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Paper Title: *Imagining the Vatican as a Social Entrepreneurship Business Case Study – institutional change through the lens of Catholic Social Thought*

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Conference Tracks Addressed by Proposed Paper:

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| Track 1 | Exploring the Common Good, Its Meaning, and Its Capacity to Inspire and Sustain Ethical Institutions |
| Track 2 | Exploring the Common Good and Its Relevance for Specific Fields of Management |

Thesis of the Paper:

The Vatican is a unique a religious and governmental institution, having necessarily strong commercial undertones. Across its operations in Rome and globally, the Vatican operates and depends on various lines of business in service of its religious mission. Increasingly, the management of the Vatican provides opportunities for imagining how Catholic Social Thought (CST) might be applied in order to achieve best practices for the management of Church operations in Rome and across vastly diverse Dioceses and social context settings.

The paper’s thesis assumes that the Vatican styles itself a business school for social entrepreneurship. Examining the Vatican’s major “lines of business operations,” the paper suggests the means to quantify and reimagine each operation as a reflection of CST and to create a dashboard of accountability so that Vatican managers can improve operational efficiency, congruency and overall impacts that incorporate and respect economic, environmental and social justice issues.

*Imagining the Vatican as a Social Entrepreneurship Business Case Study
institutional change through the lens of Catholic Social Thought*

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Abstract

The Vatican City State (**VCS**) is a unique a religious and governmental institution, having necessarily strong commercial undertones. Across its operations in Rome and globally, the VCS operates and depends on various lines of business in service of its multifaceted mission. Increasingly, the management of the VCS provides opportunities for imagining how Catholic Social Thought (**CST**) might be applied in order to inspire and achieve best practices in the management of Church operations in Rome and across vastly diverse Dioceses and social context settings.

The paper imagines the VCS as an ethical business school laboratory setting for social entrepreneurship. Examining major lines of business operations at the VCS, the paper contextualizes each operation as a reflection of Canon Law and CST values, via dashboards of accountability, so that Vatican managers can modernize and improve VCS operational efficiency, effectiveness, congruency and overall impacts that incorporate and respect economic, environmental and social justice issues.

I. Overview: How the Vatican City State is Organized

The Vatican City State (**VCS**) is a unique geopolitical institution, its self-governance assured by the 1929 Lateran Treaty with Italy which ceded 108.7 acres of Rome to the Holy See as a sovereign nation.¹

With special powers over VCS executive, legislative, judicial, financial and administrative matters, the Holy See's sovereignty, and thereby its accountability, for the stewardship of VCS operations reaches to the people, businesses, real estate and communities impacted by those operations.² The chief executive of the VCS is Pope Francis, aided by the



Figure 1 Map of Vatican City State (Source: Google).

¹ Lateran Treaty Between The Holy See and the Kingdom of Italy (February 11, 1929), <http://www.vaticanstate.va/content/dam/vaticanstate/documenti/leggi-e-decreti/Normative-Penali-e-Amministrative/LateranTreaty.pdf>.

² For a scholarly exploration of the VCS's legal structure, see Stephen E. Young and Alison Shea, *Separating State from Church: A Research Guide to the Law of the Vatican City State* (99 *Law Library Journal* - 2007), <https://scholarship.law.edu/cgi/viewcontent.cgi?article=1781&context=scholar>; as occasionally updated at Alison Shea, *Updated: Separating State from Church: A Research Guide to the Law of the Vatican City State* (2012), retrieved March 9, 2018,

Pontifical Commission for Vatican City State (the **Pontifical Commission**) and the State Council.³ The Vatican’s legislature is the Pontifical Commission and the President of the Governorate.⁴ Administration of the Vatican City State is organized among numerous Departments, as depicted in Figures 2 and 3.

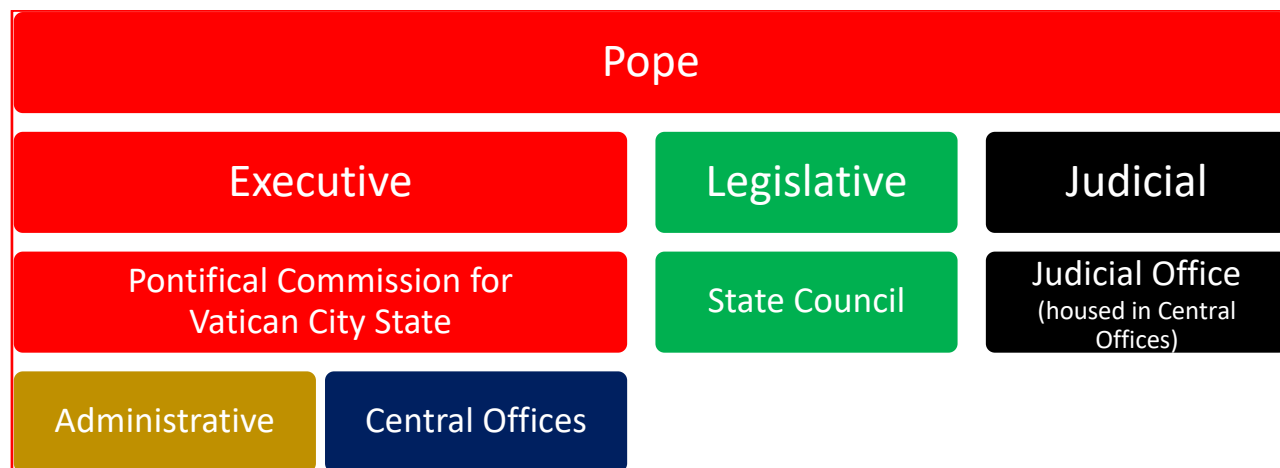


Figure 2 Vatican City State – Organization Chart for Major Functions



Figure 3 Vatican City State – Organization Chart – Administrative Units

II. Sources of Jurisdiction Relevant to Vatican City State Operations

In its uniqueness, and indeed its special nature, there are four major sources of jurisdiction over the VCS, how it operates and how people and businesses interact with, and inside the borders of, the VCS, and how its transportation, rail, energy, water, sanitation and other infrastructure function:

1. The Holy See (or Apostolic See – which groups Catholics from around the world)
2. The Catholic Church as a moral entity (separate from the Apostolic See)⁵

<http://www.nyulawglobal.org/globalex/Vatican1.html>.

