

April 21, 2023

Measurement and the new ITIL4 Guiding Principles

A good marriage for
improving project and
organizational results

ES DELIVERING EXCELLENCE FOR OUR
G EXCELLENCE FOR OUR CUSTOMERS
UR CUSTOMERS AND COLLEAGUES D



Measurement & ITIL4

Goals of the presentation

- ✓ **G1.** Show the new ITIL4 IT Service Management framework
- ✓ **G2.** Understand how the new ITIL4 Guiding Principles are fully applicable to (software) measurement for improving technical and business results
- ✓ **G3.** Show some examples about how projects sized with several KPI (e.g. FPA/SNAP from a Estimation & Capacity Management perspective, or MTRS for Incident management one) to take advantage from such recommendations



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Who I am...



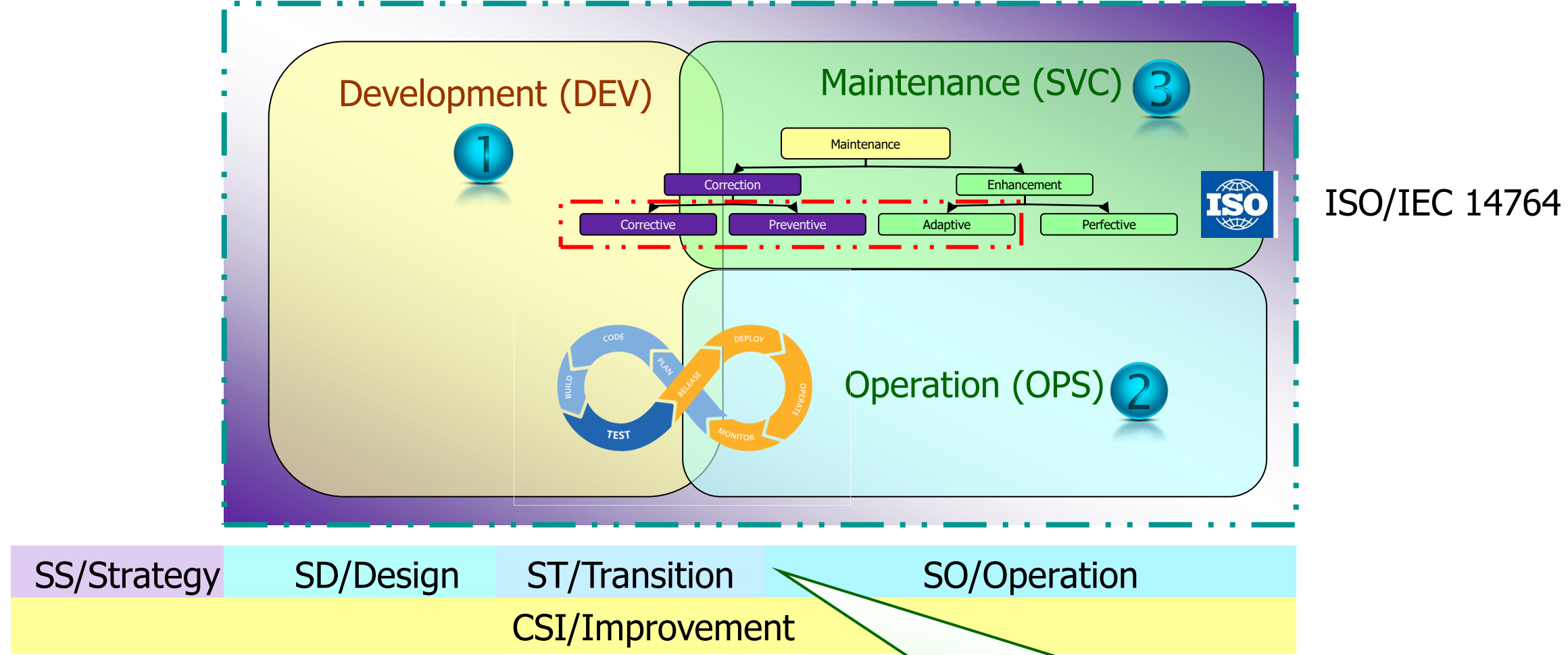
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 - **ISBSG** Vice-President
 - **IFPUG** Board member (NFSCC/ISC Director)
 - **GUFPI-ISMA** President



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Service & Software Management: the «123 schema»



https://www.francoangeli.it/Riviste/Scheda_Rivista.aspx?idArticolo=60589

ITIL Service Life Cycle phases (v3)...now new labels with v4



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Most known (IT)SM methodologies but...



