Constructor Institute of Technology

Organization and governance

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1 Overview

Constructor Institute Schaffhausen is a not-for-profit institution of higher education, scientific research and technology transfer located in Schaffhausen, Switzerland. Evolving from the Schaffhausen Institute of Technology, founded in 2019 under the impulsion of Serg Bell, a visionary technology leader and entrepreneur, and continuing under its new name since 2023, Constructor Institute is determined to achieve a leading role in the coming years and to become a distinguished member of the Swiss academic and innovation scene.

These ambitious goals require accreditation as a University Institute. The present description of the Governance structure is part of a comprehensive set of documents (see section 2) helping to achieve accreditation.

Constructor Institute is part of a larger initiative, the Constructor ecosystem, which includes for-profit technology companies (Appendix A) and non-profit entities. While Constructor Institute is separate from the for-profit entities, its proximity with Constructor Group and with the for-profit companies under its umbrella is designed to create a successful innovation ecosystem and provide economies of scale.

In all aspects of its work, Constructor Institute seeks to achieve excellence. This focus applies not only to education and research but to the governance structure. The present document describes fundamental management structures and processes at Constructor Institute; they build from the best practices of other top institutions in Switzerland and abroad but also on the extensive experience of the founders and their rich network of contacts and advisors in both academia and business.

Constructor Institute's governance rests on the following ten core principles:

- **Currency.** We strive to benefit from the best modern management principles.
- **Agility.** We are ready to adapt quickly as new lessons are learned.
- **Transparency.** Governance mechanisms are documented, and visible to all stakeholders of Constructor Institute.
- **Simplicity.** We avoid unnecessary strictures and impediments.
- **Efficiency.** All governance mechanisms are directed towards the fulfilment of Constructor Institute's goals in education, research and technology transfer.
- **Ethics.** We apply ethical rules, respect every individual involved in Constructor Institute processes, and convey to all stakeholders the Constructor Institute values of openness, honesty and fairness.
- **Innovation.** We encourage creative, out-of-the-box thinking at all levels of Constructor Institute activities. In particular, we enthusiastically apply the "Humboldt" principles of many successful modern universities, keeping education and research closely intertwined for the benefit of both and fostering technology transfer.
- **Reason.** We apply to Constructor Institute governance the same principles of logical, systematic reasoning that govern Constructor Institute education, research and technology transfer.
- **Practicality.** We always keep in mind the practical benefits of Constructor Institute's activities to our stakeholders, partners (academic and industrial), and society as a whole.
- **Ambition.** We never rest on any laurels but always aim for the higher step in excellence and achievements.

The rest of this document is organized as follows:

- Section 3 lists the associated documents, defining specific processes, such as the Faculty Statutes defining the role of professors.
- Section 4 specifies the legal structure in which Constructor Institute exists (see also Appendices A and B).
- Section 5 lists strategic partnerships with other institutions.
- Section 6 explains the internal structure defining the core governance of Constructor Institute.
- Section 7 presents the key support functions such as accounting and IT.
- Appendix A shows the structure of Constructor Group.
- Appendix B recounts the structural evolution that led to Constructor Institute.
- Appendix C presents the current board members and management structure.

2 Relevant companion document

The following documents provide complementary information and regulations on some of the aspects mentioned in the present Organization and Governance regulation.

- Faculty Statute regulation, for all matters describing the role of professors, including the rules of the Aca-

demic Senate (section 6.7 below).
- Quality Processes regulation, for all matters describing enforcement of quality control, including processes for handling and remediating incidents and complaints.

3 Legal structure

Constructor Institute AG is incorporated in Schaffhausen, under registration number CHE-285.404.370, as a non-profit company limited by shares. Constructor Institute is a subsidiary of a non-profit organization, Constructor Education and Research Genossenschaft, incorporated in Switzerland as of May 4, 2021, corporate registration number: CHE-262.787.249. As noted in section 1, it has no legal relationship with the for-profit Constructor Group, although it benefits from synergies with it, in particular through its Board of Directors, as discussed in Appendix A. Figure 1 shows the current structure of the Genossenschaft.
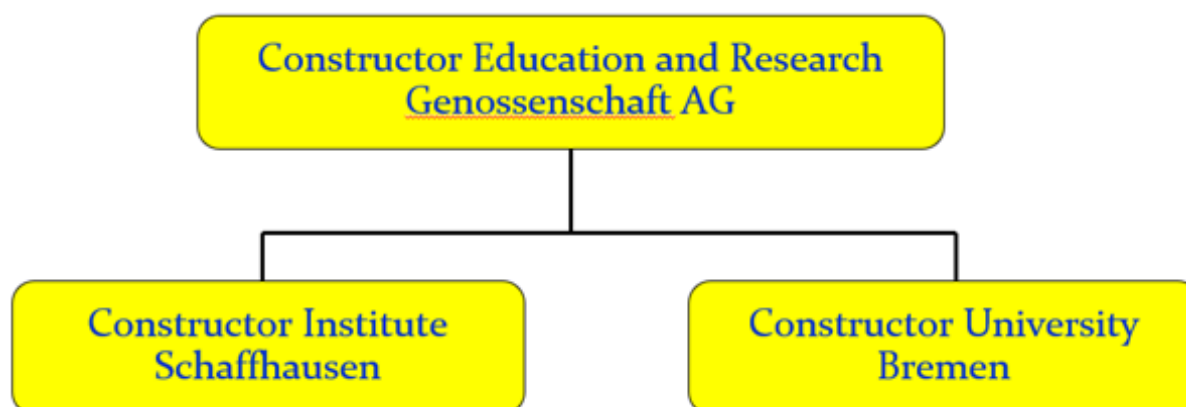

Figure 1: Legal structure

Constructor Education and Research Genossenschaft also owns the majority of Constructor University Bremen gGmbH, a German university previously known as Jacobs University Bremen (often abbreviated JUB).

