**ISO 29110 INCOSE Chapter Kit**

**June 2017 version**

A kit has been developed to promote the awareness of INCOSE members worldwide about the set of ISO/IEC 29110 standards and guides developed specifically to help very small settings in applying systems engineering practices to their projects.

Within the context of ISO 29110, a system is typically composed of hardware and software components.

The Management and engineering guides of ISO 29110 provides a description of the basic set of actions that a VSE should perform. However, due to the different roles that a VSE may play in a project, it may be necessary to tailor the processes described in the ISO 29110 guides.

1. **Content of the ISO 29110 Kit for INCOSE Chapters**

The kit contains the following elements:

* + A set of links to short videos on YouTube about an overview of ISO 29110
  + A set of Power Point slides introducing ISO 29110
  + A set of articles about ISO 29110 describing the ISO 29110 series and many implementations
  + A set of ISO 29110 freely available documents from ISO
  + A set of systems engineering deployment packages available from INCOSE
  + A link to a public ISO 29110 web site
  + A link to self-learning modules
  + A link to provide feedback to the developers for improving future kits

A brief description of the elements is provided below.

1. **Short videos on YouTube**
   * INCOSE webinar: [*International Systems Engineering Standards and Guides for Very Small Entities*](http://profs.etsmtl.ca/claporte/Publications/Communications/Webinar_SE%20for%20Very%20Small%20Entities.mp4). A 45-minute webinar describing ISO 29110 and implementation projects.



* + Link to 6-minute English video: <https://www.youtube.com/watch?v=viP7WLaFC8E>
  + Link to 7-minute French video: <https://www.youtube.com/watch?v=w8wCIyDqYLI>
  + Link to 7-minute Spanish video: <https://www.youtube.com/watch?v=HiFRhNSIPq8>

1. **Presentation material**

A set of slides with the providing an introduction to 29110 and its uses and benefits for VSEs available on the [VSE Working Group page](https://connect.incose.org/WorkingGroups/VSE/SAWG%20Shared%20Documents/2014/VSE%20WG%20Webinar_8_20_14.ppt)

1. **Articles**

The articles listed below are excellent for helping users/readers understand how ISO 29110 can be applied in many dissimilar uses and by different types / levels of user organizations:

* + Laporte, C.Y., O'Connor, R., Fanmuy, G., [International Systems and Software Engineering Standards for Very Small Entities](https://www.researchgate.net/publication/236395131_Systems_and_Software_Engineering_Standards_for_Very_Small_Entities), CrossTalk - The Journal of Defense Software Engineering, May/June 2013, Vol. 26, No 3, pp 28-33.

**Abstract.** Very Small Entities (VSEs) developing systems or software are very important to the military since the components they develop are often integrated into products made by larger organizations. Failure to deliver a quality product on time and within budget may threaten both customers and suppliers. One way to mitigate these risks is to put in place proven engineering practices. ISO has approved recently the publication of standards and technical reports, known as ISO/ IEC 29110, to address the needs of VSEs.

* + Laporte, C.Y., O'Connor, R., [Software Process Improvement Standards and Guides for Very Small Organizations - An Overview of Eight Implementation](https://www.researchgate.net/publication/316688489_Software_Process_Improvement_Standards_and_Guides_for_Very_Small_Organizations_-_An_Overview_of_Eight_Implementation), CrossTalk - The Journal of Defense Software Engineering, May/June 2017. Vol. 30, No 3, pp 23-27.

**Abstract**. Very small entities (VSEs) — organizations with up to 25 people — are very important to the worldwide economy. The products they develop are often integrated into products made by larger enterprises. However, it has been established that such entities often do not utilize existing best practice standards and frameworks such as ISO/IEC/IEEE 12207 software life cycle processes standard. In addition, small organizations do not usually have the expertise to search for and adapt process improvement best practices from many frameworks to their needs. Finally, these organizations are usually also looking for low-cost evaluation or certification schemes that would provide them with visibility. To address their needs, ISO/IEC 29110 software and systems engineering standards and guides have been developed using elements of published standards. A four-stage road map has been developed to support process improvement activities of VSEs. In this paper, we present eight implementations of ISO/IEC 29110 as an exemplar of the potential benefits from the use of this standard.

