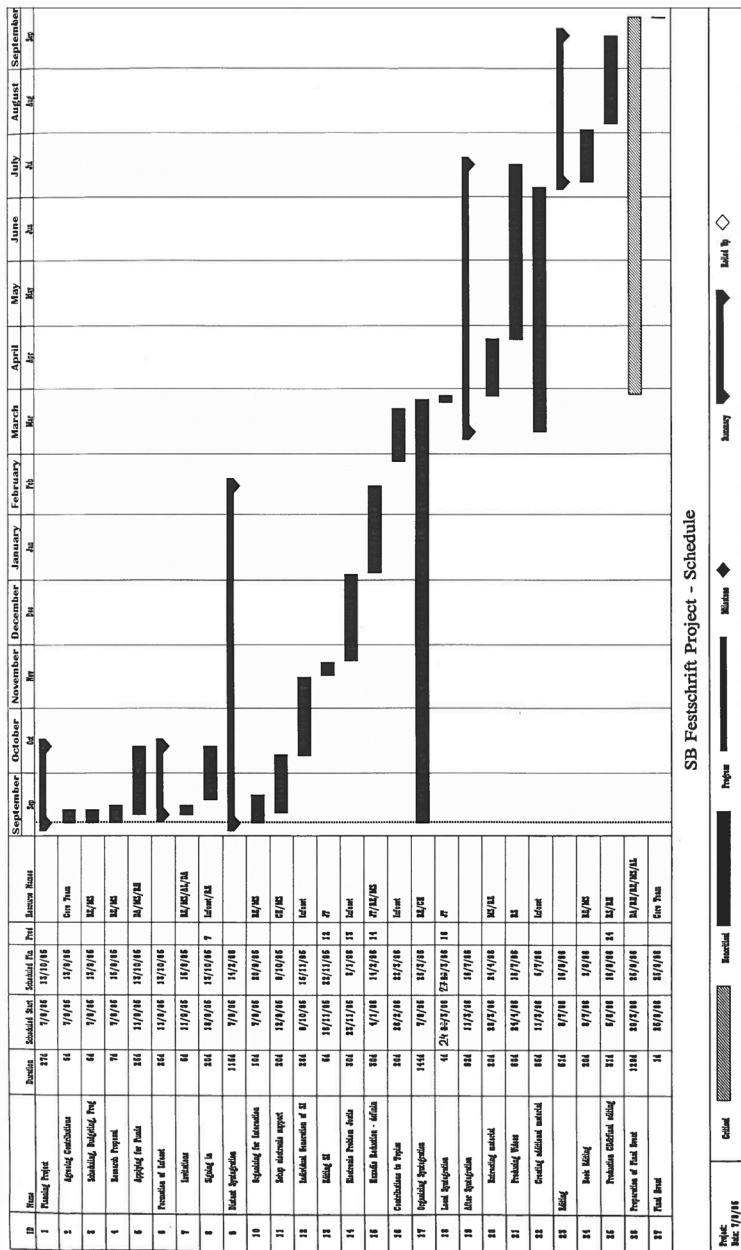
¹³ Examples of pertinent topics: Management of complexity (Espejo 1989a, 1993, 2020; Espejo & Reyes 2011), recursive organizations (Espejo 2022a, Espejo & Reyes 2011), information and communication (Espejo 1988, 1993, 2000, 2022b), adaptive organizations (Espejo 1989b, 2002, Espejo et al, 1996).

side, various mathematical aspects have been studied further (e.g., Jalali, 1994, Truss et al., 2000). Interdisciplinary insights have also emerged. Buckminster Fuller used to say, ‘All systems are polyhedra.’ And indeed, the icosahedron represents an invariant structure, which is intriguing from a system-theoretical standpoint.