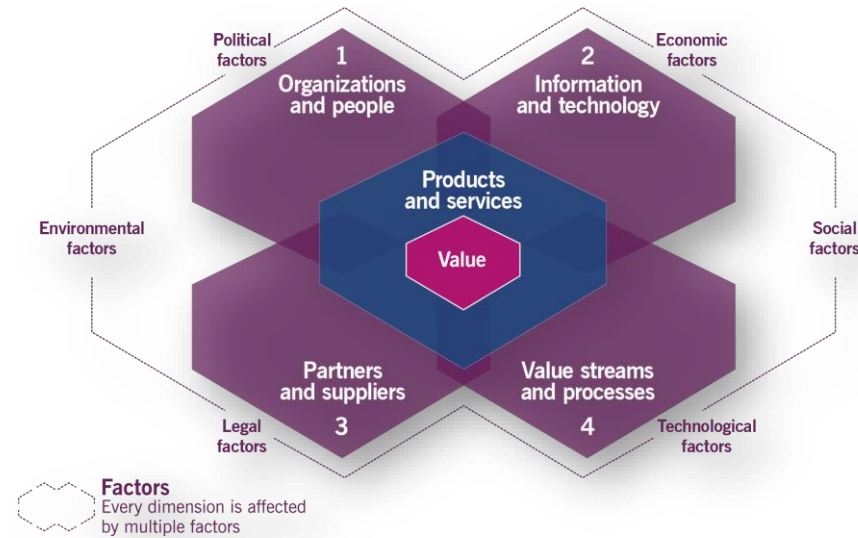
CMMISVC

But.... 

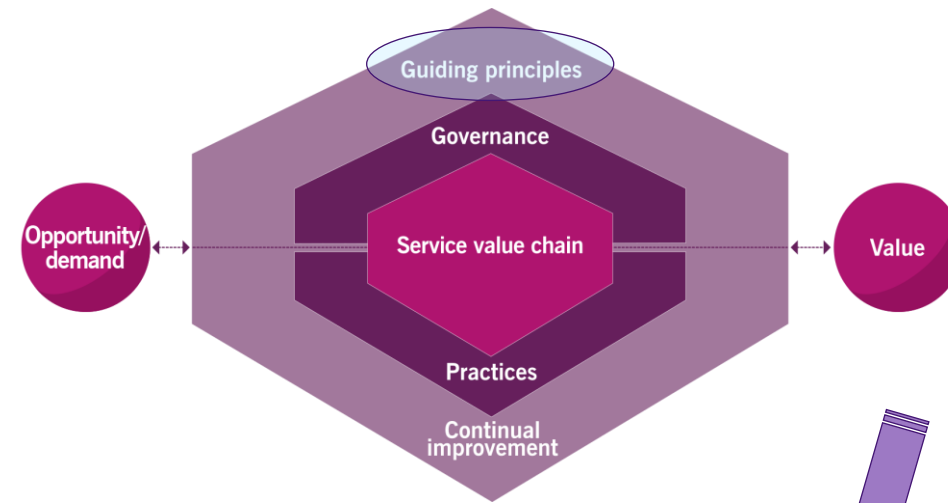
- It's the **first** IT Service Management (SM) method (from 1987)
- It comes from a customer organization, not a provider or a consultant
- Moved in the Y2K to a **process view** (from v2 on)
- It represent the first and main input to the **ISO 20000** family of standards
- It has the largest base of certified professionals worldwide
- It is one of the few (if not the solely) method(s) dealing with 'financials' in an express way
- It is one of the three (3) inputs to a DevOps approach (with **Lean** and **Agile**)
- It's strongly based on **measurement** practices, including e.g.
 - **Service Level Management**
 - **Measurement & Reporting**

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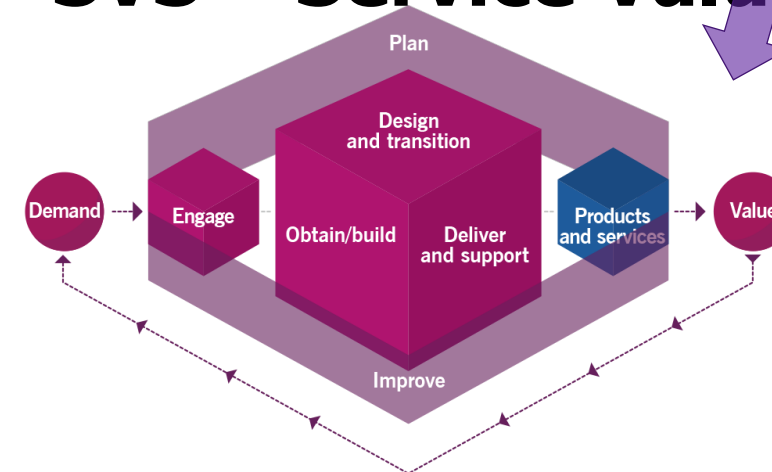
ITIL4: the basics