* + Laporte, C.Y., O’Connor, R.V. (2016), [Systems and Software Engineering Standards for Very Small Entities: Accomplishments and Overview](https://www.researchgate.net/publication/304778603_Systems_and_Software_Engineering_Standards_for_Very_Small_Entities_Accomplishments_and_Overview), IEEE Computer, Vol 49, number 8, pp 84-87.

**Abstract**. A large majority of organizations very small entities (VSEs)—commercial, government, or not-for-profit organizations; departments; or projects with up to 25 people who develop systems with hardware and software components and/or software products. Their products are sold to their customers directly or are integrated into those developed by larger organizations, possibly distributed to thousands of users worldwide, as illustrated in Figure 1. A supply chain of large products often has a pyramidal structure composed of many first, second and third level suppliers. If an undetected defect is left in a low-level component, once this component is integrated in a higher-level component, the defect may still be undetected. This defective component, once integrated in the final product, could result in a loss of millions of dollars by the manufacturer.

* + Laporte, C.Y., Tremblay, N., Menaceur, J., Poliquin, D., Houde, R., [Developing and implementing systems engineering and project management processes at CSIT - A small Canadian company in public transportation](https://www.researchgate.net/publication/305771653_Developing_and_implementing_systems_engineering_and_project_management_processes_at_CSiT_-_A_small_Canadian_company_in_public_transportation), 26th Annual International Symposium of INCOSE (International Council on Systems Engineering), Edinburgh, UK, July 18-21, 2016.

**Abstract.** A project was created to define and implement project management and systems engineering processes at CSinTrans Inc. (CSiT), a Canadian company, founded in 2011. CSiT specializes in the integration of communication and security systems in transit industry such as trains, subways and buses as well as railway stations, subway stations and bus stops. ISO/IEC 29110 standard and guides for systems engineering have been used as the main reference for the development of these processes.

The project's history, purpose and rationale that prompted CSiT to adopt this recently published standard are presented. The implementation of the standard is described. The reflections and decisions made during the implementation are presented. The lessons learned are discussed. Recommendations and advice for organizations wanting to implement ISO/IEC 29110 are described.

ISO 29110 has helped raise the maturity of the organization by implementing proven practices and developing consistent work products from one project to another. ISO/IEC 29110 was a good starting point to align processes with specific practices of CMMI® Maturity Levels 2 and 3. ISO/IEC 29110 has also helped CSiT with developing light processes as well as remaining flexible and quick in its ability to respond to its customers.

* + Houde, R., Laporte, C.Y., Blondelle, G., [ISO/IEC 29110 Deployment Packages and Case Study for Systems Engineering: The "Not-So-Secret" Ingredients That Power the Standard](https://www.researchgate.net/publication/305488384_ISOIEC_29110_Deployment_Packages_and_Case_Study_for_Systems_Engineering_The_Not-So-Secret_Ingredients_That_Power_the_Standard), 26th Annual International Symposium of INCOSE (International Council on Systems Engineering), Edinburgh, UK, July 18-21, 2016.