³ Vatican City State Organizational Chart, <http://www.vaticanstate.va/content/vaticanstate/en/stato-e-governo/struttura-del-governatorato/organigramma/stato-citta-del-vaticano.html>.

⁴ Id.

⁵ Canon Law of the Church, *Chapter II Juridic Persons*, Canon 113, retrieved May 14, 2018, from http://www.vatican.va/archive/ENG1104/___PD_.HTM; and John Beal, James Coriden & Thomas Green, editors, *New Commentaries on the Canon Law of the Church* (Paulist Press New York NY – 2000),

3. The local, provincial and regional laws operative in Commune of Rome S.P.Q.R., as a regional and municipal governmental headquarters⁶
4. The Republic of Italy which national and international treaty laws apply to its national capital in Rome⁷

The authors of this paper recognize (and sympathize) with the challenges of attempting multi-jurisdictional transformations, where overlapping bureaucratic missions and departments can obscure facilitating real world common goals. Likewise, the authors have observed that in disaster, technology and other scenarios, multi-jurisdictional agencies can achieve and have engineered cooperative means for coordinated and mutually-advantageous innovation through the innovation precedents and designs, several of which are cited herein.

III. Major Lines of Business operated by The Vatican City State

Like most city governments, the VCS operates directly, or indirectly depends on via coordination with the City of Rome and the Italian Government, a portfolio of municipal functions that are generic functions, such as

- Accounts Payable and Receivable to make Payroll and Payments, and to collect revenues relating to VCS functions, services and income-earning properties
- Food services for VCS employees, guests and visitors
- Human resource management and recruiting for employment of VCS permanent and temporary workers
- Publishing, Broadcasting and Online Media to permit the public to receive VCS material in written, radio, TV and Web formats
- Public safety and security to maintain order and respond to emergencies
- Real estate ownership, leasing, licensing, maintenance and capital improvement
- Roadways, water, sewer, waste removal and secular infrastructure open to or used by the VCS institutions and the public at large
- Telecommunications access for the rental of cellphone and satellite broadband access, and for secure ATM and credit card terminal operations
- Transportation via buses for passenger and package deliveries, and by private railroad

IV. Major Church Operations Housed in The Vatican City State

As the center of the Catholic Church, specialized functions are housed in VCS and Rome that provide regional and global services, such as

- The Institute for the Works of Religion (**IOR**), commonly referred to as the Vatican Bank, is the sole regulated financial institution of the VCS which offers clients deposit, payment reimbursement services as well as serves as central bank for the Catholic Church, for VCS, and as private banker for Church-related clients and missions
- Secretariat of State serves as the Ministry of Foreign Affairs of the Holy See to oversee

Canon 113, pp. 155-156, retrieved May 15, 2018, from <http://www.paulistpress.com/Products/4066-7/new-commentary-on-the-code-of-canon-law.aspx>.

⁶ Roma S.P.Q.R., *Amministrazione*, retrieved May 15, 2018, from <https://www.comune.roma.it/web/it/amministrazione.page>.

⁷ Constitution of the Republic of Italy of 1947, as amended, Article 114 (Constitute Project – 2012), retrieved May 15, 2018, from https://www.constituteproject.org/constitution/Italy_2012.pdf?lang=en.

administration and procurement of Apostolic Nunciatures, that represent the Holy See in local settings, around the world; The Secretariat of State approves the Nunciatures' budgets and the appropriations and seeks reimbursement for the budgets from appropriate Dicasteries. The Secretariat manages the funding for more than 1,000 mission dioceses, and the Congregation for the Evangelisation of Peoples (known as 'Propaganda Fide') manages, collects rents and pays taxes on Church properties.⁸

- Administration of the Patrimony of the Apostolic See (**APSA**) serves as the Holy See's Treasury⁹ and sovereign wealth fund
- Caritas International which mobilizes Catholic disaster response and community development efforts at local levels¹⁰

V. Overview: Catholic Law on Management of Church Assets and Operations

Law, like nature and science, is an evolutionary process of comparing past rules to modern processes and needs, adjusting to achieve progress in the inevitability of all three: *rules*, *processes* and *needs*.

Over its two millennia, the Catholic Church has developed its own system of law known collectively as Canon Law. Much of Canon Law is found in the *Code of Canon Law* and the *Code of Canons of the Eastern Churches*, and is supplemented by declarations of the Holy Father and the Roman Curia through decrees, declarations, chirographs and encyclicals.¹¹ As instruments for interpreting, applying and teaching Canon Law, social encyclicals and other juridical documents form a body of teaching and commentary that is commonly known as **Catholic Social Teaching (CST)**.¹²

The Canon Law of the Church and CST can be referenced as part of a management textbook for the VCS and its multiple municipal functions. A starting point for the management of places, assets and processes located in the VCS are Canons in the Code relating to the acquisition¹³

⁸ Peter Guilday, *The Sacred Congregation de Propaganda Fide (1622-1922)* (The Catholic Historical Review Volume 6, Number 4 - January 1921), pp. 478-494, retrieved May 7, 2018, from <https://www.jstor.org/stable/pdf/25011717.pdf>; and *Propaganda Fide Congregation Clarifies Situation of Real Estate* (Zenit – November 12, 2015), retrieved May 7, 2018, from <https://zenit.org/articles/propaganda-fide-congregation-clarifies-situation-of-real-estate/>.

⁹ Press Conference for the presentation of the New Economic Framework for the Holy See (June 9, 2014), retrieved May 7, 2018, from <https://press.vatican.va/content/salastampa/it/bollettino/pubblico/2014/07/09/0509/01131.html#Attachments>

¹⁰ Caritas International, *Caritas is Church - We work with the poor, vulnerable and excluded, regardless of race or religion*, retrieved May 7, 2018, from <https://www.caritas.org/who-we-are/caritas-is-church/>.

¹¹ Canon Law of the Church, <http://www.vatican.va/archive/ENG1104/INDEX.HTM>.

¹² Pontifical Council for Justice and Peace. *Compendium of the Social Doctrine of the Church* (Vatican City – June 29, 2004), retrieved March 11, 2018, from http://www.vatican.va/roman_curia/pontifical_councils/justpeace/documents/rc_pc_justpeace_doc_20060526_compendio-dott-soc_en.html and http://www.antoniano.org/carbajo/FST/Readings/Magisterium/EN_Compendium_CST.pdf.