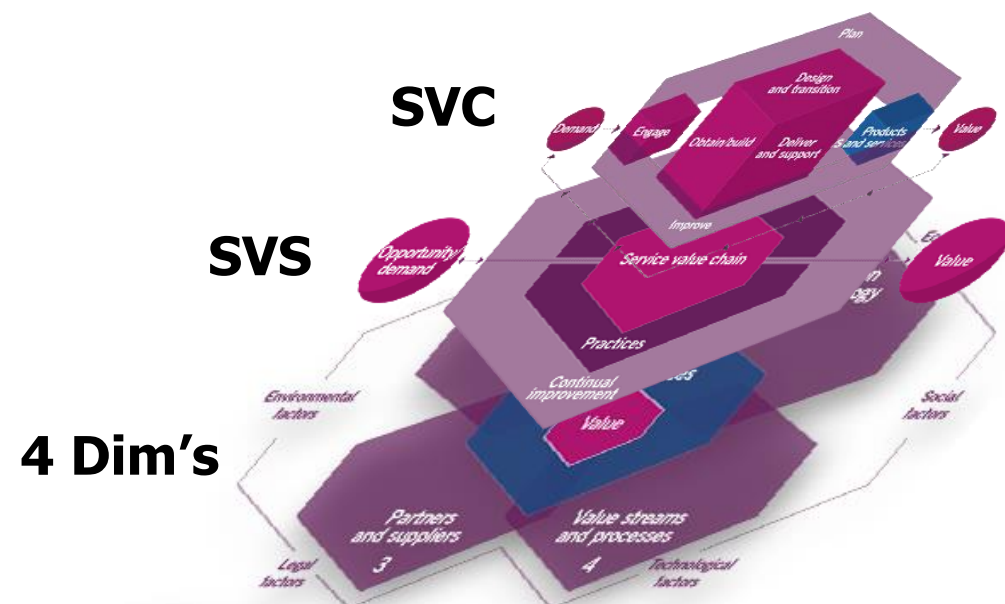
4 Dimensions of SM



SVS – Service Value System



SVC – Service Value Chain



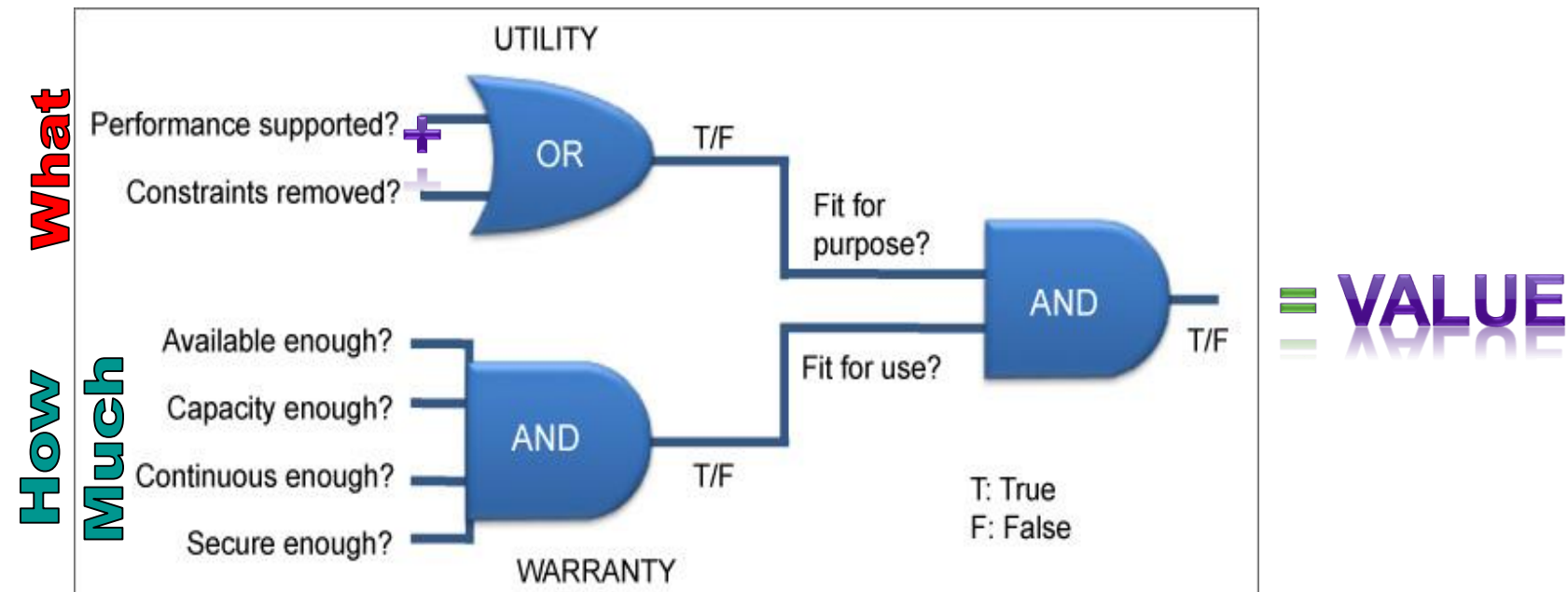
4 Dim's

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ITIL4: the basics

- **Utility**
 - ✓ The functionality offered by a product/service to meet a particular need → the '**WHAT**' → expressing Functional (User) Requirements (FUR)
- **Warranty**
 - ✓ Assurance that a product/service will meet agreed requirements → the '**HOW / HOW MUCH**' → expressing Non-Functional Requirements (NFR)



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What about looking the 'measurable' side of ITIL?



LA MISURA DEL SOFTWARE


Rubrica a cura di Luigi Buglione - GUFPI-ISMA

Metrologia e Contratti

Parte 20 - I nuovi principi-guida di ITIL4 e la pratica di Misurazione: quale relazione?

N. 021 2021

LA MISURA DEL SOFTWARE



METROLOGY AND CONTRACTS - PART 20: THE NEW ITIL4 GUIDING PRINCIPLES AND MEASUREMENT: WHICH RELATIONSHIP?
 Twentieth paper based on the new GUFPI-ISMA guidelines on the proper use of "Principles, Assumptions and Contractual Best Practices" (vol. 1, 2016) [1] is about the presentation of the new ITIL4 "guiding principles" and their usage from a measurement perspective.

RIASSUNTO
 Ventesimo articolo basato sulle nuove linee guida GUFPI-ISMA sul corretto uso di "Principi, Assunzioni e Best Practice Contrattuali" (vol. 1, 2016) [1], relativo alla presentazione dei nuovi "principi guida" di ITIL4 e il loro uso dalla prospettiva della misurazione.

Ventesimo appuntamento con la disamina dell'applicazione di buoni principi di misurazione ai contratti (ICT e non), relativo alla presentazione dei nuovi "principi guida" di ITIL4 e il loro uso, dalla prospettiva delle pratiche di misurazione, del software e non. Ok, ma come? Vediamo meglio di cosa si tratta....