Great philosophers since Plato, leading artists, and mathematicians—namely Leonardo da Vinci and Fra Luca Pacioli—were fascinated by the icosahedron. Buckminster Fuller used it as a concept for his architectural invention of the geodesic domes. In 1985 chemists discovered the icosahedron as a structure for the most enduring molecule — C_{60} —, which is called the Buckminsterfullerene. It has the shape of a truncated icosahedron, made of twenty hexagons and twelve pentagons, and looks like a football. Finally, brain researchers have identified—without being aware of it—that the structure of the activation processes in the human brain is icosahedral (Georgopoulos et al., 1993).

I dare say that the Stafford Beer Festschrift Syntegration was a pioneering venture. It was a privilege and a pleasure realizing it together with Raúl. Since then, it has always been our hope that other people, namely younger colleagues interested in systemic thinking, would get inspired by our work. This is happening and may bring new efforts to fruition.

APPENDIX A – Project Schedule



Source: Raúl Espejo and Markus Schwaninger

APPENDIX B – Record of the Infoset

	Title	Colour	Players	Critics
A	Cyber-Methodology	Light Blue	Tony Gill Graeme Britton José Pérez Ríos Markus Schwaninger Paul Stokes	Allenna Leonard Nina Temple Oleg Liber Roger Harnden Werner Schuhmann
B	Communication & Information	Silver	Alan Pearson Angela Espinosa Oleg Liber Raúl Espejo Werner Schuhmann	José Pérez Ríos Markus Schwaninger Nina Temple Peter Stadelmann Mark d’Cruz
C	Democracy	Black	Alan Pearson Christine Cullen Hans Losscher Ilias Ortega Joe Truss	Andreas Krafft David Beatty Diane Bowling Maarten Willemsen Neil Stewart
D	Cyber-Ethics	White	Albakri Ahmad Bjorn Erik Dahlberg Ilias Ortega Roger Harnden Werner Schuhmann	Allenna Leonard David Sutton Graeme Britton Paul Stokes Jacob Avis
E	Diffusion	Brown	Diane Bowling Albakri Ahmad José Pérez Ríos Neil Stewart Peter Stadelmann	Alan Pearson Angela Espinosa Christine Cullen David Beatty Mark d’Cruz
F	Spirituality	Gold	Angela Espinosa David Beatty David Sutton Graeme Britton Maarten Willemsen	Albakri Ahmad Christine Cullen Diane Bowling Ilias Ortega Jacob Avis

	Title	Colour	Players	Critics
G	Adaptive Ecological Organizations	Green	Neil Stewart Bjorn Erik Dahlberg Maarten Willemsen Raúl Espejo Tony Gill	Alfonso Reyes Andreas Krafft Hans Losscher Jerry Meek Joe Truss
H	Humanizing Society	Yellow	Allenna Leonard Christine Cullen Nina Temple Mark d'Cruz Jacob Avis	Albakri Ahmad Angela Espinosa Graeme Britton José Pérez Ríos Werner Schuhmann
I	Management Knowledge and Knowledge Management	Red	Jerry Meek Andreas Krafft David Beatty Markus Schwaninger Mark d'Cruz	Alan Pearson Joe Truss Neil Stewart Peter Stadelmann Raúl Espejo
J	Recursive Organization	Dark blue	Joe Truss Alfonso Reyes Nina Temple Peter Stadelmann Roger Harnden	Jerry Meek Markus Schwaninger Oleg Liber Raúl Espejo Tony Gill
K	2nd Order Cybernetics	Purple	Paul Stokes Alfonso Reyes Andreas Krafft Diane Bowling Jacob Avis	Bjorn Erik Dahlberg David Sutton Hans Losscher Ilias Ortega Maarten Willemsen
L	Cyber-Community	Orange	Oleg Liber Allenna Leonard David Sutton Hans Losscher Jerry Meek	Alfonso Reyes Bjorn Erik Dahlberg Paul Stokes Roger Harnden Tony Gill

Source: Raúl Espejo and Markus Schwaninger

The names of the coordinators are in bold (they were only named at the end of the local syntegration, i.e., for the joint writing of the chapters).

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