Constructor Institute Schaffhausen and Constructor University Bremen are independent institutions, each having achieved or pursuing accreditation in its own country (respectively Switzerland and Germany), but able to cooperate on specific educational and scientific goals and to benefit from each other's strengths thanks to their sharing of a parent institution.

4 Strategic partnerships

Constructor Institute, ever since its inception as Schaffhausen Institute of Technology, has consistently sought to conclude cooperation agreements with top-ranking academic institutions worldwide. The institutions with which the most significant collaborations exist at the time of writing the present document include:

- Constructor University Bremen, as noted in section 3.
- University of Geneva: through joint appointments with the Geneva Quantum Center. Currently, two faculty members have joint responsibilities at Constructor Institute and University of Geneva.
- Carnegie-Mellon University, Pittsburgh, USA: memorandum of understanding, leading in particular (2019-2021) to Constructor Institute students completing their master degrees there.
- National University of Singapore: memorandum of understanding (currently pending renewal), leading to selected Constructor Institute students (2019-2021 to 2021-2023 classes) spending their second year of master programs there.
- Other entities, including for-profit entities of the Constructor Group (Appendix A), particularly Constructor Technology for developments in educational technology and Constructor Learning for executive and professional education in advanced technology.

5 Organizational chart and roles

The present section first describes the overall structure, then provides a precise definition of the various roles appearing in that structure.

5.1 Internal organizational chart

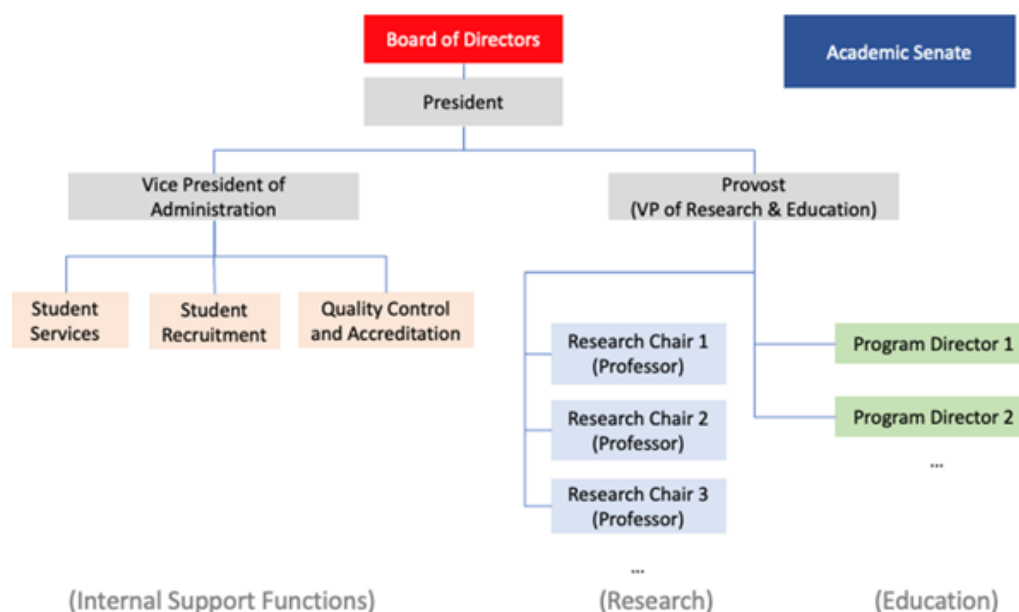Figure 2 describes the management and operations structure of Constructor Institute.

Figure 2: Internal organization of Constructor Institute

Some important service functions – such as accounting and HR – do not appear in that structure because they are currently, in the build-up phase, contracted out to other entities of Constructor Group. They are described in the next section (Section 7).

The following subsections describe the principal roles appearing in Figure 2:

- Board of Directors (5.2).
- President (5.3).
- Provost (5.4).
- Vice President of Administration (5.5).
- Program director (5.6)
- Academic senate (5.7).

As reflected in Figure 2 and the descriptions below, the structure is simple and the number of roles small. This feature is intentional: particularly in its inception stage, Constructor Institute is determined to avoid organizational bloat and to focus on its essential goals (education, research, technology transfer), not bureaucratic matters. Some roles are notably absent from the structure:

- There are Program Directors in charge of educational programs, but no "Research program directors". In the current organization, research is conducted in "chairs" each headed by a professor. There is no need for larger research structures; professors can collaborate without a larger formal structure such as a multi-chair "laboratory". As Constructor Institute and its research grow, the need for such structures may arise. Keeping things simple initially makes it possible to grow with agility.
- There is a Vice President for Administration, but no "Vice President for Research" or "Vice President for Education". In the style of top US universities, these two functions are unified in the role of the Provost, rather than kept separate. In the "Humboldtian" model, it is essential to encourage interaction between them, exposing students to research early, making research benefit from fresh ideas, and pursuing excellence on both

sides.

Keeping the structure simple also helps achieve fast and effective decision processes, as well as fast processes for incident detection, incident identification and incident remediation, describe in the Quality Procedures regulation.

5.2 Role description: Board of Directors

Role description	The Board of Directors provides oversight and accountability to Constructor Institute. It appoints the President and evaluates the strategy and progress towards achieving Constructor Institute's goals. The Board of Directors elects its Chairman.
Typical tasks	• Appoints President • Defines strategy and main areas of development of Constructor Institute • Helps cooperate with Constructor Group
Conditions for appointment of members	• Recognized leadership and accomplishments at the highest levels in academia, academic management, technology, innovation or related endeavors.
Appointment of members	Elected by the Shareholder's Meeting of Constructor Institute
Term	Four years, renewable
Demotion	N/A
Alternate (in case of absence)	N/A