ITIL E LE NOVITÀ DELLA V4
 ITIL (IT Infrastructure Library) [2] è il framework di IT Service Management (ITSM) più longevo e da cui ha preso spunto la famiglia di norme ISO/IEC

nuove fasi del ciclo di vita del servizio ("catena del valore del servizio", CVS); 134 processi (ampliando la palette dei 26 processi della versione 2011) e l'approccio al miglioramento continuativo; - un nuovo approccio al ciclo di vita del servizio (CVS - "catena del valore del servizio") sempre più dinamico, sulla falsariga del RUP (Rational Unified Process) [3], suggerendo a ogni organizzazione di combinare processi/pratiche con fasi del ciclo di vita senza un dettame mandatorio. Della novità, diventa interessante presentare i nuovi 7 principi-guida quali raccomandazioni che un'organizzazione può usare per migliorare i propri servizi (IT e non) e che possono essere mappate anche in un contesto di misurazione.

17 PRINCIPI-GUIDA NELLE PRATICHE DI MISURAZIONE
 Ecco i sette principi-guida, illustrati nella seguente figura, con il loro suggerimento generale indicato in corsivo:

- 1. Concentrarsi sul valore:** tutte le attività condotte dall'Organizzazione dovrebbero ricollegarsi, direttamente/indirettamente, al valore per sé stessa, i propri Clienti e le altre parti interessate.
- 2. Partire dallo stato attuale:** non iniziare senza prima considerare ciò che è già disponibile per essere usato.
- 3. Procedere in modo iterativo con feedback:** organizza il lavoro in parti più piccole e gestibili che possano essere eseguite/completate in modo tempestivo. L'attenzione su ogni sforzo sarà più nitida e più facile da mantenere.
- 4. Collaborare e promuovere la**

visibilità: coinvolgi le persone giuste nei ruoli corretti. Comunica e rendi visibile ciò che stai facendo e il valore generato.