¹³ Canon Law of the Church Book V on **The Temporal Goods of The Church** provides:

“Can. 1254 §1. To pursue its proper purposes, the Catholic Church by innate right is able to

and proper handling¹⁴ of “Temporal Goods” in any form, specifically in secular commercial

acquire, retain, administer, and alienate temporal goods independently from civil power.

§2. The proper purposes are principally: to order divine worship, to care for the decent support of the clergy and other ministers, and to exercise works of the sacred apostolate and of charity, especially toward the needy.

Can. 1255 The universal Church and the Apostolic See, the particular churches, as well as any other juridic person, public or private, are subjects capable of acquiring, retaining, administering, and alienating temporal goods according to the norm of law.

Can. 1256 Under the supreme authority of the Roman Pontiff, ownership of goods belongs to that juridic person which has acquired them legitimately.

Can. 1257 §1. All temporal goods which belong to the universal Church, the Apostolic See, or other public juridic persons in the Church are ecclesiastical goods and are governed by the following canons and their own statutes.

§2. The temporal goods of a private juridic person are governed by its own statutes but not by these canons unless other provision is expressly made.

Can. 1258 In the following canons, the term Church signifies not only the universal Church or the Apostolic See but also any public juridic person in the Church unless it is otherwise apparent from the context or the nature of the matter.”

Retrieved on March 10, 2018, from http://www.vatican.va/archive/ENG1104/_P4P.HTM

¹⁴ Canon Law of the Church Book II Article 3 on **Temporal Goods and Their Administration** provides:

“Can. 634 §1. As juridic persons by the law itself, institutes, provinces, and houses are capable of acquiring, possessing, administering, and alienating temporal goods unless this capacity is excluded or restricted in the constitutions.

§2. Nevertheless, they are to avoid any appearance of excess, immoderate wealth, and accumulation of goods.

Can. 635 §1. Since the temporal goods of religious institutes are ecclesiastical, they are governed by the prescripts of Book V, The Temporal Goods of the Church, unless other provision is expressly made.

§2. Nevertheless, each institute is to establish suitable norms concerning the use and administration of goods, by which the poverty proper to it is to be fostered, protected, and expressed.

Can. 636 §1. In each institute and likewise in each province which is governed by a major superior, there is to be a Finance officer, distinct from the major superior and constituted according to the norm of proper law, who is to manage the administration of goods under the direction of the respective superior. Insofar as possible, a Finance officer distinct from the local superior is to be designated even in local communities.

§2. At the time and in the manner established by proper law, Finance officers and other administrators are to render an account of their administration to the competent authority.

Can. 637 The autonomous monasteries mentioned in ⇒ can. 615 must render an account of their administration to the local ordinary once a year. Moreover, the local ordinary has the right to be informed about the Financial reports of a religious house of diocesan right.

Can. 638 §1. Within the scope of universal law, it belongs to proper law to determine acts which exceed the limit and manner of ordinary administration and to establish what is necessary to

categories

- **Physical Goods** (such as Vatican buildings, properties and assets),
- **Financial Goods** (such as bank and investment accounts, loans and debts incurred as debtor or granted as creditor or guarantor),
- **Inchoate Interests** (such as bequests, remainder or other property rights that defer enjoyment of a physical or financial asset) and
- **Virtual Goods and Rights** (such as goods arising under secular law, like copyrights, patents, intellectual property, online, audio and video content).

With Canon Law as a foundation for articulating fiduciary duties, other principles and pronouncements of Catholic Social Teaching¹⁵ routinely come into play as refinements and impact assessments for VCS administrators and asset managers, including:

1. Respecting and Enhancing Human Dignity

place an act of extraordinary administration validly.

§2. In addition to superiors, the officials who are designated for this in proper law also validly incur expenses and perform juridic acts of ordinary administration within the limits of their function.

§3. For the validity of alienation and of any other affair in which the patrimonial condition of a juridic person can worsen, the written permission of the competent superior with the consent of the council is required.

Nevertheless, if it concerns an affair which exceeds the amount defined by the Holy See for each region, or things given to the Church by vow, or things precious for artistic or historical reasons, the permission of the Holy See itself is also required.

§4. For the autonomous monasteries mentioned in ⇒ can. 615 and for institutes of diocesan right, it is also necessary to have the written consent of the local ordinary.

Can. 639 §1. If a juridic person has contracted debts and obligations even with the permission of the superiors, it is bound to answer for them.

§2. If a member has entered into a contract concerning his or her own goods with the permission of the superior, the member must answer for it, but if the business of the institute was conducted by mandate of the superior, the institute must answer.

§3. If a religious has entered into a contract without any permission of superiors, he or she must answer, but not the juridic person.

§4. It is a fixed rule, however, that an action can always be brought against one who has profited from the contract entered into.

§5. Religious superiors are to take care that they do not permit debts to be contracted unless it is certain that the interest on the debt can be paid off from ordinary income and that the capital sum can be paid off through legitimate amortization within a period that is not too long.

Can. 640 Taking into account local conditions, institutes are to strive to give, as it were, a collective witness of charity and poverty and are to contribute according to their ability something from their own goods to provide for the needs of the Church and the support of the poor.”

Retrieved March 10, 2018, from http://www.vatican.va/archive/ENG1104/_P23.HTM.

¹⁵ U.S. Conference of Catholic Bishops, *Seven Themes of Catholic Social Teaching*, retrieved March 11, 2018 from <http://www.usccb.org/beliefs-and-teachings/what-we-believe/catholic-social-teaching/seven-themes-of-catholic-social-teaching.cfm>.

2. Using the Common Good to Grow and Participate in Community
3. Caring for Creation through Environmental Sustainability
4. Offering Dignified Work
5. Pursuing Peace and Reconciliation
6. Standing Together in Solidarity for What is Fair and Just¹⁶

No government or religion has or observes **rules** and **processes** that meet all the **needs** of all citizens or members of their congregations all of the time. However, in the VCS, the Catholic Church has a unique reflection and prototyping laboratory to demonstrate how its religious rules and practices address the needs of Catholics and non-Catholics participating in and affected by VCS operations.