**Abstract**. Very small entities (VSEs) play an increasingly important role in the global economy. The products they develop are often integrated into products made by larger enterprises. Clients, furthermore, demand of the VSEs that they assume a much broader role, spanning the entire development life-cycle of the product instead of being limited to a “build-to-print” approach. The ISO/IEC 29110 systems engineering management and engineering guides were developed mainly from ISO/IEC/IEEE 15288 to address this new reality, to exploit the lean and efficient nature of VSEs and to adapt to their typical budget and resource constraints. By design, the management and engineering guide is supported by Deployment Packages (DP), the development of which was taken on by the INCOSE VSE Working Group. A DP is a set of artefacts designed to facilitate the implementation of the management and engineering guides of ISO/IEC 29110 by VSEs. In tune with the need for low cost and flexibility, Open Source software tools are emerging to support VSEs and provide a bridge with “Big League” development life-cycle toolsets. Finally, to make the deployment of ISO/IEC 29110 possible in VSEs, training packages, supported by relevant pilot projects help VSE personnel learn how to apply all of the above. This paper describes the Systems Engineering DP for Requirements Engineering (RE DP) and shows how it can be applied using the Autonomous Rover Case Study developed under the Eclipse Foundation Polarsys project.

* + Laporte, C.Y., Chevalier, F., [An Innovative Approach to the Development of Project Management Processes for Small-scale Projects in a large Engineering Company](https://www.researchgate.net/publication/280154922_An_Innovative_Approach_to_the_Development_of_Project_Management_Processes_for_Small-scale_Projects_in_a_large_Engineering_Company), 25th Annual International Symposium of INCOSE (International Council on Systems Engineering), Seattle, US, July 13-16, 2015**.**

**Abstract**. A Canadian division of a large American engineering company has developed and implemented project management processes for their small-scale and medium-scale projects. The company was already using a robust project management process for their large-scale projects. The objectives of this process improvement project were to reduce cost overruns and project delays, standardize practices to facilitate the integration of new managers, increase the level of customer satisfaction and to reduce risk-related planning deviations. For this improvement project, the engineering organization used the new ISO/IEC 29110 standard developed specifically for very small entities. An analysis of the cost and the benefits of the implementation of small and medium scale project management processes was performed using the ISO economic benefits of standard methodology. The engineering enterprise estimated that, over a three-year timeframe, savings of about 780,000$ would be realized due to the implementation of project management processes using the ISO/IEC 29110 standard.