5.3 Role description: President

Role description	The President leads all operations and development of Constructor Institute, and (for non-academic matters) represents Constructor Institute to the outside world.
Typical tasks	• Prepare and implement the strategy of Constructor Institute. • Negotiate with other organizations on behalf of Constructor Institute (together with the Provost on academic matters). • Define and apply the budget of Constructor Institute. • Create and organize internal processes in Constructor Institute. • Define Constructor Institute's quality procedures (particularly for non-academic matters). • Ensure application of these procedures throughout Constructor Institute's activities. • Ensure staffing according to plans. • Ensure that Constructor Institute possesses the proper facilities. • Organize marketing and recruitment of students together with Constructor Knowledge marketing services. • Organize and maintain relations with industry and governments together with local government relations. • Ensure accreditation and quality of education and research with the Provost. • Foster cross-organizational collaborations (cross-selling, research collaborations, internships). • Act as a direct line manager to the Provost and the Head of Administration.
Conditions for appointment	• Qualifications for being a professor at Constructor Institute. • Proven managerial abilities.
Appointment	Appointed by the Board of Directors. Confirmed by the Academic Senate.
Term	Four years, renewable.
Demotion	Vote of the Board of Directors.
Alternate (in case of absence)	Provost

5.4 Role description: Provost

Role description	The Provost leads all education, research and technology activities of Constructor Institute and represents Constructor Institute to the outside world for these academic matters.
Typical tasks	• Prepare and implement the education, research, and technology transfer strategies. • Negotiate with other organizations on behalf of Constructor Institute on all academic matters. • Define Constructor Institute's quality procedures regarding education, research, and technology transfer activities. • Ensure application of these procedures throughout academic activities. • Ensure proper application of Constructor Institute's quality procedures throughout education, research, and technology transfer activities. • Ensure that Constructor Institute possesses the proper academic facilities. • Ensure accreditation and quality of education and research (with the President). • Ensure research and education staffing according to plans. • Foster cross-organizational collaborations (education, research collaborations, internships. • Act as a direct line manager to the Professors of Constructor Institute. • Organizes appointments and promotions of Professors in compliance with the professor ordinance.
Conditions for appointment	• Qualifications for being a Professor at Constructor Institute. • Proven managerial abilities.
Appointment	Elected by the Academic Senate. Confirmed by the President.
Term	Four years, renewable.
Demotion	Demotion by the President
Alternate (in case of absence)	President

5.5 Role description: Vice President of Administration

Role description	The Vice President of Administration leads all support functions of Constructor Institute.
Typical tasks	• Ensure staffing according to plans. • Ensure that Constructor Institute possesses the proper facilities. • Organize Indirect and Direct Support functions. • Ensure quality of processes with the President. • Foster cross-organizational collaborations. • Act as a direct line manager to the administrative staff.
Conditions for appointment	• Proven experience in education administration.
Appointment	Appointed by the President
Term	Four years, renewable.
Demotion	Demotion by the President
Alternate (in case of absence)	President

5.6 Role description: Program Director

Role description	Program Directors organize the teaching of specific educational programs.
Typical tasks	• Define and control the assigned program. • Make sure that program handbooks are available and up-to-date. • Ensure quality of teaching according to the quality standards of Constructor Institute. • Ensure recruitment of students for the program. • Ensure that courses are taught by top-quality educators. • Act as a point of contact for students in the program.
Conditions for appointment	• Being a professor or senior academic staff member at Constructor Institute.
Appointment	Appointed by the Provost
Term	Three years, renewable
Demotion	Demotion by the Provost (or termination of the program)
Alternate (in case of absence)	Provost

5.7 Role description: Academic Senate

The Academic Senate is the body representing professors and supporting the Provost for academic decisions.

The role, prerogatives and mode of operation of the Academic Senate are described in detail in the Faculty Statute regulation. The present subsection introduces some of the key elements.

The Academic Senate elects the Provost, subject to confirmation by the President, and confirms the appointment of the President. It discusses and votes on important academic matters including new academic regulations, new educational programs, hiring of new professors, and professor promotions.

The Academic Senate is composed of all professors with a contractual employment of 50% or more at Constructor Institute, who are its voting members. It also includes observers (representing such categories of stakeholders as non-faculty researchers, students, and others). Only voting members participate in votes. Votes are taken by a simple majority of the voting members, on the condition that at least two-thirds of the voting members are present. As an exception, votes to modify the Academic Senate Statute require a majority of two-thirds of the voting members, under the same condition that two-thirds or more are present.

6 External support functions

Complementing the internal functions of the previous section, Figure 3 presents the support function contributing to the operations of Constructor Institute.

Human Resources	Government Relations
Business Development	IP
Accounting and Finance	Real Estate
Legal	IT
	Marketing

Figure 3: External support functions

The reason for treating these support functions separately is the general policy, cited earlier, of keeping structures simple and agile in the current state of development of Constructor Institute, to avoid organizational bloat. To this aim, Constructor Institute is, whenever possible and beneficial, taking advantage of synergies with Constructor Group.

This solution avoids the need for Constructor Institute to devote considerable investment and attention (a distraction from the institution's key academic goal) in potentially complex areas such as Accounting, Finance and Legal, where it is essential to have access to top talent, which it would be difficult to attract, and hard to justify financially, for a young and still small institution.

Due to the differing nature of the two entities (non-profit versus for-profit), Constructor Institute management constantly exerts special care to make sure that the Constructor Group solutions are attractive technically and financially. Services are provided on a service basis, using typical market rates (through an "arms-length" relationship). If a non-Constructor-Group solution is found to be significantly preferable, it will be chosen instead.

The budget of the external support functions is negotiated on a yearly basis between the Vice President of Administration of Constructor Institute and top management of Constructor Knowledge (which, in the structure of Constructor Group described in Appendix A, serves as the main point of contact).

Two areas of support functions in Figure 3 warrant special considerations:

- IT (Information Technology): since a major focus of Constructor Institute's education and research (in fact covering all educational programs and research chairs at the time of writing) is on computer science, software engineering, quantum computing and related areas, Constructor Institute has both special needs in IT, different from those of a more ordinary organization, and special competence to help ensure IT quality. Constructor Group, largely founded and managed by successful IT innovators, has outstanding experience in such advanced IT processes.
- IP (Intellectual Property): with Constructor Institute's focus on innovation, a fast and efficient support structure for patents and other IP protection and productization is essential. Here too the Constructor Group entities have an outstanding record, with an experienced team of legal and technical experts and many hundreds of filed patents to their credit.