VI. Moving Beyond Traditional Management Principles

Executives are increasingly being taught to optimize environmental and social performance of their operations, supply chains and legacy systems, alongside corporate financial performance and stock market capitalization. Corporate Social Responsibility (**CSR**) and Environmental Social Governance (**ESG**) ratings ascribed to corporations move the global capital markets to price corporate stock and bonds, so that companies with fewer CSR/ESG risks receive higher long-term valuations and pay lower interest rates. Like other institutions, corporations initially viewed CSR/ESG as a “nice to have.”

The most talented of the Millennial Generations enjoy a digital lifestyle via smartphones and the World Wide Web. In order to recruit the best and brightest of the current and future digital generations as customers, employees and investors, leading corporations are turning to CSR/ESG strategies to promote their brands as serving individual’s impact goals. This same Digital Generation is poised to receive the largest transfer of global wealth in history, forcing corporations to tailor their processes to reflect the ethical aspirations of the new generation for sustainability and profit, achieved simultaneously, not serially.

Global pools of capital - from multi-generational family offices, university endowments and sovereign wealth funds, to private equity, insurance and pension funds - are allocating capital and evaluating corporate stock performance risks based on CSR/ESG criteria and scores. The due diligence inherent in evidence-based CSR/ESG analysis and valuations has the potential to detect early warning signs and leading indicators of a company’s future profitability, and how its equity and debt offerings would be received by international capital markets. For private equity funds and portfolios, CSR/ESG analytical frameworks can guide and align investment and target company management styles, goals and success.

Financial stocks, for example, routinely suffer market devaluations as each bank’s misdeeds and massive regulatory fines are publicly announced. In the wake of the 2008 Global Financial Crisis, Millennials’ distrust in traditional banks and branch banking led to these young customers embracing mobile phone banking, payments and wealth management services, leading to a whole new industry segment of financial technologies (**fintech**). Continuing this example, socially-aware fintech could leapfrog and help with transformation of traditional bank cultures and financial results.

Reflecting such trends, top ranked global business schools have created a variety of CSR/ESG

¹⁶ *Catholic Social Teaching* retrieved March 11, 2018, from <http://www.catholicsocialteaching.org.uk/principles/>.

enhancing courses, Centers of Excellence and are combining MBA degrees with Environmental Engineering, Data Science and other university masters degrees. The upgraded MBA programs teach executives that organizational management, innovation and finance can be most consistently profitable, free of regulatory censure and fines, by adopting CSR/ESG employee development programs and business transformation strategies.

Social entrepreneurship is becoming a distinct management science. Social entrepreneurs, such as Ashoka Fellows, tackle environmental and social challenges through business models whose “end product or service” creates positive externalities, such as retraining idle citizens or repurposing slack assets.

The Interfaith Center on Corporate Responsibility (**ICCR**),¹⁷ CERES¹⁸ and other groups leverage activist investment strategies to hold corporate boards and senior executives accountable for their environmental and social impacts, as well as their treatment of employees, inclusion policies, executive compensation, risk management in their supply chain and community impacts.

Together with Catholic clergy, Uniapac¹⁹ and other groups of corporate executives and asset managers have suggested CSR/ESG, social entrepreneurship and impact investing management practices as a preeminent means for putting Catholic Social Teaching at the forefront of Catholic Church asset management and operations.

Pope Francis’ encyclical *Laudato Si* encyclical, and the work of The Dicastery for Promoting Integral Human Development in sponsoring Impact Investing Colloquia requires the ethically curious to ask “How does management of Catholic Church assets in all of their forms demonstrate high-performance CSR/ESG, and thereby serve as a visible catalyst for bringing Catholic Social Teaching into the Church’s daily business practices?”

VII. Inspirations from Modern City Management Innovations

One might ask: What can the VCS learn from how the most innovative destination/tourist city managers are adapting to the Digital Era, and the tourists, vendors and citizens they depend on and serve?

The management of modern cities is supported by global professional organizations, such as the ICMA: International City/County Managers Association.²⁰ In responding to the shared challenges of climate change, migration, poverty and other urban issues, in 2013, the Rockefeller Foundation established the 100 Resilient Cities Project, sharing best practices in adaptation across the world.²¹

With younger, more mobile generations seeking to own experiences, not just assets, global tourism is rising. As Digital Native Generations (born after 1990) develop global lifestyles around their cellphones, destination tourist cities need to modernize their municipal processes to be

¹⁷ *History of the ICCR*, retrieved March 11, 2018, <http://www.iccr.org/about-iccr/history-iccr>

¹⁸ Ceres, *About Us*, retrieved March 11, 2018, <https://www.ceres.org/about-us>.

¹⁹ Uniapac, the International Christian Union of Business Executives, retrieved March 11, 2018, <http://www.uniapac.org/>.

²⁰ *ICMA’s History*, retrieved March 12, 2018, <https://icma.org/icma-history>.

²¹ *100 Resilient Cities About Us*, retrieved March 12, 2018 from <http://www.100resilientcities.org/about-us/>.

easier to use and adapt.

Rome is the 12th most visited city in the world,²² attracting 10 million visitors annually. Italy is the fifth most popular international tourist destination,²³ according to the United Nations World Tourism Organization (**UNWTO**). Regions popular with tourists are well-positioned to engage in activities and rethinking their operations and investments in a manner that supports the UN's Sustainable Development Goals.²⁴