1. **ISO 29110 freely available Documents[[1]](#footnote-1)**
   * [ISO/IEC TR 29110-1:2016 - Overview](http://standards.iso.org/ittf/PubliclyAvailableStandards/c062711_ISO_IEC_TR_29110-1_2016.zip)
   * **Abstract**:
     + ISO/IEC TR 29110-1:2016 introduces the major concepts required to understand and use the ISO/IEC 29110 series. It introduces the characteristics and requirements of a VSE and clarifies the rationale for VSE-specific profiles, documents, standards and guides.
     + It also introduces process, lifecycle, standardization concepts and defines the organizational terms common to the VSE Profile Set of Documents.
     + It is applicable to a VSE. A VSE is an entity (enterprise, organization, department or project) having up to 25 people. The lifecycle processes described in the ISO/IEC 29110 series, Standardized Profiles and Technical Reports are not intended to preclude nor discourage their use by an entity that is larger than a VSE.
     + It is targeted both at the general audience wishing to understand the series of documents and, more specifically, at users of the ISO/IEC 29110 series. It should be read first when initially exploring VSE Profile documents. While there is no specific prerequisite to read this part of ISO/IEC 29110, it will be helpful to the user in understanding the other parts.
     + The lifecycle processes defined in the set of Standardized Profiles and Technical Reports can be used by a VSE when developing, acquiring and using, as well as when creating and supplying systems having hardware and software elements and software. They can be applied at any level in a systems development, software system's structure and at any stage in the lifecycle. They are not intended to preclude or discourage the use of additional processes that a VSE finds useful.
   * [ISO/IEC TR 29110-3-1:2015 – Assessment guide](http://standards.iso.org/ittf/PubliclyAvailableStandards/c062713_ISO_IEC_TR_29110-3-1_2015.zip)
   * **Abstract:**
   * [ISO/IEC TR 29110-5-6-1:2015 - Systems Engineering Entry Profile](http://standards.iso.org/ittf/PubliclyAvailableStandards/c066342_ISO_IEC_TR_29110-5-6_1_2015.zip)
   * **Abstract:**
     + ISO/IEC 29110:2015 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects having up to 25 people. The lifecycle processes described in the set of International Standards (IS) and Technical Reports (TR) are not intended to preclude or discourage their use by organizations bigger than VSEs.
     + ISO/IEC 29110:2015 provides the management and engineering guide to the Entry Profile described in ISO/IEC 29110-4-6 through Project Management and System Definition and realization processes. This part of ISO/IEC 29110 is a standalone guide; it is not intended for a VSE to use the standardized profile to implement ISO/IEC 29110:2015.
     + ISO/IEC 29110:2015 applies for non-critical systems development projects. The system development should fulfil the project requirements and the system description.
     + ISO/IEC 29110:2015, a VSE can obtain benefits in the following aspects:
       1. an agreed set of project requirements (technical part of contract) and expected products are agreed by the Acquirer;
       2. a disciplined management process, that provides project visibility and corrective actions of project problems and deviations, is performed;
       3. a systematic System Definition and Realization process, that satisfies Acquirer needs and ensures quality products, is followed.
     + VSEs developing software that is part of a larger system and for standalone software products and services are encouraged to use the management and engineering guide of the Entry Profile (ISO/IEC TR 29110‑5‑1‑1).
   * ISO/IEC TR 29110-5-6-1:201X – Ingénierie des systèmes – Profil d’Entrée
   * **Résumé: À venir**
   * [ISO/IEC TR 29110-5-6-2:2014 - Systems Engineering Basic Profile](http://standards.iso.org/ittf/PubliclyAvailableStandards/c063371_ISO_IEC_29110-5-6-2_2014.zip)
   * **Abstract:**
     + ISO/IEC 29110 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects having up to 25 people. The lifecycle processes described in the set of International Standards (IS) and Technical Reports (TR) are not intended to preclude or discourage their use by organizations bigger than VSEs.
     + ISO/IEC 29110-5-6-2:2014 provides the management and engineering guide to the Basic Profile described in ISO/IEC 29110-4-6 through Project Management and System Definition and realization processes. It is a standalone guide; it is not intended for a VSE to use the standardized profile to implement ISO/IEC 29110-5-6-2:2014.
     + ISO/IEC 29110-5-6-2:2014 applies for non-critical systems development projects. The system development should fulfil the project requirements and the system description.
     + ISO/IEC 29110-5-6-2:2014, a VSE can obtain benefits in the following aspects:
       1. An agreed set of project requirements (technical part of contract) and expected products are agreed by the Acquirer.
       2. A disciplined management process, that provides project visibility and corrective actions of project problems and deviations, is performed.
       3. A systematic System Definition and Realization process, that satisfies Acquirer needs and ensures quality products, is followed.