For the Human Resources function (HR), we note that some of the key strategic hiring decisions in an academic institution involve the hiring of professors, who form the backbone of education and research and are typically hired on a long-term basis (with tenure). The key aspects of professors' hiring and career are defined by

Constructor Institute in the Faculty Statute regulation. HR remains essential for non-professor positions, and also for professors, in complement to the Faculty Statute, to enforce the best principles of hiring and career management.

Another area of Figure 3 in which Constructor Institute adds its own specificity to the competence of an external support provider (such as Constructor Group) is Real Estate management, since the needs of an educational and research institution, involving classrooms, seminar rooms, student spaces and lab space add special requirements to the usual services of real estate experts.

Similarly, student recruitment poses special challenges to marketing professionals, and is in fact a sub-field requiring specific experience.

7 Appendix A: Constructor Group

Constructor Group is a strategic for-profit partner of Constructor Institute (and more generally of the non-profit Constructor Education and Research Genossenschaft). As noted earlier, there is no legal relationship between the for-profit entities and Constructor Institute, but a number of informal synergies and collaborations. In particular, some of the members of Constructor Institute's Board of Directors are executives or Strategic Board Members of Constructor Group.

Section A.1 describes the key components of the Constructor Group structure. Section A.2 presents Constructor's Group Strategic Advisory Board. Separately, Appendix B recalls the evolution that led to the current organization, starting with earlier structures.

7.1 Components of Constructor Group

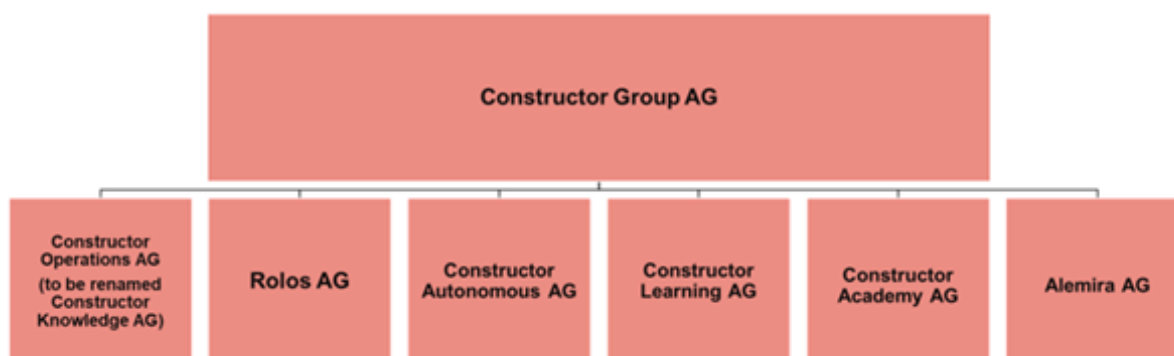Figure 4 presents the structure of Constructor Group.

Figure 4: Components of Constructor Group

The entities involved have the following missions:

- Constructor Knowledge companies:
  - **Constructor Academy and Constructor Learning** provides professional education in advanced Information Technology topics. Constructor Academy is the leader in the Swiss market for professional software, in particular through its acclaimed 3-month intensive "boot camps" (in Full-Stack Development, Data Science and other fields of crucial value to industry) which have graduated over 1000 developers in Switzerland alone, with current expansion to other markets including Germany and Singapore. Thanks to its excellent network of instructors, Constructor Academy collaborates with Constructor Institute for the teaching of applied, leading-edge software engineering topics.
  - **Constructor Knowledge** provides common service functions for entities of Constructor Group.
- Constructor Technology companies:
  - **Alemira** produces Educational Technology solutions taking full advantage of the most advanced developments in Artificial Intelligence. It offers an all-in-one platform for education and research.
  - **Constructor Autonomous** develops applications to explore how science and machine intelligence (MI)

help enhance team performance and increase sponsorship revenue.
   – **Rolos** develops Constructor Research platform, which has a database of applications, catalogs, libraries and standard workflows designed and configured for optimal computation and effective research processes.

7.2   Strategic Advisory Board

To oversee its strategic directions, Constructor Group has the benefit of a Strategic Advisory Board composed of leading personalities worldwide, several of whom are also involved in Constructor Institute.

The current chair of the Strategic Advisory Board is Prof. Sir Konstantin Novoselov, one of the most famous physicists in the world, winner of the Nobel Prize in physics for his co-discovery of Graphene. The other distinguished members of the Board appear in Appendix C.

8   Appendix B: History of the corporate structure

Constructor Institute and Constructor Group evolved from a single entity: Schaffhausen Institute of Technology AG, which was founded on July 5, 2019. In 2020, Schaffhausen Institute of Technology AG was renamed Schaffhausen Institute of Technology Operations AG and became part of the evolving larger ecosystem of companies. In 2020, a holding company was registered under the name Schaffhausen Institute of Technology Holding AG to create a link between the various entities of the ecosystem, including Schaffhausen Institute of Technology Operations AG, SIT Alemira Switzerland AG, SIT Atlas AG, SIT Autonomous AG, SIT Rolos AG, and SIT Academy AG (following the acquisition of Propulsion Academy AG). Figure 5 describes the resulting structure.
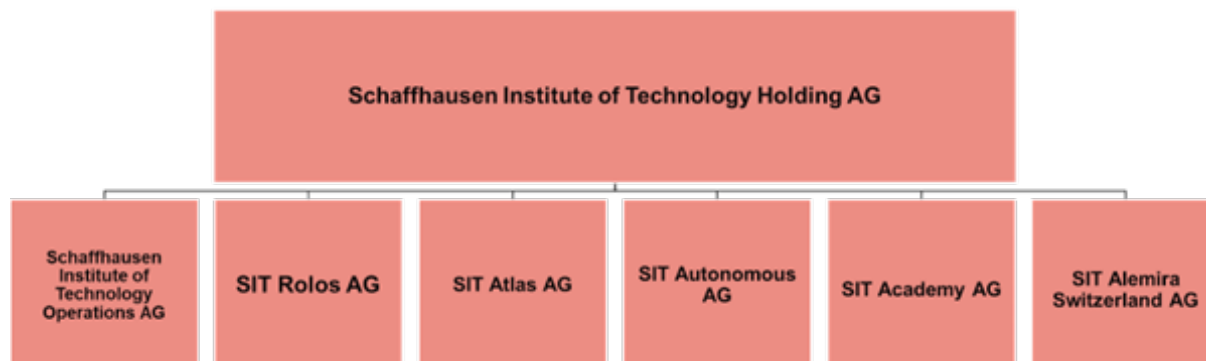