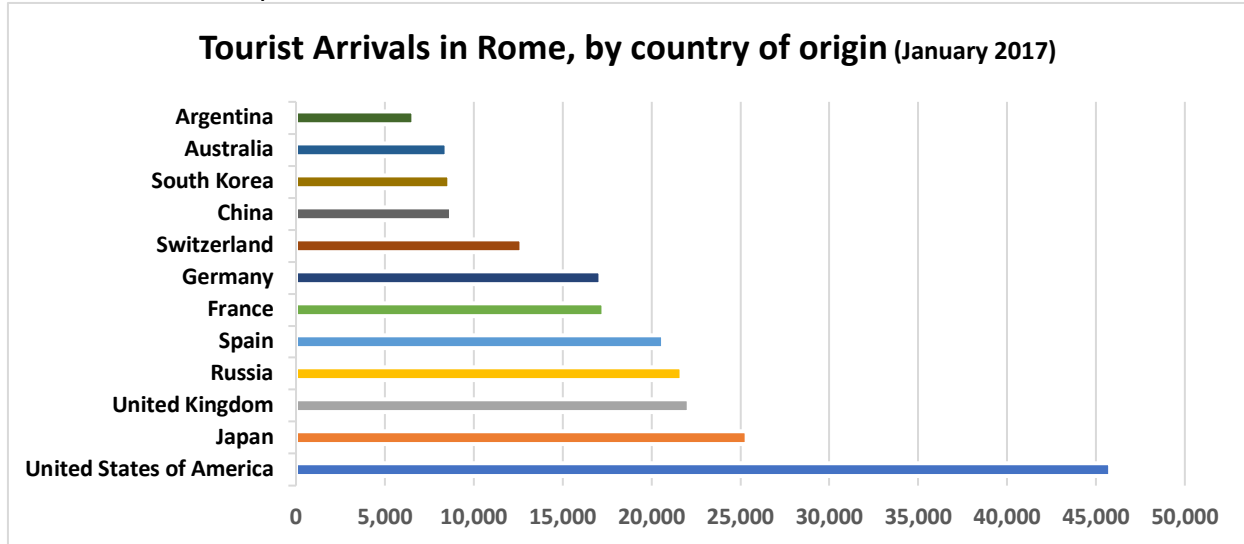


Figure 4 Tourist Arrivals in Rome (January 2017). Source: Statista²⁵

The digitization of government administrative and consultative processes is changing how global cities like the Vatican City State are planned, upgraded, financed and operated.

In the initial phase of digital municipal services, cities moved standalone tax payment, license renewal or other services online, where the city agency involved was at the core of how the online service would be offered and upgraded. This left the citizen or business to navigate the same layers of city government, only now online.

Today, cities leverage the citizen and business' "user experience" of government services as the central organizing principle for mobile and online technology offerings, in essence, virtually customizing city agency programs of benefit to or used by its citizens and businesses quickly,

²² Euromonitor International, *Top 100 City Destinations Ranking* (WTM London 2017 Edition), retrieved March 12, 2018, from http://go.euromonitor.com/Top_100_City_Destinations_WTM_Form_Download.html; U.S. News and World Report, *World's Best Places to Visit*, retrieved March 12, 2018, from <https://travel.usnews.com/rankings/worlds-best-vacations/>, and *Rome Guide*, retrieved March 12, 2018, from https://travel.usnews.com/Rome_Italy/.

²³ UNWTO, *Tourism Highlights – 2017 Edition* (July 2017), retrieved March 12, 2018, from <https://www.e-unwto.org/doi/book/10.18111/9789284419029>.

²⁴ UNWTO, *Tourism and the Sustainable Development Goals – Journey to 2030* (January 2018), retrieved March 12, 2018, from <https://www.e-unwto.org/doi/book/10.18111/9789284419401>.

²⁵ Statista - The Statistics Portal, retrieved March 12, 2018, from <https://www.statista.com/statistics/721204/tourist-arrivals-in-rome-by-country-of-origin-italy/>.

efficiently and from anywhere there is a digital connection. On normal days, such tailored user experience is more convenient, and reduces the waste and delay in receiving city services. After a natural disaster or extreme event caused by human or mechanical failure, cities that can communicate and respond to the urgency of fast changing circumstances will respond, recover and rebuild to return to normalcy faster, while saving lives and property.

VIII. Digital City Government Management Improvement Programs

The term “Digital Cities”²⁶ (also “Smart Cities”) describes cities whose city managers and government technologists create holistic technology infrastructures, replacing legacy stand-alone systems with cloud-based information services that are more robust, resist cyberattack, and deal with personal and building identity consistently across all city needs and services.

Cities embracing a digital future are setting up (i) “startup hubs” as incubators, (ii) streamlined municipal licensing and services, (iii) flexible offices, and (iv) programs for expedited access to city data and procurement, startup mentors and angel investors.

Rome is not mentioned in Startup Genome’s ranking of the top global startup hubs.²⁷ This omission suggests that Rome’s unique cultural assets and global role (such as the Catholic Church) could be the basis for a novel “startup hub,” serving Rome and VCS needs, such as

- Improving Tax and Fund Management practices
- Innovation Incubators and “share in savings” programs for private sector methods to be adapted inside government processes and programs
- Intergovernmental program management across global settings

VCS could be a special case for a Smart City. Certainly, digital transformation will be part of VCS’ future. Beyond technology that replace legacy analog and manual processes, the Vatican can demonstrate using Smart City technologies, holistically, to assure that sustainability and resiliency are achieved through all of the VCS’ impacts. Broadening the reach of VCS operations to care for such impacts would make the city not just a Digital or Smart City, but a *Wise City*. (Many of these technology opportunities would have to be coordinated with the city of Rome)

IX. Inspirations from Networks of Cities Facing Similar Resiliency and Sustainability Challenges

Aside from its everyday challenges, the VCS and Rome are situated in active earthquake²⁸ and

²⁶ Denis Alcides Rezende, Mario Procopiuck & Frederico de Carvalho Figueiredo, *Public Policy and a Strategic Digital City Project: A Case Study of the Brazilian Municipality* (Journal of Urban Technology Vol. 22, No. 2 – 2015), pp. 63–83, retrieved March 12, 2018, <http://dx.doi.org/10.1080/10630732.2014.971536>; and World Cities Culture Forum, *Culture and Climate Change Handbook for City Leaders* (2017), retrieved March 12, 2018 from <http://www.worldcitiescultureforum.com/publications/culture-and-sustainability-handbook>.

²⁷ Startup Genome LLC, *2017 Global Startup Ecosystem Report*, retrieved March 12, 2018, from <https://startupgenome.com/report2017/>.

²⁸ Mauro Dolce, Fabio Sabetta and R. Colozza, *Seismic Risk Assessment in the Historical Centre of Rome* (Eleventh World Conference on Earthquake Engineering – 1996), retrieved May 6, 2018, from http://www.iitk.ac.in/nicee/wcee/article/11_298.PDF; Mauro Dolce, The Italian National Seismic Prevention Program (Proceedings of the Fifteenth World Conference On Earthquake Engineering, Lisbon, Portugal, 2012), retrieved May 6, 2018, from

volcano²⁹ regions. When “The Big One” will hit Rome and how continually rebuilt ancient and modern structures will survive is a question of continual concern to be addressed via improved engineering and operational maintenance, monitoring and reconstruction methods.