     + VSEs developing software that is part of a larger system, and for stand-alone software products and services, are encouraged to use the management and engineering guide of the Basic Profile (ISO/IEC 29110 5 1-2).
   * [ISO/IEC TR 29110-5-6-2:2014 – Ingénierie des systèmes – Profil Basique](http://standards.iso.org/ittf/PubliclyAvailableStandards/c063371_ISO_IEC_TR_29110-5-6-2_2014(F).zip)
   * **Résumé:**
     + L'ISO/IEC TR 29110-5-6-2:2014 s'applique aux très petits organismes (TPO). Les TPO sont des entreprises, des organisations, des services et des projets regroupant jusqu'à 25 personnes. Les processus du cycle de vie décrits dans l'ISO/IEC 29110 sont aussi utilisables par des organismes de plus grande envergure que les TPO.
     + L'ISO/IEC TR 29110-5-6-2:2014 fournit un guide de gestion et d'ingénierie pour le profil Basique de TPO spécifié dans l'ISO/IEC 29110‑4-6 dans le cadre de la gestion de projet et des processus de mise en oeuvre. L'ISO/IEC TR 29110-5-6-2:2014 constitue un guide autonome, lequel n'a pas pour but de faire en sorte qu'un TPO utilise le profil normalisé pour mettre en oeuvre la présente partie de l'ISO/IEC 29110.
     + L'ISO/IEC TR 29110-5-6-2:2014 s'applique aux projets de développement de systèmes non-critiques. Le développement du système devra satisfaire les exigences du projet et la description du système.
     + En utilisant L'ISO/IEC TR 29110-5-6-2:2014, un TPO peut bénéficier des avantages suivants:
       1. Accord du client sur les exigences du projet (partie technique du contrat) et les produits attendus
       2. Mise en place d'un processus de gestion discipliné, permettant visibilité sur le projet et mesures correctives pour les problèmes et les écarts potentiels.
       3. Un processus systématique de mise en oeuvre qui répond aux besoins du client et garantit la qualité des produits.
     + Les TPO développant du logiciel faisant partie d'un système plus grand et/ou des services et produits logiciels autonomes sont encouragées à utiliser le guide de gestion et d'ingénierie du profil Basique, (ISO/IEC 29110‑5‑1-2).
   * [ISO/IEC TR 29110-5-1-1:2012 - Software Engineering Entry Profile](http://standards.iso.org/ittf/PubliclyAvailableStandards/c060389_ISO_IEC_TR_29110-5-1-1_2012(E).zip)
   * **Abstract:**
     + ISO/IEC TR 29110-5-1-1:2012 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects up to 25 people. The life cycle processes described in the set of International Standards (IS) Profiles and Technical Reports (TR) are not intended to preclude or discourage their use by organizations bigger than VSEs.
     + ISO/IEC TR 29110-5-1-1:2012 provides the management and engineering guide to the entry profile described in ISO/IEC 29110-4-1 through project management and software implementation processes. ISO/IEC TR 29110‑5‑1‑1:2012 is a stand-alone guide. It is not intended for a VSE to use the standardized profile to implement ISO/IEC TR 29110-5-1-1:2012.
     + ISO/IEC TR 29110-5-1-1:2012 applies for software development project. The project may be to fulfil an external or internal contract. The internal contract need not be explicit between the project team and their customer.
     + Using ISO/IEC TR 29110-5-1-1:2012, a VSE can obtain the following benefits:
       1. an agreed set of project requirements and expected products is delivered to the customer;
       2. a disciplined management process, that provides project visibility and corrective actions of project problems and deviations, is performed;
       3. a systematic software implementation process, that satisfies customer needs and ensures quality products, is followed.
     + ISO/IEC TR 29110-5-1-1:2012 is targeted at VSEs (a start-up VSE that started the operation less than 3 years ago and/or with a project size less than 6 person-months).
     + It is intended to be used with any processes, techniques and methods that enhance the VSE's customer satisfaction and productivity.
   * [ISO/IEC TR 29110-5-1-1:2012 – Ingénierie du logiciel - Profil d’Entrée](http://standards.iso.org/ittf/PubliclyAvailableStandards/c060389_ISO_IEC_TR_29110-5-1-1_2012(F).zip)
   * **Résumé:**
     + l'ISO/CEI TR 29110-5-1-1:2012 s'applique aux très petits organismes (TPO). Les TPO sont des entreprises, des organismes, des services et des projets regroupant 25 personnes et moins. Les processus du cycle de vie décrits dans l'ISO/CEI 29110 ne sont pas destinés à empêcher ou à dissuader les organismes de plus grande envergure que les TPO de les utiliser.
     + l'ISO/CEI TR 29110-5-1-1:2012 propose un guide de gestion et d'ingénierie pour le profil basique de TPO défini dans l'ISO/CEI 29110-4-1 dans le cadre de la gestion de projet et des processus de mise en oeuvre. l'ISO/CEI TR 29110‑5‑1‑1:2012 constitue un guide complet et autonome. Un TPO n'a pas besoin du profil normalisé pour mettre en oeuvre l'ISO/CEI TR 29110-5-1-1:2012.
     + l'ISO/CEI 29110-5-1-1:2012 s'applique aux projets de développement de logiciel en vertu d'un contrat établi en interne ou en externe. Le contrat établi en interne, entre l'équipe de projet et le client, n'a pas à être explicite.
     + En utilisant l'ISO/CEI TR 29110-5-1-1:2012, un TPO peut bénéficier des avantages suivants:
       1. les livrables correspondent aux attentes et aux exigences du client documentées par le projet;
       2. un processus de gestion rigoureux, permettant d'en garder une vue d'ensemble et comportant des mesures correctives pour les problèmes et les écarts potentiels, est mis en oeuvre;
       3. un processus systématique de mise en oeuvre qui répond aux besoins du client et garantit la qualité des produits.
     + l'ISO/CEI TR 29110-5-1-1:2012 cible les TPO (un TPO en démarrage qui a débuté ses opérations depuis moins de 3 ans et/ou qui a des projets d'une envergure de moins de 6 personnes-mois).
     + Elle est conçue de manière à être utilisée avec tout processus, toute technique ou toute méthode visant à augmenter la satisfaction du client et sa productivité.
   * [ISO/IEC TR 29110-5-1-2:2011 - Software Engineering - Basic Profile](http://standards.iso.org/ittf/PubliclyAvailableStandards/c051153_ISO_IEC_29110-5-1-2_2011.zip)
   * **Abstract:**
     + ISO/IEC TR 29110-5-1-2:2011 is applicable to Very Small Entities (VSEs). A VSE is defined as an enterprise, organization, department or project having up to 25 people. A set of standards and guides have been developed according to a set of VSEs' characteristics and needs. The guides are based on subsets of appropriate standards elements, referred to as VSE Profiles. The purpose of a VSE Profile is to define a subset of ISO/IEC International Standards relevant to the VSEs' context.
     + The ISO/IEC 29110 series is targeted by audience. ISO/IEC TR 29110-5 is targeted to VSEs. ISO/IEC TR 29110-5-1-2:2011 provides the management and engineering guide to the Basic VSE Profile specified in ISO/IEC 29110-4-1 through project management and software implementation processes. The Basic Profile is one profile of the Generic profile group. The Generic profile group is applicable to VSEs that do not develop critical software. The Generic profile group does not imply any specific application domain.
   * [ISO/IEC TR 29110-5-1-2:2011 – Ingénierie du logiciel - Profil Basique](http://standards.iso.org/ittf/PubliclyAvailableStandards/c051153_ISO_IEC_TR_29110-5-1-2_2011(F).zip)
   * **Résumé:**
     + L'ISO/CEI 29110-5-1-2:2012 s'applique aux très petits organismes (TPO). Les TPO sont des entreprises, des organismes, des services et des projets regroupant 25 personnes et moins. Un ensemble de normes et de guides a été élaboré en fonction de caractéristiques et de besoins propres aux TPO. Ces guides sont fondés sur des sous-ensembles d'éléments pertinents de normes nommés «Profils TPO» L'objectif de ces profils TPO consiste à définir un sous-ensemble de Normes internationales appropriées au contexte des TPO.
     + La série de l'ISO/CEI 29110 est ciblée par destinataire. L'ISO/CEI 29110-5-1-2:2012 cible les TPO. L'ISO/CEI 29110-5-1-2:2012 fournit un guide de gestion et d'ingénierie pour le profil basique de TPO spécifié dans l'ISO/CEI 29110-4-1 dans le cadre de la gestion de projet et des processus de mise en oeuvre. Le profil basique est un profil du groupe de profils génériques. Le groupe de profils génériques s'applique aux TPO qui ne développent pas de produits logiciels critiques. Le groupe de profils génériques n'implique aucun domaine d'application spécifique
   * ISO/IEC TR 29110-5-1-3:2017 - Software Engineering - Intermediate Profile
   * **Abstract:**
     + ISO/IEC TR 29110-5-1-3:2017 provides management and engineering guide to the intermediate profile described in terms of business management, project management, software implementation and acquisition processes.
     + ISO/IEC TR 29110-5-1-3:2017 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects having up to 25 people. The life cycle processes described in the ISO/IEC 29110 series are not intended to preclude or discourage their use by organizations bigger than VSEs.
     + ISO/IEC 29110-4-1 identifies the requirements applicable to the tasks and work products described in this document.
     + ISO/IEC TR 29110-5-1-3:2017 has been developed using the management and engineering guide of the Basic profile and by modifying and adding elements (e.g. process, task, work product, role) for VSEs involved in the development of more than one project in parallel with more than one work team.
     + ISO/IEC TR 29110-5-1-3:2017 applies for VSEs developing non-critical software.
     + Using this document, VSEs can obtain the following benefits:
       1. the management and monitoring of more than one project in parallel with more than one work team;
       2. reuse existing software components (e.g. code and document) in new projects;
       3. continuously measure projects and improve processes.
     + Once the software, developed by a VSE, has been accepted by their customers, the VSE that wants to provide after delivery services can refer to ISO/IEC TR 29110-5-3.
     + ISO/IEC TR 29110-5-1-3:2017 is targeted to VSEs which are familiar with ISO/IEC TR 29110‑5-1-2 for their software development projects and are involved in the development of more than one project in parallel with more than one work team.
     + ISO/IEC TR 29110-5-1-3:2017 is intended to be used with any lifecycles, processes, techniques and methods that enhance the VSEs customer satisfaction and productivity.
2. **Deployment Packages**