- **Misurazione:** per una buona gestione dell'organizzazione e dei suoi servizi è necessario misurare anche gli aspetti HR, non solo quelli IT. Modelli quali il **People CMM (P-CMM)** [4] o i testi quali **Peopleware** [5] forniscono molte indicazioni, misure e spunti utili per puntellare in particolare la dimensione #1 (Organizzazioni & Persone) e la #3 (Partner & Fornitori). I SAL (Stati Avanzamento Lavori) possono beneficiare ad esempio di un **burn-down chart** a comprendere se il progetto sia on-time oppure in ritardo (semmai anche calcolando il **Technical Debt**) o anticipo sul pianificato. Anche in questo caso il **rapporto di compressione** (a livello sia di singoli sia di team) permette di comprendere a quale livello schedulare il lavoro, lasciando un minimo di spazio a possibili rischi e imprevisti, pur di poter mantenere la milestone di rilascio per un rispetto del cosiddetto "on-time, on-quality, on-cost".




Figura 1 - ITIL4: il Sistema del Valore dei Servizi (SVS) e le 5 componenti




Figura 2 - I 7 principi-guida di ITIL4




Figura 3 - Il gioco del 16: come bloccare una pianificazione "agile"

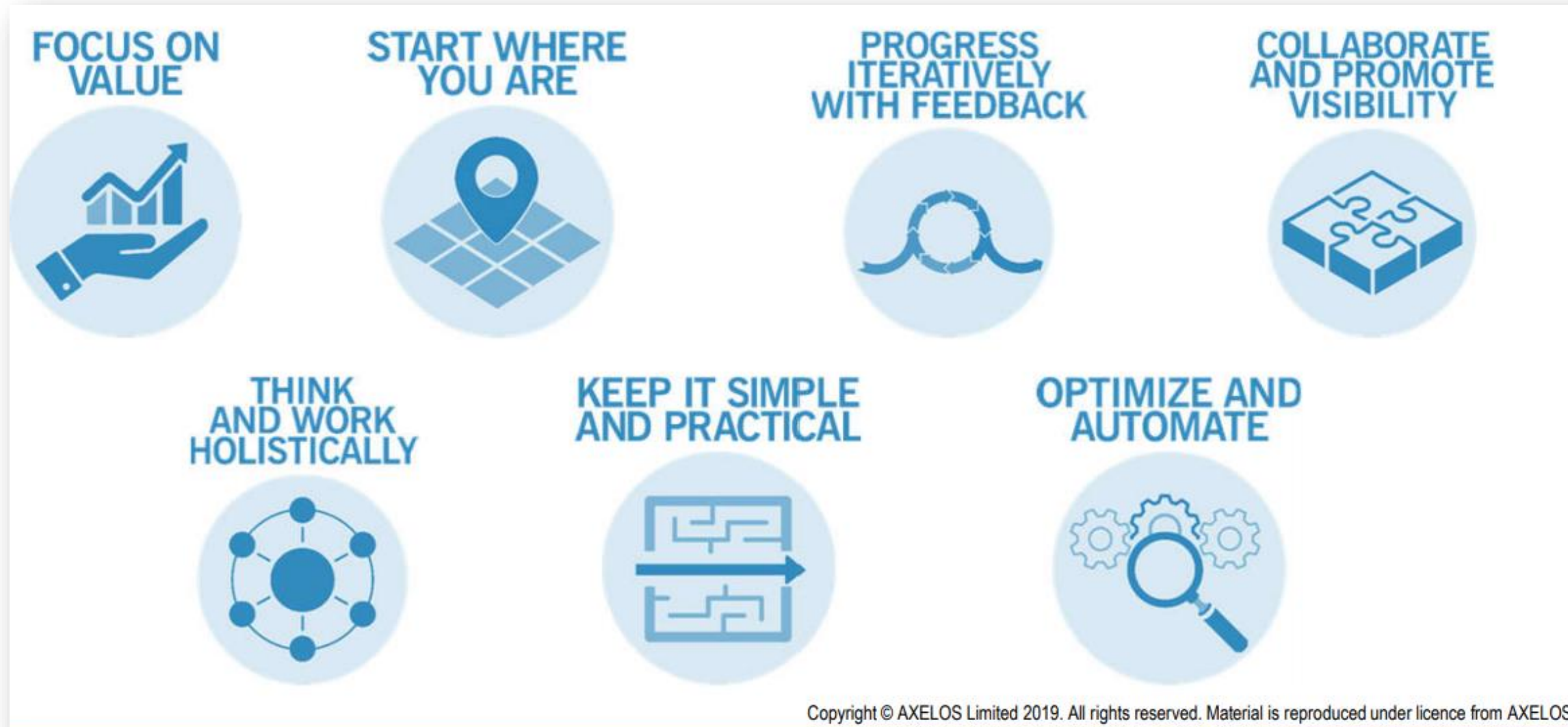
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Measurement & ITIL4