VCS is geographically linked to the management and conditions of Rome and its suburbs. To its credit, Rome participates in numerous networks of cities where the lessons of modernization, and the “best practices” of facing daily and disaster events, can be distilled, discussed and adapted.

Rome participates in The Rockefeller Foundation’s 100 Resilient Cities Initiative,³⁰ which takes a holistic view of “resilience” so that participating cities, their citizens, businesses and lenders can focus on clear goals. As depicted in Figure 5, the 100 Resilient City Framework consists of 4 categories, of 12 goals, tracked as 52 indicators, derived from 156 variables.³¹ Rome is also a Tier 2 City in the European Union’s Horizon 2020 SMR: Smart Mature Resilience (SMR) Program, which provides additional design insights, budgeting and planning tools.³²

<http://www.civil.ist.utl.pt/~mlopes/conteudos/SISMOS/DOLCE.pdf>; Mariano Angelo Zanini, Lorenzo Hofer, Flora Faleschini and Carlo Pellegrino, The seismic risk map for Italy (Sixth International Workshop on Design in Civil and Environmental Engineering at Caligari Italy – November 9 – 11, 2017), retrieved May 6, 2018, from

https://www.researchgate.net/profile/Mariano_Zanini/publication/321026802_The_seismic_risk_map_for_Italy/links/5a096d1b4585157013a78c50/The-seismic-risk-map-for-Italy.pdf; Edwin Cartlidge, *Deadly Italian quake highlights continuing struggle to communicate risk* (Science Magazine – August 29, 2016), retrieved May 6, 2018, from <http://www.sciencemag.org/news/2016/08/deadly-italian-quake-highlights-continuing-struggle-communicate-risk>.

²⁹ Fabrizio Marra, Mario Gaeta, Biagio Giaccio and Salvatore Stramondo, *Assessing the volcanic hazard for Rome: 40Ar/39Ar and In-SAR constraints on the most recent eruptive activity and present-day uplift at Colli Albani Volcanic District* (Geophysical Research Letters Volume 43 Issue 13 – June 15, 2016), retrieved May 6, 2018, from <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL069518>; Shannon Hall, *A Volcano Might Be Brewing under Rome's Suburbs: Testing the limits of predictions, some geologists say long-silent Colli Albani might be starting a new eruption phase* (Scientific American – July 22, 2016), retrieved May 6, 2018, from <https://www.scientificamerican.com/article/a-volcano-might-be-brewing-under-rome-s-suburbs/>.

³⁰ 100 Resilient Cities, *Rome’s Resilience Challenge*, retrieved May 6, 2018, from <https://100resilientcities.org/cities/rome/>.

³¹ The Rockefeller Foundation and Arup, 100 Resilient Cities -*City Resilience Framework* (April 2014, updated December 2015), p. 4, retrieved May 6, 2018, from <https://assets.rockefellerfoundation.org/app/uploads/20140410162455/City-Resilience-Framework-2015.pdf>.

³² SMR Consortium, *City of Rome SMR Fact Sheet*, retrieved May 6, 2018, from <http://smr-project.eu/rome/>.

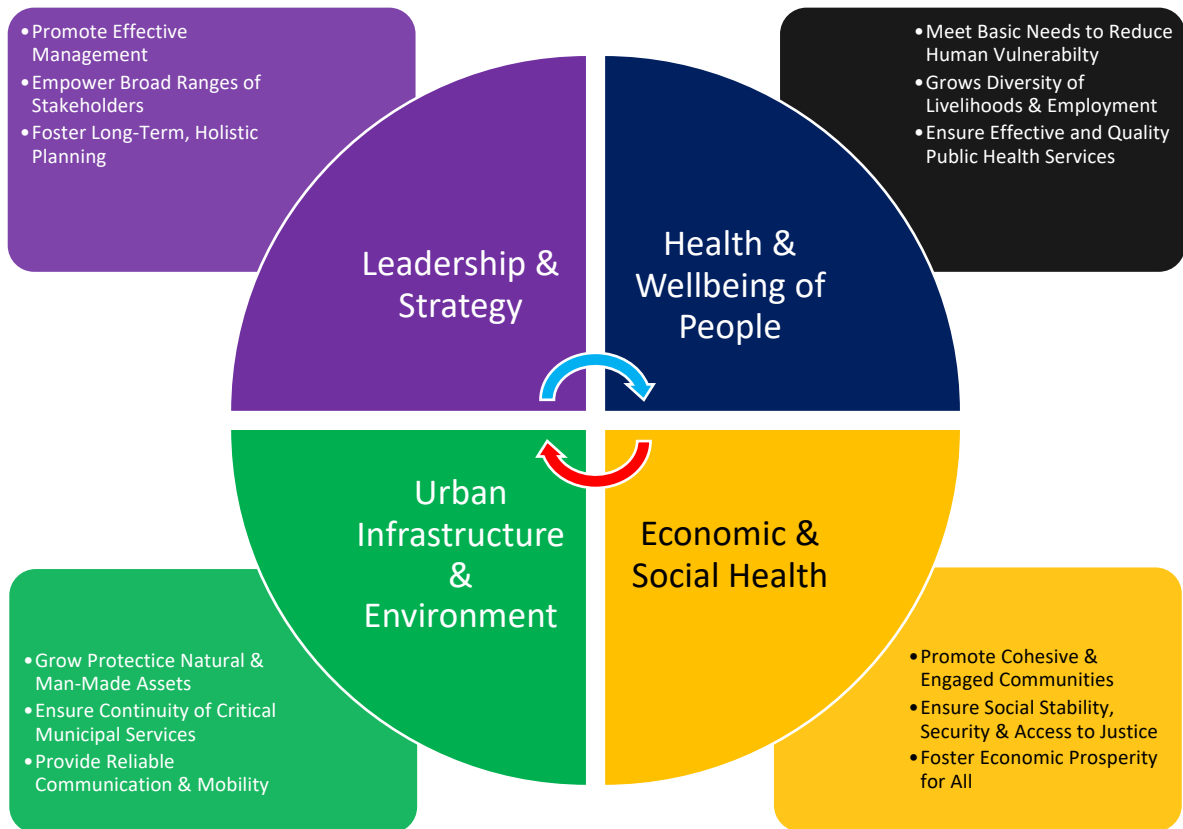


Figure 5 Rockefeller Foundation 100 Resilient Cities Framework

Like urban resiliency, *urban sustainability* is susceptible of nuanced interpretation, as qualitative goals quantifiably achieved, drive rethinking about the cascading decisions and their networks, seeking private profits and incomes using human labor, planetary resources and technological infrastructure.