In order to facilitate the implementation, by VSEs, of a Profile, a set of Deployment Packages are available. A deployment package is a set of artefacts developed to facilitate the implementation of a ISO 29110 in a VSE.

Deployment packages are not intended to preclude or discourage the use of additional guidelines that VSEs find useful.

The elements of a typical deployment package are: technical description, relationships with ISO/IEC 29110, key definitions, detailed description of processes, activities, tasks, steps, roles, products, template, checklist, example, references and mapping to standards and models, and a list of tools.

For systems engineering, the following set is under review:

* + Requirements Engineering
  + Interface Management
  + Configuration Management
  + Project Management
  + Functional and Physical Architecture
  + Integration
  + Verification and Validation
  + Product Deployment

1. **Mini Case studies**

A set of short case studies, in [English](http://profs.etsmtl.ca/claporte/English/VSE/VSE-MINI_CASES.html) and [French](http://profs.etsmtl.ca/claporte/VSE/VSE-Mini_Cas.html), describing the implementation of systems and software ISO 29110 in enterprises and government agencies.

Each mini case study has the following content:

* Abstract
* The VSE and its Environment
* Starting Point
* The Improvement Project
* Results
* Lessons Learned
* Plans for the Future
* References

1. **A link to a public ISO 29110 web site**

A public web site provides information in English, French and Spanish

* <http://profs.logti.etsmtl.ca/claporte/English/VSE/index.html>
* The site has the following tabs:
  + Members of WG
  + Introduction
  + Survey of VSEs
  + Network of Centers
  + Generic Profiles
    - Systems engineering
    - Software engineering
  + Deployment Packages
  + Pilot Projects
  + Mini Case Studies
  + Education DPs
  + Publications
  + Certification
  + Service Delivery

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1. **Self-learning Modules**

A set of ISO 29110 self-learning modules are available:

* In English: <https://ena.etsmtl.ca/course/view.php?id=4430>
* In French: <https://ena.etsmtl.ca/course/view.php?id=4431>
* In Spanish: <https://ena.etsmtl.ca/course/view.php?id=4434>

1. Available from ISO at: <http://standards.iso.org/ittf/PubliclyAvailableStandards/index.html> [↑](#footnote-ref-1)