Figure 5: Original structure of the Constructor ecosystem

The non-profit side of the ecosystem was established in 2021 by incorporating Schaffhausen Institute of Technology Genossenschaft, a Swiss charitable cooperative formed for the purpose of fundraising and determining the overall vision and direction of the ecosystem's charitable activities worldwide, and its direct subsidiary, SIT Education AG.

In 2022-2023, the ecosystem and its entities underwent a rebranding and restructuring process to become Constructor, reflecting a more international presence. Schaffhausen Institute of Technology Holding AG became Constructor Group AG, while its direct subsidiary, Schaffhausen Institute of Technology Operations AG registered its new name as Constructor Knowledge AG. SIT Atlas was renamed Constructor Autonomous AG, and SIT Autonomous AG became Constructor Learning AG. SIT Academy AG changed its name to Constructor Academy AG and SIT Rolos AG, and SIT Alemira Switzerland AG became Rolos AG and Alemira AG, respectively.

The for-profit entities that are actively involved in developing education and research solutions (Alemira AG, Rolos AG and Constructor Autonomous AG) are commonly referred to as Constructor Technology. While the for-profit entities that offer professional education programs (Constructor Learning AG and Constructor Academy AG) are commonly referred to as Constructor Knowledge.

The resulting structures are disjoint and have been presented in Section 4 for the non-profit part (Constructor Institute) and Appendix A for the for-profit part (Constructor Group).

Appendix C: Current management and board members

9 Appendix C: Management

Behind the structures described in the preceding sections and appendices, there are people. This Appendix presents the individuals who lead Constructor Institute as it exists today.

9.1 Management of Constructor Institute

9.1.1   President (section 6.3): Professor Manuel Oriol

Manuel Oriol was appointed President of Constructor Institute, where he holds the Chair of Quantum Software Engineering, in May of 2023.

Professor Oriol's career has spanned the worlds of industry and academia. He graduated from EN-SEEIHT School in Toulouse, France, with an engineering diploma in computer science. He holds an MSc degree in artificial intelligence from INP Toulouse and a Ph.D. degree in information systems from the University of Geneva. He was a postdoctoral researcher at ETH Zurich then a lecturer at the University of York in the United Kingdom. He then moved to ABB in Baden (Switzerland) where he led research teams and became a program manager. Professor Oriol returned to Academia in September 2021 to Constructor Institute Schaffhausen as the head of the chair of Quantum Software Engineering.

His research interests span various areas, including object-oriented languages, software testing, component infrastructure, computer science education, middleware/cloud, real- time systems, and dynamic software updating, and software engineering applied to many areas of industry.

9.1.2   Provost (section 6.4): Professor Bertrand Meyer

Bertrand Meyer was Provost of the Schaffhausen Institute of Technology since its inception and was appointed Provost of Constructor Institute, where he holds the Chair of Software Engineering, in July of 2023.

Professor Meyer has had a parallel career as an academic, entrepreneur, author and consultant. After positions in R&D at Électricité de France and on the faculty of the University of California, Santa Barbara, he created Eiffel Software in Santa Barbara and led the company in the following years, while retaining an extensive research activity and maintaining adjunct professor positions in universities such as University of Technology Sydney and Monash University (Melbourne). In 2001 he joined the faculty of ETH Zurich as Professor of Software Engineering and served as chair of the computer science department from 2004 to 2006. He joined Constructor Institute (then known as the Schaffhausen Institute of Technology) in 2019 to help set up its research and education.

He is known for his pioneering work in establishing object-oriented programming, today the dominant programming technology, and in particular for introducing the concept of Design by Contract for software reliability and the Eiffel programming language and method. He has written 13 books including several best-sellers and published several hundred articles in journals and conferences. He has received numerous awards including the ACM Software Systems Award and the IEEE Harlan Mills prize for software engineering. His work ranges over programming methodology, software verification, software project management, agile methods, concurrent programming, software development environments, programming languages and other fields of software engineering.

9.1.3   Vice President of Administration (section 6.5)

In the current stage of development, the role of Vice President of Administration is filled by the President, with a particular focus on budget definition and application.

9.1.4 Program Directors (section 6.6)

In the current stage of development, Constructor Institute has two educational programs, both of them master programs, sharing a common set of core courses: CSSE-L (Computer Science, Software Engineering and Leadership) and QSECS (Quantum Software Engineering and Computer Science). The role of Program Director for both is filled by the Provost. As programs expand, other Program Directors will be appointed, chosen from the Constructor Institute faculty.

9.1.5 Academic Senate (section 6.7

The Academic Senate, per the Faculty Statute, consists of all professors with an employment of 50% or more. The current members are the following:

- Bertrand Meyer, Professor of Software Engineering. (See under "Provost" above.)
- Manuel Oriol, Professor of Quantum Software Engineering. (See under "President" above.)
- Mauro Pezzè, Professor of Software Testing and Analysis Research (STAR).
- Wolfgang Tittel, Professor of Quantum Communications.