ITIL4: the 7 Guiding Principles (GPs)





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GP#1: Focus on Value (FOV)

FOCUS ON
VALUE



- *Everything that the organization does needs to map, directly or indirectly, to value for the stakeholders.*
- *The focus on value principle encompasses many perspectives, including the experience of customers and users*



- Consider from the beginning and in a deeper way the **VOC** (Voice of Customer)
- A better and deeper requirement elicitation would allow to Increase the number of FUR (Functional User Requirements → Utility) and NFR (Non-Functional Requirements → Warranty) really needed, reducing
 - Scope Creep
 - Effort/cost for such SLC phase
 - Relative Error between estimates and actual
 - Potential rework for any change request (see GP#02) due for maintenance
- Any measurement technique born from requirements, adopting the proper unit of measure (UoM), e.g.
 - **Function Points** (for sizing software product FURs), any ISO recognized methodology
 - **IFPUG SNAP Points** or **ISO/IEC 25023** measures (for sizing software product NFRs)



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GP#2: Start Where You Are (SWYA)

START WHERE
YOU ARE



- Do not start from scratch and build something new without considering what is already available to be leveraged. There is likely to be a great deal in the current services, processes, programmes, projects, and people that can be used to create the desired outcome.
- The current state should be investigated and observed directly to make sure it is fully understood



- Reuse is a NFR-attribute from a product viewpoint (see ISO/IEC 25010) as well a process for reducing effort/cost wastes (from Lean Management) to be applied to ANY service asset (HR, Sw, Hw, IT, ..., data, experience, ...)
- Do gather your own historical data → ISO/IEC 15939:2017
- ...or if missing, please refer to benchmarking data → e.g. **ISBSG repository**
- A measurable way for determine «where you are» (as-is) for «where you want to be» (to-be) is to take a **MCM** (Maturity & Capability Models) assessment e.g. done with **CMMI-SVC** or using that approach with the new 34 practices from ITIL4, understanding the *capacity* level (CL) for any single process/practice and the overall *maturity* level (ML) for the whole organization, not the current ITIL maturity model (still based on a questionnaire and using ITIL 2011 processes)
- See e.g. <https://www.sqi.griffith.edu.au/AppraisalAssistant/> for creating/using your own MCM



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GP#3: Progress Iteratively with Feedback (PIWF)

PROGRESS
ITERATIVELY
WITH FEEDBACK



- *Do not attempt to do everything at once. Even huge initiatives must be accomplished iteratively. By organizing work into smaller, manageable sections that can be executed and completed in a timely manner, it is easier to maintain a sharper focus on each effort.*
- *Using feedback before, throughout, and after each iteration will ensure that actions are focused and appropriate, even if circumstances change.*



- **Scrum** is an APM (Agile Project Management) technique useful to fulfill such GP03, being time-boxed and asking for **retrospectives** at the end of each Sprint (Iteration)
- The calculation of a **Team Load Factor** ($TLF = \text{real effort} / \text{planned effort}$) can help in understanding and evaluating the risk when planning and running a project
- **TLF** should ALWAYS be $<100\%$: in such way there would be the possibility for switching User Stories from a Sprint to another one, as typically done in any agile methodology.
- Please, play the «**15 puzzle**» and not the «**16 puzzle**»! (or 17, 18...) overallocating people
- **Feedbacks** in general are a way to proactively implement the **Service Request Management** practice: using iterative/incremental lifecycles, any further iteration should learn from any past increment and gather requirements from the field to fulfill fixing (corrective maintenance) for also improvements for new/actual functionalities.



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GP#4: Collaborate and Promote Visibility (CPV)

COLLABORATE
AND PROMOTE
VISIBILITY



- Working together across boundaries produces results that have greater buy-in, more relevance to objectives, and increased likelihood of long-term success.
- Achieving objectives requires information, understanding, and trust. Work and consequences should be made visible, hidden agendas avoided, and information shared to the greatest degree possible.