By some measures, Rome ranks very highly as a “sustainable city,”³³ with room to improve if mentored by higher-ranked city managers. C40 is a leading network of city mayors driving climate change mitigation and environmentally-friendly initiatives.³⁴ While Rome is committed as a signatory to the C40 Initiative, Rome has yet to complete its C40 inventory of CO₂ emissions, target emission reduction activities, and plan for such activities.³⁵ Rome is also committed to the Global Compact of Mayors for Climate & Energy (**Global Compact of Mayors**), but likewise Rome has yet to complete its Global Compact inventory of CO₂ emissions, target emission reduction activities, and plan for such activities.³⁶

³³ Chamber of Commerce Amsterdam, *Arcadis100 Sustainable Global Cities* (2016), retrieved May 6, 2018, from <https://www.arcadis.com/en/global/our-perspectives/sustainable-cities-index-2016/comparing-cities/>.

³⁴ C40 Cities Climate Leadership Group, *C40 Programmes*, retrieved May 6, 2018, from <http://www.c40.org/programmes>.

³⁵ C40 Cities Climate Leadership Group, *C40 Rome Profile*, retrieved May 6, 2018, from <http://www.c40.org/cities/rome#city-mayoral-powers>.

³⁶ Global Compact of Mayors, *Rome Profile*, retrieved May 6, 2018, from

Resiliency and sustainability knowledge networks offer new ways to plan, budget, build and adapt the VCS, alongside peer urban managers globally. Indeed, there is a natural symmetry between the goals of resiliency and sustainability as a secular management concern, and the theological requirements of urban managers who adhere to CST or other faith-based traditions for managing local government services. Given the density of Rome and the VCS, much experimentation could be designed, prototyped and reported from the Vatican as input into thought leadership about sustainable cities and how to creatively finance them.³⁷

X. Inspirations from Modern Executive Management

In order to attract capital, talent and customers, corporate executives are managing for more than financial performance. Their secular activities inspire reimagining areas where the VCS could be a laboratory for global innovators to bring their talents and technologies to Rome in order to advance CST accountability and impact by

- Building and managing an Ethical Supply Chain
- Recruiting and retaining a Diverse and Talented Workforce
- Empowering an Inspired, Ethical Workforce
- Defining Responsible Innovation, from “business as usual” to “lean startups”
- Supporting Social Entrepreneurs who rebuild bureaucratic and legacy business models in order to improve environmental and social impacts
- Adopting Financial Technology (FinTech) to reduce delay, fraud, waste and opacity, while improving transparency of fund performance and impacts using distributed ledger technologies (blockchain), foreign exchange, asset management dashboards and more
- Adopting Legal Technology (LegalTech) to improve contracting, compliance, due diligence and multi-lingual understanding and conformity of operations via smart contracts and technologically improved access to legal rights and justice
- Adopting Real Estate Technology (RE-Tech) to automate real estate construction, property development, leasing and operations
- Advanced Data-Driven Integrated Frameworks to Holistically Account for Business Impacts

XI. Advanced Technologies and Management Roles in Ethical Improvement of Business Operations and Investments

Vatican City is one of the most photographed places on Earth, and yet the tourists there leave no self-organizing trace of their surprising moments. Via photo sharing and video streaming websites, tourists’ memories are online, but the VCS learns little from the individual and group impressions of what works, what needs to work better, and how to approach using technology from the vantage point of smartphone-enabled tourism.

Likewise, VCS contractors and their supply chains have transitioned to online commerce for accepting purchase orders and credit card payments, billing, receiving payments, making payments to employees, business partners and others, shipping products, clearing customs, and other daily business tasks. Yet the enterprise-wide infrastructure for managing similar

<https://www.globalcovenantofmayors.org/cities/rome/>.

³⁷ World Resources Institute Ross Center for Sustainable Cities and C40 Cities, *Financing Sustainable Cities Initiative*, retrieved May 6, 2018, from <http://financingsustainablecities.org/about>.

operations for and within VCS holistically lags modern destination/tourist cities.

Take the issue of identity management. As each Administrative or Central Office function encounters the same company in the context of a different municipal function, handling and updating the identity of VCS suppliers consistently and cyber-securely presents an enterprise-wide challenge. Assuring the payment of VAT, payroll and other taxes and fees by that company, across all VCS municipal functions is another challenge. Ranking the on-time delivery and quality of company goods and services is a third challenge. Modern procurement optimization systems can assist for the VCS and its vendors to improve efficiency, cost and satisfaction.

As VCS begins to think holistically about municipal operations, new technologies will be extremely valuable. Location aware technologies and geospatial information systems (GIS) will optimize scheduling and moving people and goods physically and temporally (at the right place and right time of day) through the VCS and Rome, using smartphone location discovery apps, Internet of Things (IoT) tags on vehicles and freight, drones and real-time building information modeling and operations conditions applications. As VCS' Administration and Central Office Departments and functions digitize, how its data across all systems is cyber secure, used proactively and analyzed for common good respecting personal privacy and other guidelines and best practices will be a growing challenge.

Most importantly, decision science technologies that harvest and analyze vast quantities of data from disparate sources will create increasingly valuable assets within the VCS. Imagine that a religious or other group visits Rome and the VCS every year, and has a well-tested schedule but wants to find new ideas for discovering the Vatican's history in Rome's context. In planning their next trip, the Vatican's Tourism Office wants to make sure that all options for religious lectures, services, musical performances and source of economic savings, restaurants, hotel quality/cost, outdoor walks, day-trips and shopping excursions take into account the group's preferences, and are informed by similar group's feedback and preferences, and are scheduled to optimize their days' in Rome, and to minimize group waiting times. This logistical hypothetical repeats countless times each day, globally, as groups to the VCS weigh options in organizing their agenda within budget and other constraints. The VCS could learn an enormous amount about cohorts of visitors from how groups make their decisions. Decision science – often referred to as artificial intelligence or machine learning – can optimize choices by ranking key variables according to both the visiting group's preferences on the relevant calendar days.