9.2 Board of Directors

The initial members of the Board of Directors are the seven individuals listed below. Some changes are planned, including having at least one member from the Schaffhausen government.

9.2.1 Chairman: Dr. Serg Bell (Chairman)

Serg Bell is a Singaporean businessman, entrepreneur, and investor. He is the Chairman of the Board of Governors of Constructor University Bremen.

Dr. Bell has co-founded and led many global enterprise software companies, including cyber protection company Acronis (HQ in Switzerland and Singapore), virtualization provider Parallels (acquired by Corel), service automation platform Odin (acquired by Ingram Micro), and the Constructor Schaffhausen as the founder and primary investor.He holds a B.S. in Physics (1992), M.S. in Physics and Electrical Engineering (1995), Ph.D. in Computer Science (2007), and D.Sc. h.c. in Computer Science (2012) from the Moscow Institute of Physics and Technology.

9.2.2 Dr. Laurent Dedenis

Laurent Dedenis is the CEO Constructor Technology and co-founder of Chainstack. With over 20 years of experience, he has managed teams and technology companies such as Microsoft Dynamics, Parallels, Acumatica, and Acronis at both start-up and growth stages.

Until 2019, Laurent served as the Chief Revenue Officer of Acronis. He holds a Ph.D. in International Business Administration.

9.2.3 Dr. Katya Fisher

Katya Fisher is the Executive Vice Chairman of Constructor Group. She serves as the chief legal advisor to Mr. Bell and is responsible for strategic initiatives and the coordination and supervision of matters worldwide. Katya is a former Partner and Chief Privacy Officer of an AM200 law firm. She has successfully represented clients before the United States Tax Court and the USCIS Administrative Appeals Office (AAO).

Dr. Fisher holds a B.A. from New York University and a Juris Doctor from Benjamin N. Cardozo School of Law, where she was awarded the Howard M. Squadron Fellowship. She has been published in such publications as the Cardozo Arts & Entertainment Law Journal, Bloomberg Tax, New York Real Estate Journal, was mentioned in Fortune and Forbes, and is a six-time Super Lawyers Rising Star award winner.

9.2.4   Dr. Stanislav Protassov

Stanislav Protassov is the President of Constructor University Bremen and has over 20 years of experience in global software development. His expertise ranges from developing and designing system and application software to creating and developing globally remote engineering teams that effectively take part in the general software development process. Dr. Protassov also co-founded Acronis in 2001 and currently leads the company's operations.

He holds a Ph.D. in Computer Science from the Moscow Institute of Physics and Technology.

9.2.5   Ezequiel Steiner

Ezequiel Steiner is a partner in Constructor Capital and the managing partner of the Constructor Group. He also serves as business president of Acronis and has over twenty years of experience in the high tech and software industries.

Mr. Steiner holds an MBA from Harvard University.

9.2.6   Dr. Matthias Winter

Matthias Winter is a former senior partner at McKinsey & Co in Zurich. He led the telecom, media, and tech practice in Germany and Switzerland, as well as the Enterprise Transformation Practice in Europe.

Mr. Winter holds a Ph.D. in economics from the International Institute for Management Development (IMD) in Lausanne. He is the Managing Partner of Constructor Capital.

9.2.7   Christian Wipf

Christian Wipf is a Member of the Constructor Group Board of Directors. He has spent most of his career with GCA Altium, the European division of GCA, a global investment bank providing strategic M&A and capital markets advisory services. Currently, he is a partner in a private equity firm.

Mr. Wipf has acquired deep sector expertise in Technology, Software, and AI sectors throughout his career.

9.3   Strategic Advisory Board

9.3.1   Chairman: Professor Sir Konstantin Novoselov

Konstantin Novoselov is a physicist and Professor at the Centre for Advanced 2D Materials at the National University of Singapore. He also holds the position of Langworthy Professor in the School of Physics and Astronomy at the University of Manchester.

Prof. Novoselov received the Nobel Prize in Physics in 2010 for his groundbreaking work on graphene, a two-dimensional material. Alongside Professor Andre Geim, he was recognized for their exceptional contributions in the field. At the age of 36, he became the youngest Nobel Laureate in Physics since 1971. He completed his studies at the Moscow Institute of Physics and Technology and obtained his Ph.D. from the University of Nijmegen in the Netherlands. In addition to the Nobel prize he has received, among others, the Nicholas Kurti Prize, Europhysics Prize, and the Kohn Award Lecture. In 2012, he was knighted in the New Year Honours. He is actively involved in the coordination and implementation of the Graphene Flagship project, a pioneering European €1 billion initiative and is a distinguished speaker at the World Economic Forum.

9.3.2   Dr. Günther Dobrauz

Günter Dobrauz is a Partner at PwC Zurich and the Leader of PwC Legal Switzerland, where he and his team are focused on shaping the law firm of the future. He is also a member of PwC's Global Legal Leadership Team and serves as PwC Legal's Global LegalTech Leader. Prior to his current roles, Dr Dobrauz had a successful career as a Venture Capitalist, served as in-house counsel at an international hedge fund, and gained experience in court and with a leading business law firm.

Dr. Dobrauz holds a Ph.D. in law from Johannes Kepler University in Austria, an MBA from the University of Strathclyde in Scotland, and has completed Executive Education programs at Harvard Business

School and Harvard Law School. He is the author of several books, predominantly focusing on investment law and regulation and the host of the educational video series "Appetite for Disruption". He is also the founder of the global technology enthusiasts movement called Disruption Disciples and serves as Co-Host of Legal Hackers Zurich.

9.3.3 Professor Scott Aaronson

Scott Aaronson is an American theoretical computer scientist currently teaching at the University of Texas at Austin. Prior to joining UT, Aaronson taught for nine years in the Electrical Engineering and Computer Science department at MIT.

Prof. Aaronson is one of the pioneers of the field of quantum computers, with primary research interests revolving around the capabilities and limitations of quantum computers, as well as computational complexity theory in a broader sense.