- Please, do measure also HR-related issues, not only IT! MCM such as the **People CMM (P-CMM)** or suggestions from **Peopleware** can provide several tips and measures for improving Dimension #1 (Organization & People) and Dimension #3 (Partners & Providers).
- Any work progress report could benefit e.g. from a **burndown chart** and understand if your project is (or not) on-time (computing also the **Technical Debt**).
- Again, **TLF** (applied both at the personal and team level) allow to understand at which level you can schedule your work, leaving the needed level of uncertainty and risk in but remaining “on-time, on-quality, on-cost”.



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GP#5: Think and Work Holistically (TWH)

THINK
AND WORK
HOLISTICALLY



- *No service, or element used to provide a service, stands alone. The outcomes achieved by the service provider and service consumer will suffer unless the organization works on the service as a whole, not just on its parts.*
- *Results are delivered to internal and external customers through the effective and efficient management and dynamic integration of information, technology, organization, people, practices, partners, and agreements, which should all be coordinated to provide a defined value.*



- Often organizations DO NOT consider and formalize architectures as part of the project documentation for determining the proper **project scope** and **boundaries** → understimation of effort/cost (→ Scope Creep)
- **TOGAF** deals e.g. with business/information systems and technical architectures
- «Complex» does not mean necessarily «complicated» → more time needed to create/obtain a better and more efficient system but a lower effort/cost for any further maintenance will be required later
- From a measurable viewpoint, see the **ISO/IEC 14143-x** family of standards about common principles for determining the boundary for sizing a software system and guidelines for sizing webservices, cloud systems, etc. → the stricter the *scope* and the boundary, the lower the effort/cost for each piece in the ecosystem
- Design a solution using «components» (as well as in OOP) adopting an holistic view is connected to GP#2 (reuse) and will allow to reduce wastes (GP#06), simplifying future maintenance interventions.



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GP#6: Keep It Simple & Practical (KISP)

KEEP IT SIMPLE
AND PRACTICAL



- *If a process, service, action or metric fails to provide value or produce a useful outcome, eliminate it. In a process or procedure, use the minimum number of steps necessary to accomplish the objective(s). Always use outcome-based thinking to produce practical solutions that deliver results*



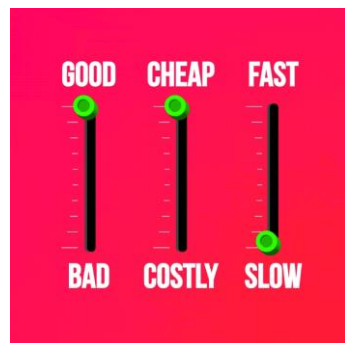
- **Value Stream Mapping (VSM)** could be a valid technique for understanding where and how to intervene and revise a process → time metrics such as Lead time, Wait Time, Process Time, Cycle Time could be useful moving from a **SIPOC** diagram or a **Business Model Canvas** for optimizing the next version of a flow for making it more valuable («value stream»)
- User eXperience (**UX**) and **Design Thinking** techniques could also help: ask to the final user what he/she wants and how and the success is **there...less steps, same value!** → see the 8 Lean mudas/wastes («**DOWNTIME**») to potentially work on for being more efficient
- A good provider must hide the real complexity to the final user and make him/her to only enjoy the service...
- Measurable tips comes from **usability** and **accessibility** norms (with related metrics) respectively such e.g. suggestions from Jacob Nielsen and **WCAG** (draft 3.0).



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GP#7: Optimize & Automate (OA)

OPTIMIZE AND
AUTOMATE



- *Resources of all types, particularly HR, should be used to their best effect. Eliminate anything that is truly wasteful and use technology to achieve whatever it is capable of. Human intervention should only happen where it really contributes value.*



- **Automation** must be applied to low-risk, high repetitive, pre-authorized tasks where processes are stable with a good, repeatable result → typically come from the so-called ‘*standard changes*’ from the Change Enablement practice (e.g. self-service facilities such as password reset, register yourself to a web portal without any particular (pre)authorization/role, swipe your badge daily at work...etc)
- In software management, automation is easier when applied to static code analysis with *code quality tools* such as SonarQube) than to user requirements, very difficult to translate the natural language for being measured and sized with an automatic tool...too many variability and lexical nuances. → several trials along time, also using several UML notations but they force the writing of User Stories, needing more (and not less) time and costs for being produced.
- An example: for a Business Analyst «to manage a new dataset» implies to consider 5 elementary processes (the so-called **CRUDL**: Create, Read, Update, Delete, List) and not only 1 («manage») plus its related database → a machine-learning algorithm could confuse verbs not determining the right granularity
- That’s why tools promising to size FURs cannot be successful
- **Fast and Cheap but not Good is never a positive combination...**

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Some conclusions...