Taking this hypothetical further, imagine that the tour group wishes to better understand how the VCS is implementing Catholic Social Teachings in environmental stewardship, business ethics and using proceeds of its operations to maintain and upgrade the physical structures of the VCS buildings. Are VCS laborers and contractor employees being paid a living wage, living in quality housing and experiencing reasonable commutes? Are goods, food and other items available for sale in VCS congruent with CST, and how can the tourist trace the supply chain in order to learn how to be a better person upon returning to their own home region, household and business activities? How are cohorts of visitors to the VCS anticipated and accommodated, such as the elderly, the disabled, the poor, the young, groups from specific regions or speaking common language?

Numerous hypotheticals featuring the VCS' use of data and advanced technologies can be imagined. A pivotal question will arise: Does the VCS have the internal data science resources and talent to assemble and collaborate effectively with likeminded external talent and resources?

XII. Applying CST and Modern Management Principles to Vatican's Lines of Business, a few examples...

Like so many municipal governments inside a subsidiarity hierarchy of jurisdictional authorities,³⁸ the VCS is a portfolio of legacy management practices, beliefs, technology systems and people with a broad range of talent, passion, commitments, career trajectories and personal and professional development needs. Because good ideas come from inside and outside existing institutions, the journey of moving VCS' management practices and mechanisms forward will be both planned and opportunistic, as moments of common cause present themselves. Certainly, young people, inspired by first or return visits to the Vatican, will be a fertile source of new ideas and inspire new ways of thinking about VCS' traditional forms of organizing, offering and improving municipal services. Fertile areas for rethinking the Vatican's Lines of Business include:

- Vatican Real Estate Holdings – from virtual design and construction (VDC) planning, to technology-assisted property management and rental, to energy and waste retrofits, to historic preservation archiving and design enforcement
- Vatican Road, Airspace and other infrastructure as transport for pedestrians and freight to reduce surface vehicular traffic congestion and pollution, and to serve as an emergency response infrastructure
- Vatican Personnel Review, Promotion and Management – from worker rights to personal financial management and planning
- Vatican Internet and Telecommunications infrastructure – from high bandwidth and fast broadband, to cyber-protection, to immersive experiential virtual reality glasses and audio tours and historical archeology
- Vatican Energy Efficiency in order to support climate change mitigation commitments
- IOR and Vatican Financial Operations – impacts-aware, high-transparency sustainable banking, finance, insurance, investment and other services inside of Rome and globally
- Vatican City Business Continuity, Disaster Mitigation, Response and Rebuilding
- Community Responsibility and Impacts Dashboards

XIII. Modest proposal for putting new design innovation methods into practice at the Vatican

Global cities, corporations, foundations and NGOs are adopting design thinking as a way to reimagine how to transition legacy products and services, and the enterprises and supply chains organized to deliver value to the customer. Design thinking and innovation methodologies are most effectively learned through practice settings like workshops, innovation laboratories and partnerships with experienced university faculty and consultancies.

As an outgrowth of researching this paper, a constant theme emerged: The Vatican City State is a natural setting for teaching and learning about design thinking and innovation in service of two primary beneficiaries. Firstly, the VCS Departments, their employees and suppliers might benefit from having the continuity of a Design Lab inside of the VCS that serves to iterate change as suggested by VCS personnel or outside parties. Secondly, the VCS Design Lab by being located at The Vatican would inspire millions of visitors from around the globe to *think differently*³⁹ about the legacy, operational, financial and organizational challenges they face, and

³⁸ See Section II, above.

³⁹ Rob Siltanen, *The Real Story Behind Apple's 'Think Different' Campaign* (Forbes Magazine –

to have the courage to try inspired solutions. Throughout the year, the VCS Design Lab could host social entrepreneurs (of all ages), technologists, corporate and NGO managers and others interested in tackling VCS challenges so that the lessons learned and technologies created could be transferred to their home regions.

If the Vatican succeeds as a social entrepreneurship laboratory, the institutional mindset of VCS Departments, how they were first designed to function, and how they currently function may become more open to change, transparency and collaboration. Costs of Vatican operations would likely reduce, and the value of VCS services to tourists, visitors and the Church herself would likely improve.

The Vatican through its VCS operations can serve as a global example of the opportunity to

- Demonstrate and share how many of the priorities and recommendations that are identified as consistent with the Catholic Faith in Catholic Teaching can be implemented in the VCS' and every municipal government's lines of business,
- Pragmatically experiment with and implement aspirational agreements for common good standards (like the Convention on Climate Change COP 21) which reflect the consensus of responsible international and global bodies including the Vatican.
- Model for Catholic and Faith institutions and organizations around the world how heritage and modern faith principles and teaching can be integrated, with the help of various technologies, management and administrative tools, into urban assets, investments and operations.

XIV. Conclusion

The Vatican City State is a beautiful anomaly: part heritage city opening doors to ancient civilizations, part modern city for the daily discovery of archeological moments of meaning, part religious and diplomatic center for the Christian world, part urban infrastructure engineering marvel of human ingenuity and enduring hope, and part tourist city to enjoy the sights, sounds, foods and diversity of Romans, Italians and global citizens.

With its multiple personalities and roles, the VCS can serve as a special place for social entrepreneurs, impact investors, startup founders, technologists and all who want a dense city with bureaucratic processes ripe for reimagination, and tourist and institutional cost savings and improved customer services ready to be awakened.

The spirit of reimagination surrounds the globe, but often struggles to find its allies, its proofs of concept, and resources to scale from ideation, to prototype design, to proven business model, to operating company offering services that third parties find useful and worth buying. Much in Catholic Social Thought aims to support the dreamers and reimagers, whom society often mistakes for misfits or oddballs or fringe players.

The Vatican City State with its defined geographic jurisdictional boundaries and its wider spiritual goals, with its institutional needs for new modern processes, and its vitality as a special cultural resource, could be the perfect laboratory for social entrepreneurs and other reimagers, to design and prototype their best ideas, to launch them, and to contribute to the improvement of urban life in Rome and around the world.

December 14, 2011), <https://www.forbes.com/sites/onmarketing/2011/12/14/the-real-story-behind-apples-think-different-campaign/>

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