9.3.4 Professor Artur K. Ekert

Artur Ekert is one of the world's authorities in quantum information science, particularly in quantum cryptography. He is the founding Director of the Centre for Quantum Technologies (CQT) at the National University of Singapore (NUS), which was established as Singapore's first Research Centre of Excellence in December 2007.

His research encompasses various aspects of information processing in quantum-mechanical systems, with a specific focus on quantum cryptography and quantum computation. This field is highly interdisciplinary, combining theoretical and experimental quantum physics, mathematics, logic, computer science, and information theory. While his work is primarily theoretical, its outcomes also have direct implications for experimental implementation. His research indicates that projected quantum computers have the potential to yield efficient solutions to some problems for which there is currently no efficient classical algorithm.

9.3.5 Professor Andrea Ferrari

Andrea C. Ferrari is a professor of nanotechnology and a Professorial Fellow of Pembroke College at the University of Cambridge (UK). He founded and directs the Cambridge Graphene Centre and the EPSRC Centre for Doctoral Training in Graphene Technology. He chairs the management panel and serves as the Science and Technology Officer of the European Graphene Flagship.

Prof. Ferrari holds a Ph.D. in electrical engineering from Cambridge University and a Laurea in nuclear engineering from Politecnico di Milano, Italy. He is a Fellow of the American Physical Society, Materials Research Society, Institute of Physics, and Optical Society. Awards he has received include the Royal Society Brian Mercer Award for Innovation, the Royal Society Wolfson Research Merit Award, and 4 European Research Council Grants.

9.3.6 Professor Nicolas Gisin

Nicolas Gisin is Professor Emeritus one of the pioneers of quantum information and communication. He has made significant contributions to the fields of experimental quantum cryptography and long-distance quantum communication in standard telecom optical fibers. His work has garnered wide attention from both the international scientific community and the general public.

A Professor Emeritus at the University of Geneva, Prof. Gisin is also a successful entrepreneur, co-founder of ID Quantique, one of the first companies to exploit the potential of quantum information and communication and cryptography, hnd today a world leader in these fields. He is a member of the Strategic Advisory Board for the Quantum Technology Flagship 1-billion-euros European project. In 2009, he was honored with the First Biennial John Stewart Bell Prize for Research on Fundamental Issues in Quantum Mechanics and their Applications.

9.3.7 Mark S. Kamlet

Mark S. Kamlet the Interim Director of the Institute for Politics and Strategy, University Professor of Economics and Public Policy, and Provost Emeritus at Carnegie Mellon University. He holds joint appointments in the Department of Social and Decision Sciences in the Dietrich College of Humanities and Social Sciences, and the Heinz College of Information Systems and Public Policy.

He joined Carnegie Mellon as a faculty member in 1976.. From 1993 to 2000, he held the position of dean of the Heinz College, overseeing the School of Information Systems and the School of Public Policy and Management. From 2000 to 2014, he served as provost of Carnegie-Mellon University. In this capacity, he provided oversight for the university's research and educational activities, as well as its space, facilities, and computing infrastructures. He was particularly involved in advancing the university's technology commercialization efforts, promoting internationalization initiatives, and exploring the role of technology in education.

9.3.8 Professor Serguei Netessine

Serguei Netessine is the Senior Vice Dean for Innovation and Global Initiatives and a Professor in the Operations, Information, and Decisions Department at the Wharton School, University of Pennsylvania. Je obtained his BS/MS degrees in Computer Science and Electrical Engineering from the Moscow Institute of Electronic Technology. After working at Motorola and Lucent Technologies, he pursued further education, earning MS/Ph.D. degrees in Operations Management from the University of Rochester.

His current research focuses on business model innovation and operational excellence. He has collaborated on these topics with numerous government and Fortune-500 organizations. He serves on advisory boards for multiple startup companies and is an active angel investor. He actively participates in industry and government-organized forums on Innovation and Entrepreneurship, including the World Economic Forum in Davos. He hasreceived several teaching awards for his classes at Wharton and INSEAD. He is frequently involved in teaching and directing Executive Education Programs, including his participation in the Massive Online Program for Microsoft with over 10,000 participants. His work has garnered significant media coverage in outlets such as The New York Times, Business Standard and many more.

9.3.9 Professor David S. Rosenblum

David Rosenblum is the Planning Research Corporation Professor and Chair of the Department of Computer Science at George Mason University. He has played significant roles in professional organizations, including as Editor-in-Chief of the ACM Transactions on Software Engineering and Methodology, Associate Editor for the IEEE Transactions on Software Engineering and Chair of the ACM Special Interest Group on Software Engineering (SIGSOFT).

He earned his Ph.D. from Stanford University and has held positions at AT&T Bell Laboratories, the University of California, Irvine, University College London and the National University of Singapore where he was Dean of the School of Computing and Director of the NUS-Singtel Cybersecurity Research and Development Laboratory. His research has encompassed various aspects of the software development life cycle, including software specification, architecture, design, verification, testing, analysis, and maintenance. He received a CAREER Award from the US National Science Foundation in 1997. He held a Wolfson Research Merit Award from the Royal Society and is recognized as a Fellow of both the ACM and IEEE and has received two test-of-time awards for his research and the ACM SIGSOFT Distinguished Service Award.

9.3.10 Professor Wolfgang Wahlster

Wolfgang Wahlster is a Professor of Artificial Intelligence (AI) and a pioneering figure in the field of AI in Germany and Europe. His research areas include artificial intelligence, computational linguistics, and intelligent user interfaces. He focuses on studying the fundamentals of human-technology interactions and developing personalized dialogue systems. Currently, his research focuses on multimodal dialogue systems for human-centered AI and cyber-physical production systems for the fourth industrial revolution (Industrie 4.0), a concept he coined in 2010. He serves on the Executive Board of the International Computer Science Institute (ICSI) at UC Berkeley and is a member of the steering board of Germany's platform for AI.