✓ Service or Project Management? That's the question...

- A service project is a project anyway, including three parts (Dev, Ops, Maintenance), as described in the «123 schema». Each model/guide can have its own definition, but a project – as in the PMBOK - is a «temporary endeavor undertaken to create a unique product, service or result. A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources». Both domains could help each other to learn and do things better

✓ Value is the arrival point...

- «Value is the perceived benefit (from a service)» → need to measure not only the «utility» but in particular the «warranty» side (NFRs), including the perception of users, that's the real issue to achieve for being successful → the pleasure in experimenting a service based on a product is not functionality (and Function Points in the software world) but it's the other side of the story...and anything is measurable → see:

- **EAM (Entity-Attribute-Measure) taxonomy , VIM, GUM and the GUFPI-ISMA Contractual Guidelines (2016)**

✓ Measurement and (IT) Service Management

- «You cannot control what you cannot measure» (Tom Demarco) → Measurement (and Reporting) and Service Level Management are two key practice also in ITIL4 for supporting the decision-making process → quantify the (apparently) unquantifiable is our goal → recently a new Italian norm arose (**UNI 11621-6:2021**) about the «Measurement Specialist» competence for being spread during next years also in E-CF

✓ ITIL4 Guiding Principles (GPs)

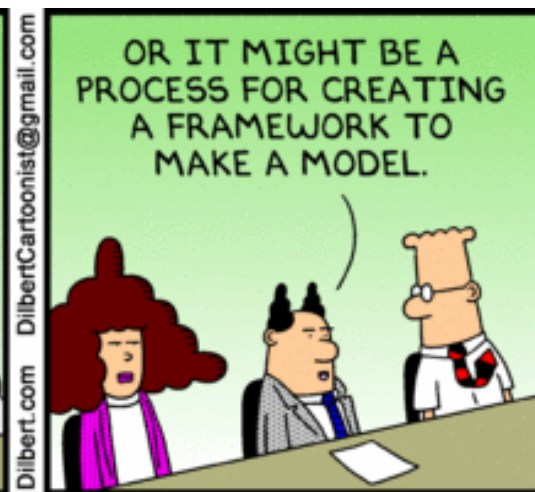
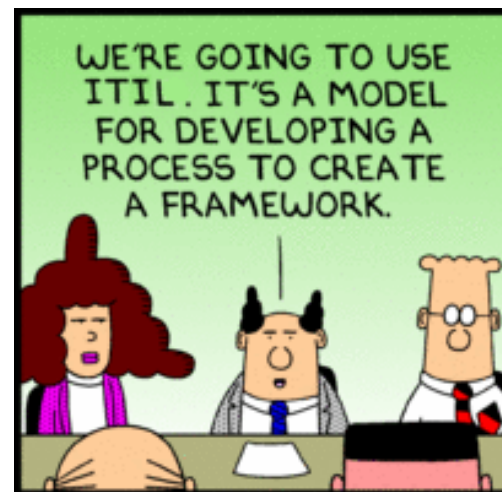
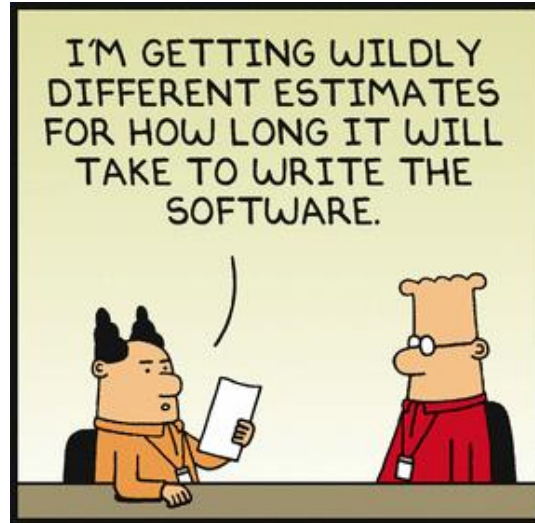
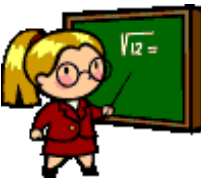
- 7 recommendations valid for any circumstance for improving the business results, based on common-sense, a real added value to the application of ITIL4 → and any GP can be measurable! **Let's try...**



*An optimist will tell you the glass is half-full;
the pessimist, half-empty; and the engineer will tell you the
glass is twice the size it needs to be
(unknown)*

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Lessons learned...



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Q & A



Thanks for your attention!