Professor Wahlster is an elected Fellow of AAAI, EurAI, and GI. He holds memberships in the Nobel Prize Academy in Stockholm, the German National Academy Leopoldina, and three other academies. Honors include the German Future Prize, the First Class Cross of Merit, and the Grand Cross of Merit from the Federal President of Germany. He has been awarded honorary doctorates from universities in Darmstadt, Linkoeping, Maastricht, and Prague, and he is an Honorary Citizen of his hometown, Saarbruecken. He received the IJCAI Donald E. Walker Award in 2013 and the ICMI Sustained Accom-

plishment Award from the ACM in 2016.

9.3.11   Dr. Dino Rappuoli

Rino Rappuoli is renowned worldwide for his contributions in the fields of vaccines and immunology. He co-founded the discipline of cellular microbiology, which combines cell biology and microbiology, and is recognized as a pioneer of reverse vaccinology, a genomic approach to vaccine development. He played a leading role in the development of adjuvanted influenza vaccines and the MENJUGATE(R) conjugate vaccine against meningococcal-C disease while working at Chiron Corporation. He also spearheaded the creation of the first recombinant bacterial vaccine against pertussis. He remains actively involved in researching and developing vaccines for meningococcal disease, avian influenza, and pandemic influenza. Among his achievements are the development of CRM197, used in vaccines for Haemophilus influenzae, Neisseria meningitidis, and pneumococcus; an acellular pertussis vaccine containing a genetically detoxified pertussis toxin; the first conjugate vaccines against meningococcus; MF59 adjuvant for influenza; and the meningococcus B genome-derived vaccine. He has introduced several groundbreaking scientific concepts, including genetic detoxification in 1987, cellular microbiology in 1996, reverse vaccinology in 2000, and pan-genome in 2005.

Rappuoli's contributions have earned him numerous awards, including the Paul Ehrlich and Ludwig Darmstaedter Prize in 1991. He is a member of several international associations, including the European Molecular Biology Organization and the American Society for Microbiology. He serves as a member of the research directors group of the European Commission and has been elected to the National Academy of Sciences of the United States. Rappuoli has received additional honors such as the Italian President Gold Medal in 2005, the Albert Sabin Gold Medal in 2009, and the European Inventor Award 2017 in the category of "Lifetime Achievement" by the European Patent Office. In 2013, Terrapin named him the third most influential person worldwide in the field of vaccines, and in 2015, he was awarded Fellowship of Imperial College London Faculty of Medicine and the Maurice Hilleman Award. He was elected a Foreign Member of the Royal Society in 2016 and received the Robert Koch Prize in 2019.

9.4   Current faculty

9.4.1   Schaffhausen-based faculty

9.4.1.1   Bertrand Meyer

See bio in 9.1.2

9.4.1.2   Manuel Oriol

See bio in 9.1.1

9.4.1.3   Mauro Pezzè

Mauro Pezzè is, in addition to Constructor Institute, a professor of software engineering at USI (Università della Svizzera Italiana) and at the Università di Milano Bicocca (on leave). His field is software engineering and in particular in software testing and analysis. Previous positions have included associate professor at Politecnico di Milano and visiting scientist at the National University of Singapore, the University of California Irvine and the University of Edinburgh. He holds a laurea degree from the Università di Pisa and a Ph.D. from Politecnico di Milano.

He is a distinguished member of ACM and senior member of IEEE. He serves as editor in chief of ACM Transactions of Software Engineering and Methodologies (ACM TOSEM), he served as executive chair of the Technical Committee on Complexity in Computing (TCCX). He served as chair and member of program committees of many international conferences. He is co-author of a book on "Software Testing and Analysis: Process, Principles and Techniques" published by John Wiley in 2007.

9.4.2   Associated faculty (based in Geneva or Singapore)

9.4.2.1   Professor Nicolas Gisin, Chair of Quantum Communication and Sensing

See bio in 9.3.6

9.4.2.2   Professor Wolfgang Tittle, Chair of Quantum Communication

Professor Wolfgang Tittle received his Ph.D. from the University of Geneva in 2000, joined the Institute for Quantum Science and Technology at the University of Calgary in 2006 as Associate Professor and Industrial Research Chair, and became Full Professor in 2013. In 2018 he accepted a position at QuTech at the Delft University of Technology and, since January 2023, he is a Professor and Chair affiliated both with the University of Geneva and Constructor Institute Schaffhausen.

9.4.2.3   Professor Andrey Ustyuzhanin, Chair of Big Data Analysis & Machine Intelligence

Andrey Ustyuzhanin is an expert in the Artificial Intelligence and Machine Intelligence, Director of the Laboratory of Methods for Big Data Analysis at Constructor.

He participates in several international collaborations, including LHCb and SHiP. His research primarily focuses on designing and applying Machine Learning methods to enhance fundamental understanding of the principles of our world.

9.5   Research management

9.5.1   Dr. Flavia Tomarchio, Head of Innovation Deployment

Flavia Tomarchio is the Head of Innovation Deployment at Constructor. She holds a Ph.D. in Engineering from the University of Cambridge, with her research focusing on graphene for flexible optoelectronics and energy applications. She has a background in physics and advanced materials, specifically working with graphene and other two-dimensional materials. After her Ph.D., she worked at Cambridge Graphene Centre as Project Manager in charge of scientific coordination and reporting for European and international grants as well as industrial collaborations.

She also has experience in a start-up environment, having worked as a Technical Project Lead in the field of flexible integrated circuits for RFID applications. In her role at Constructor, she is involved in the strategic development of Constructor's vision for research, technology transfer, and agreements with other institutions.

9.5.2   Elena Novoselova, Vice President, Grants Management

Elena Novoselova previously served as the Head of Dissemination at the Graphene Flagship, a European Union-funded project with a budget of one billion euros.

At Constructor, she is responsible for managing the outreach portfolio, organizing events such as Constructor Insights in Technology Talks and the annual Science & Technology conference.

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